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CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	: **WP2419493**	Page	: 1 of 5
Client	: **Manitoba Conservation & Climate**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Amrith Kumar	Account Manager	: Sheriza Rajack-Ahamed
Address	: Box 4000, #4 Highway 502 Lac du Bonnet MB Canada R0E 1A0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 204 345 1415	Telephone	: +1 204 255 9720
Project	: WHITEMOUTH - PWS - 249.25	Date Samples Received	: 12-Aug-2024 13:35
PO	: ----	Date Analysis Commenced	: 14-Aug-2024
C-O-C number	: ----	Issue Date	: 22-Aug-2024 12:28
Sampler	: ----		
Site	: Whitemouth - PWS 249.25 Op ID: 7238		
Quote number	: 2024 WTP Chemistry		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Lee McTavish		Inorganics, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Oleksandr Busel		Inorganics, Winnipeg, Manitoba
Ryan Velasco		Organics, Winnipeg, Manitoba

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.
Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key : LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
% T/cm	% transmittance per centimetre
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre
AU/cm	absorbance units per centimetre
CU	colour units (1 cu = 1 mg/l pt)
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

>: greater than.
<: less than.
Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	RM of Whitemouth Rural Pipeline 1 - Raw	RM of Whitemouth Rural Pipeline 2 - Treated	RM of Whitemouth Rural Pipeline 3 - Distribution @ Mid-Point	RM of Whitemouth Rural Pipeline 1 - Raw	----	----	----
				Sampling date/time	12-Aug-2024 10:30	12-Aug-2024 07:30	12-Aug-2024 10:00	12-Aug-2024 10:30	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2419493-001	WP2419493-002	WP2419493-003	WP2419493-004	--------	--------	--------
Physical Tests											
Absorbance, UV (@ 254nm)	----	E404/WP	AU/cm		0.264	0.0500	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP	mg/L		44.4	38.9	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	mg/L		44.4	38.9	----	----	----	----	----
Colour, true	----	E329/WP	CU		24.6	<5.0	----	----	----	----	----
Conductivity	----	E100/WP	µS/cm		103	176	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		47.7	50.2	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WP	-		-1.18	-1.24	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/WP	-		-0.403	-0.465	----	----	----	----	----
pH	----	E108/WP	pH units		7.65	7.65	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162-L/WP	mg/L		68.9	95.9	----	----	----	----	----
Turbidity	----	E121/WP	NTU		6.09	<0.10	----	----	----	----	----
Transmittance, UV (@ 254nm)	----	E404/WP	% T/cm		54.4	89.1	----	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/WP	mg/L		0.0232	0.0167	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/WP	mg/L		<0.050	Not Detected	----	----	----	----	----
Chloride	16887-00-6	E235.Cl-L/WP	mg/L		2.02	6.08	----	----	----	----	----
Fluoride	16984-48-8	E235.F/WP	mg/L		0.047	<0.020	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/WP	mg/L		0.0152	0.0168	----	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2-L/WP	mg/L		<0.0010	<0.0010	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WP	mg/L		2.92	34.5	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/WP	mg/L		10.9	4.96	----	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		10.8	4.32	----	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	RM of Whitemouth Rural Pipeline 1 - Raw	RM of Whitemouth Rural Pipeline 2 - Treated	RM of Whitemouth Rural Pipeline 3 - Distribution @ Mid-Point	RM of Whitemouth Rural Pipeline 1 - Raw	----	----	----
				Sampling date/time	12-Aug-2024 10:30	12-Aug-2024 07:30	12-Aug-2024 10:00	12-Aug-2024 10:30	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2419493-001	WP2419493-002	WP2419493-003	WP2419493-004	--------	--------	--------
Ion Balance											
Anion sum	----	EC101A/WP	meq/L		1.01	1.67	----	----	----	----	----
Cation sum (total)	----	EC101A/WP	meq/L		1.12	1.73	----	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WP	%		111	104	----	----	----	----	----
Ion balance (APHA)	----	EC101A/WP	%		5.16	1.76	----	----	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/WP	µg/L		163	124	95.2	----	----	----	----
Antimony, total	7440-36-0	E420/WP	µg/L		<0.10	<0.10	<0.10	----	----	----	----
Arsenic, total	7440-38-2	E420/WP	µg/L		0.96	0.39	0.40	----	----	----	----
Barium, total	7440-39-3	E420/WP	µg/L		11.6	9.97	9.71	----	----	----	----
Beryllium, total	7440-41-7	E420/WP	µg/L		<0.020	Not Detected	<0.020	----	----	----	----
Bismuth, total	7440-69-9	E420/WP	µg/L		<0.050	<0.050	<0.050	----	----	----	----
Boron, total	7440-42-8	E420/WP	µg/L		<10	<10	<10	----	----	----	----
Cadmium, total	7440-43-9	E420/WP	µg/L		<0.0050	<0.0050	<0.0050	----	----	----	----
Calcium, total	7440-70-2	E420/WP	µg/L		12600	13000	12800	----	----	----	----
Cesium, total	7440-46-2	E420/WP	µg/L		0.023	<0.010	Not Detected	----	----	----	----
Chromium, total	7440-47-3	E420/WP	µg/L		<0.50	<0.50	<0.50	----	----	----	----
Cobalt, total	7440-48-4	E420/WP	µg/L		0.11	<0.10	<0.10	----	----	----	----
Copper, total	7440-50-8	E420/WP	µg/L		1.31	<0.50	<0.50	----	----	----	----
Iron, total	7439-89-6	E420/WP	µg/L		180	<10	<10	----	----	----	----
Lead, total	7439-92-1	E420/WP	µg/L		0.145	Not Detected	<0.050	----	----	----	----
Lithium, total	7439-93-2	E420/WP	µg/L		1.0	1.5	1.3	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	µg/L		3940	4320	4200	----	----	----	----
Manganese, total	7439-96-5	E420/WP	µg/L		16.6	0.49	0.78	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP	µg/L		0.166	0.176	0.159	----	----	----	----
Nickel, total	7440-02-0	E420/WP	µg/L		0.79	0.74	0.80	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP	µg/L		<50	<50	<50	----	----	----	----

Analytical Results Evaluation

Matrix: **Water**

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	RM of Whitemouth Rural Pipeline 1 - Raw	RM of Whitemouth Rural Pipeline 2 - Treated	RM of Whitemouth Rural Pipeline 3 - Distribution @ Mid-Point	RM of Whitemouth Rural Pipeline 1 - Raw	----	----	----
				Sampling date/time	12-Aug-2024 10:30	12-Aug-2024 07:30	12-Aug-2024 10:00	12-Aug-2024 10:30	----	----	----
				Sub-Matrix	Water	Water	Water	Water	----	----	----
					WP2419493-001	WP2419493-002	WP2419493-003	WP2419493-004	--------	--------	--------
Total Metals											
Potassium, total	7440-09-7	E420/WP	µg/L		889	952	948	----	----	----	----
Rubidium, total	7440-17-7	E420/WP	µg/L		1.74	1.42	1.42	----	----	----	----
Selenium, total	7782-49-2	E420/WP	µg/L		0.064	<0.050	0.063	----	----	----	----
Silicon, total	7440-21-3	E420/WP	µg/L		2390	1990	1960	----	----	----	----
Silver, total	7440-22-4	E420/WP	µg/L		<0.010	Not Detected	Not Detected	----	----	----	----
Sodium, total	7440-23-5	E420/WP	µg/L		2610	15900	15700	----	----	----	----
Strontium, total	7440-24-6	E420/WP	µg/L		25.0	26.6	27.1	----	----	----	----
Sulfur, total	7704-34-9	E420/WP	µg/L		1140	12200	12200	----	----	----	----
Tellurium, total	13494-80-9	E420/WP	µg/L		Not Detected	Not Detected	Not Detected	----	----	----	----
Thallium, total	7440-28-0	E420/WP	µg/L		<0.010	<0.010	<0.010	----	----	----	----
Thorium, total	7440-29-1	E420/WP	µg/L		<0.10	Not Detected	Not Detected	----	----	----	----
Tin, total	7440-31-5	E420/WP	µg/L		<0.10	Not Detected	Not Detected	----	----	----	----
Titanium, total	7440-32-6	E420/WP	µg/L		5.48	Not Detected	<0.30	----	----	----	----
Tungsten, total	7440-33-7	E420/WP	µg/L		Not Detected	Not Detected	Not Detected	----	----	----	----
Uranium, total	7440-61-1	E420/WP	µg/L		0.094	<0.010	<0.010	----	----	----	----
Vanadium, total	7440-62-2	E420/WP	µg/L		1.15	<0.50	<0.50	----	----	----	----
Zinc, total	7440-66-6	E420/WP	µg/L		<3.0	<3.0	7.0	----	----	----	----
Zirconium, total	7440-67-7	E420/WP	µg/L		<0.20	Not Detected	Not Detected	----	----	----	----
Aggregate Organics											
Microcystin	101043-37-2	E576A/WP	µg/L		----	----	----	<0.20	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

Key:

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WP2419493**	Page	: 1 of 13
Client	: **Manitoba Conservation & Climate**	Laboratory	: ALS Environmental - Winnipeg
Contact	: Amrith Kumar	Account Manager	: Sheriza Rajack-Ahamed
Address	: Box 4000, #4 Highway 502 Lac du Bonnet MB Canada R0E 1A0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 204 340 3423	Telephone	: +1 204 255 9720
Project	: WHITEMOUTH - PWS - 249.25	Date Samples Received	: 12-Aug-2024 13:35
PO	: ----	Issue Date	: 22-Aug-2024 12:29
C-O-C number	: ----		
Sampler	: ----		
Site	: Whitemouth - PWS 249.25 Op ID: 7238		
Quote number	: 2024 WTP Chemistry		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Total Metals	QC-MRG6-1605450 001	----	Silver, total	7440-22-4	E420	0.000015 [B] mg/L	0.00001 mg/L	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Microcystin by ELISA (Freeze/Thaw Extraction)										
Amber glass vial RM of Whitemouth Rural Pipeline 1 - Raw	E576A	12-Aug-2024	----	----	----		14-Aug-2024	14 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) RM of Whitemouth Rural Pipeline 1 - Raw	E298	12-Aug-2024	16-Aug-2024	28 days	4 days	✓	16-Aug-2024	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) RM of Whitemouth Rural Pipeline 2 - Treated	E298	12-Aug-2024	19-Aug-2024	28 days	7 days	✓	19-Aug-2024	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE RM of Whitemouth Rural Pipeline 1 - Raw	E235.Br-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE RM of Whitemouth Rural Pipeline 2 - Treated	E235.Br-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE RM of Whitemouth Rural Pipeline 1 - Raw	E235.Cl-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)										
HDPE RM of Whitemouth Rural Pipeline 2 - Treated	E235.Cl-L	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E235.F	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E235.F	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E235.NO3-L	12-Aug-2024	14-Aug-2024	3 days	2 days	✓	14-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E235.NO3-L	12-Aug-2024	14-Aug-2024	3 days	2 days	✓	14-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E235.NO2-L	12-Aug-2024	14-Aug-2024	3 days	2 days	✓	14-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E235.NO2-L	12-Aug-2024	14-Aug-2024	3 days	2 days	✓	14-Aug-2024	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E235.SO4	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E235.SO4	12-Aug-2024	14-Aug-2024	28 days	2 days	✓	14-Aug-2024	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
RM of Whitemouth Rural Pipeline 1 - Raw	E358-L	12-Aug-2024	20-Aug-2024	28 days	8 days	✓	20-Aug-2024	28 days	8 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
RM of Whitemouth Rural Pipeline 2 - Treated	E358-L	12-Aug-2024	20-Aug-2024	28 days	8 days	✓	20-Aug-2024	28 days	8 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
RM of Whitemouth Rural Pipeline 1 - Raw	E355-L	12-Aug-2024	21-Aug-2024	28 days	9 days	✓	21-Aug-2024	28 days	9 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
RM of Whitemouth Rural Pipeline 2 - Treated	E355-L	12-Aug-2024	21-Aug-2024	28 days	9 days	✓	21-Aug-2024	28 days	9 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E290	12-Aug-2024	14-Aug-2024	14 days	3 days	✓	14-Aug-2024	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E290	12-Aug-2024	14-Aug-2024	14 days	3 days	✓	14-Aug-2024	14 days	3 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E329	12-Aug-2024	15-Aug-2024	3 days	3 days	✓	15-Aug-2024	3 days	3 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E329	12-Aug-2024	15-Aug-2024	3 days	3 days	✓	15-Aug-2024	3 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
RM of Whitemouth Rural Pipeline 1 - Raw	E100	12-Aug-2024	14-Aug-2024	28 days	3 days	✓	14-Aug-2024	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
RM of Whitemouth Rural Pipeline 2 - Treated	E100	12-Aug-2024	14-Aug-2024	28 days	3 days	✓	14-Aug-2024	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE RM of Whitemouth Rural Pipeline 1 - Raw	E108	12-Aug-2024	14-Aug-2024	0.25 hrs	60 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	60 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE RM of Whitemouth Rural Pipeline 2 - Treated	E108	12-Aug-2024	14-Aug-2024	0.25 hrs	63 hrs	× EHTR-FM	14-Aug-2024	0.25 hrs	63 hrs	× EHTR-FM
Physical Tests : TDS by Gravimetry (Low Level)										
HDPE RM of Whitemouth Rural Pipeline 1 - Raw	E162-L	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : TDS by Gravimetry (Low Level)										
HDPE RM of Whitemouth Rural Pipeline 2 - Treated	E162-L	12-Aug-2024	----	----	----		15-Aug-2024	7 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE RM of Whitemouth Rural Pipeline 1 - Raw	E121	12-Aug-2024	----	----	----		15-Aug-2024	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE RM of Whitemouth Rural Pipeline 2 - Treated	E121	12-Aug-2024	----	----	----		15-Aug-2024	3 days	3 days	✓
Physical Tests : UV Absorbance and Transmittance by Spectrometry										
HDPE RM of Whitemouth Rural Pipeline 1 - Raw	E404	12-Aug-2024	----	----	----		14-Aug-2024	3 days	2 days	✓
Physical Tests : UV Absorbance and Transmittance by Spectrometry										
HDPE RM of Whitemouth Rural Pipeline 2 - Treated	E404	12-Aug-2024	----	----	----		14-Aug-2024	3 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) RM of Whitemouth Rural Pipeline 1 - Raw	E420	12-Aug-2024	16-Aug-2024	180 days	4 days	✓	16-Aug-2024	180 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
RM of Whitemouth Rural Pipeline 2 - Treated	E420	12-Aug-2024	20-Aug-2024	180 days	8 days	✓	20-Aug-2024	180 days	8 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
RM of Whitemouth Rural Pipeline 3 - Distribution @ Mid-Point	E420	12-Aug-2024	20-Aug-2024	180 days	8 days	✓	20-Aug-2024	180 days	8 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	1597419	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1599392	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1597089	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1597082	1	11	9.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1598427	1	19	5.2	5.0	✓
Conductivity in Water	E100	1597418	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1606174	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1597085	1	5	20.0	5.0	✓
Microcystin by ELISA (Freeze/Thaw Extraction)	E576A	1595241	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1597083	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1597084	1	9	11.1	5.0	✓
pH by Meter	E108	1597417	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1597081	1	11	9.0	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1596972	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1599785	2	39	5.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1607372	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1598214	1	20	5.0	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1599501	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	1597419	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1599392	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1597089	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1597082	1	11	9.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1598427	1	19	5.2	5.0	✓
Conductivity in Water	E100	1597418	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1606174	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1597085	1	5	20.0	5.0	✓
Microcystin by ELISA (Freeze/Thaw Extraction)	E576A	1595241	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1597083	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1597084	1	9	11.1	5.0	✓
pH by Meter	E108	1597417	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	1597081	1	11	9.0	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1596972	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1599785	2	39	5.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1607372	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1598214	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
UV Absorbance and Transmittance by Spectrometry	E404	1599501	1	9	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	1597419	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	1599392	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1597089	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1597082	1	11	9.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	1598427	1	19	5.2	5.0	✓
Conductivity in Water	E100	1597418	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1606174	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1597085	1	5	20.0	5.0	✓
Microcystin by ELISA (Freeze/Thaw Extraction)	E576A	1595241	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1597083	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1597084	1	9	11.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1597081	1	11	9.0	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	1596972	1	19	5.2	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1599785	2	39	5.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1607372	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	1598214	1	20	5.0	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	1599501	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	1599392	2	40	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	1597089	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	1597082	1	11	9.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1606174	1	20	5.0	5.0	✓
Fluoride in Water by IC	E235.F	1597085	1	5	20.0	5.0	✓
Microcystin by ELISA (Freeze/Thaw Extraction)	E576A	1595241	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	1597083	1	9	11.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	1597084	1	9	11.1	5.0	✓
Sulfate in Water by IC	E235.SO4	1597081	1	11	9.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1599785	2	39	5.1	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	1607372	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 ALS Environmental - Winnipeg	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 ALS Environmental - Winnipeg	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 ALS Environmental - Winnipeg	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TDS by Gravimetry (Low Level)	E162-L ALS Environmental - Winnipeg	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC (Low Level)	E235.Cl-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Winnipeg	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Winnipeg	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Winnipeg	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Colour (True) by Spectrometer (5 CU)	E329 ALS Environmental - Winnipeg	Water	APHA 2120 C (mod)	Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
UV Absorbance and Transmittance by Spectrometry	E404 ALS Environmental - Winnipeg	Water	APHA 5910 B (mod)	UV Absorbance is determined by first filtering a sample through a 0.45 micron filter, followed by UV absorbance measurement in a quartz cell at 254 nm. The analysis is carried out without pH adjustment.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Winnipeg	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Microcystin by ELISA (Freeze/Thaw Extraction)	E576A ALS Environmental - Winnipeg	Water	ENVIROLOGIX QUANTIPLATE KIT CAT. EP022	Total Microcystins (intraceller and extraceller) in aqueous matrices is determined by the Enzyme-Linked ImmunoSorbent Assay (ELISA) method. Extraction is by Freeze/Thaw Cycle

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Winnipeg	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Ion Balance using Total Metals	EC101A ALS Environmental - Winnipeg	Water	APHA 1030E	Cation Sum (using total metals), Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
Saturation Index using Laboratory pH (Ca-T)	EC105A ALS Environmental - Winnipeg	Water	APHA 2330B	Langelier Index provides an indication of scale formation potential at a given pH and temperature, and is calculated as per APHA 2330B Saturation Index. Positive values indicate oversaturation with respect to CaCO3. Negative values indicate undersaturation of CaCO3. This calculation uses laboratory pH measurements and provides estimates of Langelier Index at temperatures of 4, 15, 20, 25, 66, and 77°C. Ryznar Stability Index is an alternative index used for scale formation and corrosion potential.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Winnipeg	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Winnipeg	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon

QUALITY CONTROL REPORT

Work Order	: **WP2419493**	Page	: 1 of 17
Client	: Manitoba Conservation & Climate	Laboratory	: ALS Environmental - Winnipeg
Contact	: Amrith Kumar	Account Manager	: Sheriza Rajack-Ahamed
Address	: 249.25 - Whitemouth - PWS Box 248 Whitemouth MB Canada R0E 2G0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: 204 340 3423	Telephone	: +1 204 255 9720
Project	: WHITEMOUTH - PWS - 249.25	Date Samples Received	: 12-Aug-2024 13:35
PO	: ----	Date Analysis Commenced	: 14-Aug-2024
C-O-C number	: ----	Issue Date	: 22-Aug-2024 12:28
Sampler	: ----		
Site	: Whitemouth - PWS 249.25 Op ID: 7238		
Quote number	: 2024 WTP Chemistry		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Lee McTavish		Winnipeg Inorganics, Winnipeg, Manitoba
Lee McTavish		Winnipeg Metals, Winnipeg, Manitoba
Oleksandr Busel		Winnipeg Inorganics, Winnipeg, Manitoba
Ryan Velasco		Winnipeg Organics, Winnipeg, Manitoba

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1596972)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Solids, total dissolved [TDS]	----	E162-L	10.0	mg/L	68.9	71.6	2.7	Diff <2x LOR	----
Physical Tests (QC Lot: 1597417)											
WP2419533-001	Anonymous	pH	----	E108	0.10	pH units	8.17	8.17	0.00%	4%	----
Physical Tests (QC Lot: 1597418)											
WP2419533-001	Anonymous	Conductivity	----	E100	2.0	µS/cm	955	957	0.209%	10%	----
Physical Tests (QC Lot: 1597419)											
WP2419533-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	285	287	0.595%	20%	----
Physical Tests (QC Lot: 1598214)											
WP2419419-001	Anonymous	Turbidity	----	E121	0.10	NTU	0.30	0.18	0.11	Diff <2x LOR	----
Physical Tests (QC Lot: 1598427)											
WP2419446-001	Anonymous	Colour, true	----	E329	5.0	CU	11.7	10.9	0.8	Diff <2x LOR	----
Physical Tests (QC Lot: 1599501)											
WP2419327-001	Anonymous	Absorbance, UV (@ 254nm)	----	E404	0.0050	AU/cm	0.357	0.358	0.280%	20%	----
Anions and Nutrients (QC Lot: 1597081)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.92	2.91	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1597082)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Chloride	16887-00-6	E235.Cl-L	0.10	mg/L	2.02	2.06	1.93%	20%	----
Anions and Nutrients (QC Lot: 1597083)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0152	0.0151	0.00006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1597084)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1597085)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.047	0.046	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1597089)											
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1599392)											
WP2419280-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0100	mg/L	0.583	0.581	0.459%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 1603227)											
WP2419493-002	RM of Whitemouth Rural Pipeline 2 - Treated	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0167	0.0112	0.0055	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1606174)											
WP2418506-006	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	23.4	24.2	3.38%	20%	----
Organic / Inorganic Carbon (QC Lot: 1607372)											
WP2419729-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	6.27	6.32	0.778%	20%	----
Total Metals (QC Lot: 1599785)											
WP2419442-013	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0136	0.0131	0.0005	Diff <2x LOR	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.00025	0.00024	0.000004	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00084	0.00086	0.00002	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0204	0.0205	0.409%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.092	0.092	0.0007	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000082	0.0000096	0.0000015	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	31.6	31.0	2.16%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.159	0.158	1.06%	20%	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.014	0.014	0.00004	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.423	0.429	1.34%	20%	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0304	0.0296	2.82%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	8.36	8.47	1.30%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0142	0.0139	2.08%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00188	0.00185	1.83%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00100	0.00098	0.00002	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	6.96	6.89	0.938%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00179	0.00173	0.00006	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000190	0.000195	0.000005	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	2.76	2.70	2.46%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	0.000013	<0.000010	0.000003	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	34.9	35.3	1.22%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	0.125	0.123	2.00%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1599785) - continued											
WP2419442-013	Anonymous	Sulfur, total	7704-34-9	E420	0.50	mg/L	40.4	40.6	0.434%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.000013	0.000012	0.000002	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.000239	0.000237	0.740%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00095	0.00095	0.0000009	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0175	0.0168	0.0007	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 1605450)											
WP2419447-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	580 µg/L	0.593	2.19%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	0.11 µg/L	0.00011	0.0000005	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	1.78 µg/L	0.00181	1.74%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	36.3 µg/L	0.0357	1.86%	20%	----
		Beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.020 µg/L	0.000026	0.000006	Diff <2x LOR	----
		Bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.010	mg/L	27 µg/L	0.027	0.00006	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0054 µg/L	0.0000064	0.0000011	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	24900 µg/L	24.7	0.745%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	0.070 µg/L	0.000070	0.0000002	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	0.00117	0.00116	0.000003	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.31 µg/L	0.00031	0.0000002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	2.04 µg/L	0.00198	0.00006	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	596 µg/L	0.616	3.36%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.264 µg/L	0.000263	0.0000010	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	11.7 µg/L	0.0116	1.14%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	14200 µg/L	14.6	2.64%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	18.3 µg/L	0.0181	1.14%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.721 µg/L	0.000715	0.926%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	1.69 µg/L	0.00176	0.00006	Diff <2x LOR	----
		Phosphorus, total	7723-14-0	E420	0.050	mg/L	57 µg/L	0.070	0.013	Diff <2x LOR	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	3160 µg/L	3.18	0.529%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1605450) - continued											
WP2419447-001	Anonymous	Rubidium, total	7440-17-7	E420	0.00020	mg/L	2.54 µg/L	0.00261	2.66%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.143 µg/L	0.000172	0.000029	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	4010 µg/L	4.04	0.822%	20%	----
		Silver, total	7440-22-4	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	16800 µg/L	17.2	2.52%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	111 µg/L	0.111	0.172%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	13300 µg/L	13.3	0.0456%	20%	----
		Tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Thallium, total	7440-28-0	E420	0.000010	mg/L	0.012 µg/L	0.000011	0.0000008	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	0.13 µg/L	0.00013	0.000002	Diff <2x LOR	----
		Tin, total	7440-31-5	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Titanium, total	7440-32-6	E420	0.00030	mg/L	24.6 µg/L	0.0245	0.463%	20%	----
		Tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		Uranium, total	7440-61-1	E420	0.000010	mg/L	0.835 µg/L	0.000848	1.51%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	2.57 µg/L	0.00256	0.000008	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<3.0 µg/L	<0.0030	0	Diff <2x LOR	----
		Zirconium, total	7440-67-7	E420	0.00020	mg/L	0.75 µg/L	0.00051	0.00024	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1595241)											
WP2419385-001	Anonymous	Microcystin	101043-37-2	E576A	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1596972)						
Solids, total dissolved [TDS]	----	E162-L	3	mg/L	<3.0	----
Physical Tests (QCLot: 1597418)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 1597419)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 1598214)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 1598427)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 1599501)						
Absorbance, UV (@ 254nm)	----	E404	0.005	AU/cm	<0.0050	----
Anions and Nutrients (QCLot: 1597081)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1597082)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1597083)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1597084)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1597085)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1597089)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1599392)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1603227)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1606174)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 1607372)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1599785)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1599785) - continued						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1599785) - continued						
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 1605450)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Silver, total	7440-22-4	E420	0.00001	mg/L	# 0.000015	B
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1605450) - continued						
Thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	----
Tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Aggregate Organics (QCLot: 1595241)						
Microcystin	101043-37-2	E576A	0.2	µg/L	<0.20	----

Qualifiers

Qualifier	Description
B	*Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.*

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1596972)									
Solids, total dissolved [TDS]	----	E162-L	3	mg/L	1000 mg/L	95.8	85.0	115	----
Physical Tests (QCLot: 1597417)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 1597418)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	99.4	90.0	110	----
Physical Tests (QCLot: 1597419)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	100 mg/L	100	85.0	115	----
Physical Tests (QCLot: 1598214)									
Turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 1598427)									
Colour, true	----	E329	5	CU	250 CU	101	85.0	115	----
Physical Tests (QCLot: 1599501)									
Absorbance, UV (@ 254nm)	----	E404	0.005	AU/cm	0.582 AU/cm	103	85.0	115	----
Anions and Nutrients (QCLot: 1597081)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	98.4	90.0	110	----
Anions and Nutrients (QCLot: 1597082)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	97.5	90.0	110	----
Anions and Nutrients (QCLot: 1597083)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	98.4	90.0	110	----
Anions and Nutrients (QCLot: 1597084)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.9	90.0	110	----
Anions and Nutrients (QCLot: 1597085)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 1597089)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	95.7	85.0	115	----
Anions and Nutrients (QCLot: 1599392)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	94.8	85.0	115	----
Anions and Nutrients (QCLot: 1603227)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	108	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1606174)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 1606174) - continued									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	97.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1607372)									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	95.3	80.0	120	----
Total Metals (QCLot: 1599785)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	100	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	105	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	106	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	99.4	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	101	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	97.2	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	95.8	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.9	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.1	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	104	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.9	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	95.4	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	99.1	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	95.8	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	98.6	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	93.4	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	94.6	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	93.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	103	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1599785) - continued									
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	99.6	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.1	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	102	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	105	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	100.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.2	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	101	80.0	120	----
Total Metals (QCLot: 1605450)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	101	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	98.6	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	100	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	101	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	101	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	100	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	99.1	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	99.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	99.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	95.3	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.7	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	100	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	111	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	102	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	98.9	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	106	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	98.3	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	97.8	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	97.7	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.7	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	99.6	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1605450) - continued									
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.3	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	95.5	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	100.0	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	94.9	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.6	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.0	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	101	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.1	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	99.2	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	96.7	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Aggregate Organics (QCLot: 1595241)									
Microcystin	101043-37-2	E576A	0.2	µg/L	0.5 µg/L	112	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1597081)										
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Sulfate (as SO4)	14808-79-8	E235.SO4	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1597082)										
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Chloride	16887-00-6	E235.Cl-L	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1597083)										
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Nitrate (as N)	14797-55-8	E235.NO3-L	2.54 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1597084)										
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Nitrite (as N)	14797-65-0	E235.NO2-L	0.511 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1597085)										
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Fluoride	16984-48-8	E235.F	1.02 mg/L	1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 1597089)										
WP2419493-001	RM of Whitemouth Rural Pipeline 1 - Raw	Bromide	24959-67-9	E235.Br-L	0.497 mg/L	0.5 mg/L	99.4	75.0	125	----
Anions and Nutrients (QCLot: 1599392)										
WP2419280-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1603227)										
WP2419493-002	RM of Whitemouth Rural Pipeline 2 - Treated	Ammonia, total (as N)	7664-41-7	E298	0.0901 mg/L	0.1 mg/L	90.1	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1606174)										
WP2418506-007	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1607372)										
WP2419729-005	Anonymous	Carbon, total organic [TOC]	----	E355-L	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 1599785)										
WP2419442-013	Anonymous	Aluminum, total	7429-90-5	E420	0.195 mg/L	0.2 mg/L	97.6	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.00941 mg/L	0.01 mg/L	94.1	70.0	130	----
		Boron, total	7440-42-8	E420	0.096 mg/L	0.1 mg/L	95.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1599785) - continued										
WP2419442-013	Anonymous	Cadmium, total	7440-43-9	E420	0.00404 mg/L	0.004 mg/L	101	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	1.98 mg/L	2 mg/L	98.8	70.0	130	----
		Lead, total	7439-92-1	E420	ND mg/L	----	ND	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0965 mg/L	0.1 mg/L	96.5	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.2 mg/L	10 mg/L	102	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0396 mg/L	0.04 mg/L	99.1	70.0	130	----
		Silicon, total	7440-21-3	E420	9.40 mg/L	10 mg/L	94.0	70.0	130	----
		Silver, total	7440-22-4	E420	0.00393 mg/L	0.004 mg/L	98.3	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	ND mg/L	----	ND	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0400 mg/L	0.04 mg/L	100	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00373 mg/L	0.004 mg/L	93.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	----
		Tin, total	7440-31-5	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0397 mg/L	0.04 mg/L	99.4	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0191 mg/L	0.02 mg/L	95.7	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.0988 mg/L	0.1 mg/L	98.8	70.0	130	----
		Zinc, total	7440-66-6	E420	0.380 mg/L	0.4 mg/L	94.9	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Total Metals (QCLot: 1605450)										
WP2419447-001	Anonymous	Aluminum, total	7429-90-5	E420	ND mg/L	----	ND	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0414 mg/L	0.04 mg/L	104	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	----
		Boron, total	7440-42-8	E420	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00409 mg/L	0.004 mg/L	102	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.00987 mg/L	0.01 mg/L	98.7	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0418 mg/L	0.04 mg/L	104	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1605450) - continued										
WP2419447-001	Anonymous	Cobalt, total	7440-48-4	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Copper, total	7440-50-8	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Iron, total	7439-89-6	E420	2.08 mg/L	2 mg/L	104	70.0	130	----
		Lead, total	7439-92-1	E420	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	----
		Lithium, total	7439-93-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		Phosphorus, total	7723-14-0	E420	11.0 mg/L	10 mg/L	110	70.0	130	----
		Potassium, total	7440-09-7	E420	4.11 mg/L	4 mg/L	103	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0427 mg/L	0.04 mg/L	107	70.0	130	----
		Silicon, total	7440-21-3	E420	9.97 mg/L	10 mg/L	99.7	70.0	130	----
		Silver, total	7440-22-4	E420	0.00415 mg/L	0.004 mg/L	104	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----
		Strontium, total	7440-24-6	E420	ND mg/L	----	ND	70.0	130	----
		Sulfur, total	7704-34-9	E420	21.4 mg/L	20 mg/L	107	70.0	130	----
		Tellurium, total	13494-80-9	E420	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Tin, total	7440-31-5	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0413 mg/L	0.04 mg/L	103	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00399 mg/L	0.004 mg/L	99.7	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		Zinc, total	7440-66-6	E420	0.400 mg/L	0.4 mg/L	100.0	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
Aggregate Organics (QCLot: 1595241)										
WP2419385-001	Anonymous	Microcystin	101043-37-2	E576A	1.09 µg/L	1 µg/L	109	50.0	150	----

Manitoba

Office of Drinking Water
14 Fultz Boulevard, Winnipeg, Manitoba,
Canada R3Y 0L6

Chain of Custody (COC)
Manitoba Drinking Water Systems

Regular Service (default):	☑ Regular Service (is 5-7 Days):
Unless otherwise requested	☐ 1 Day, rush / priority ☐ 2 Day, rush / priority ☐ 3 Day, rush / priority

Report to Operator (email PDF):	
Contact:	Glen Campbell
Address:	Box 248, Whitemouth, MB R0E2G0
Phone:	(204) 348-2574
Email:	utility@rmwhitemouth.com

Report to Owner (email PDF):	
Contact:	Colleen Johnson
Address:	Box 248, 49 Railway Avenue, Whitemouth, MB R
Phone:	(204) 348-2221
Email:	cao@rmwhitemouth.com

Email PDF copy to:	
DWO:	Amrith Kumar
DWO Address:	14 Fultz Boulevard, Winnipeg, MB R3Y0L6
DWO Phone:	(204) 340-3423
DWO Email:	Amrith.Kumar@gov.mb.ca
Additional Email:	Joern.Muenster@gov.mb.ca; Taylor.Schellenberg@gov.mb.ca; Marc.Balcaen@gov.mb.ca;

If an update in Owner or Operator contact information is required, please contact your Drinking Water Officer

Client / Project Information:	**Lab:**	**Account:**	Agency Code: 382	Report Type: EMS (Lab-MWS)	Project: DWQ-C

Operation Name:	WHITEMOUTH - PWS	Expected Sample Time:	**August-2024**
Operation Code:	249.25		
Operation ID:	7238		
Sampled by:			

Please record Free & Total Chlorine residuals for Distribution By-product Sampling

DO NOT COPY or RE-USE this form. Sample Number are unique to the Office of Drinking Water and provided by Drinking Water Officer.

Sample Number	Station Number	Sample Identification	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Sample Date dd-mmm-yyyy	Sample Time hh:mm	Sample Matrix	Sample Type	MB-CH-PWS-V2013	MB-MET-T-CCMS	MB-Microcystin	# of Containers
2408AK5021	MB05PHD041	RM of Whitemouth Rural Pipeline 1 - Raw	~	~	AUG 12/24	10:30	6	1	X			4
2408AK5022	MB05PHD042	RM of Whitemouth Rural Pipeline 2 - Treated	1.01	1.27	AUG 12/24	7:30	10	1	X			4
2408AK5023	MB05PHD043	RM of Whitemouth Rural Pipeline 3 - Distribution @Mid-Point	.61	.90	AUG 12/24	10:00	9	1		X		1
2408AK5024	MB05PHD041	RM of Whitemouth Rural Pipeline 1 - Raw	~	~	AUG 12/24	10:30	6	1			X	2

Environmental Division
Winnipeg
Work Order Reference
WP2419493

Telephone : +1 204 255 9720

Failure to complete all portions of this form may delay analysis.
Please fill in this form LEGIBLY.

Sample Matrix: 6-Raw Water, 9-Distributed Water, 10-T
Sample Type: 1-Grab Sample

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified by the Laboratory.
For ALL other testing, please use Laboratory specific forms.

Relinquished By:	GLEN C.	Date & Time	AUG 12/24 @ 10:30	Validated By (lab use only):	Date & Time:
				Sample Condition (lab use only)	
Received By: (lab use only)	GR	Date & Time: (lab use only)	Aug 12, 2024 1:35 pm	Temperature: 18.9°C	Samples Received in Good Condition?

Sample Intake

Client:	ODW / RM of Whitemouth				**COC receipt info complete**	☑
Express TAT?	(no)	Yes: same day	1 day	2 day	3 days	4 day
Short hold time?	(no)	Yes: <24 hrs	1 day	2 days	3 days	4 days
Matrix	(Water)	Soil/solid	Air	Biota	Food/micro	Other

Total number of bottles/fractions: 11			
Green/white	2 x 500	Orange/black	
Purple/white	4 x 100	Dark blue/white	
Red/white	3 x 125	Black/white	
Dark green/white		Brown/white	2 x 40 mL
Grey/white		Pink/white	
Yellow/black		Beige/white	
Light blue/white		Other (specify)	2 x 40 - Brown Microcystin

Comments:

Received with Ice Packs.

Sample Login

Receipt Window	**✓/X**	**N/A**	**Bottles**	**✓/X**	**N/A**
# of fractions, matrix and submatrix			All received bottles have IDs		
Client, office, contact, quote, project			Type, volume, and locations		
Receipt time/date, PO, project, site			Labels and internal COCs printed		
Temp, cooling method, sampler			**Client Contacts**	**✓/X**	**N/A**
Sample Info	**✓/X**	**N/A**	Report/invoice/EDD recipients		
Sample date/time			Report types/formats		
Sample ID/description			**Post-committing**	**✓/X**	**N/A**
Sales items			Runs built and field data entered		
Guidelines/thresholds			Billing information entered		
Additional sample/WO information			**Action Required?**	**Yes**	**No**
Due Dates	**✓/X**	**N/A**	Update default receipt data		
COC/GEL/client due dates match			Update default report data		
Express TAT surcharges			Add sales/billing items to quote		
Clock running for all samples			SIF initiated (elaborate in comments)		

Comments: