CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	:	**WP2518411**			
Client	:	**Manitoba Conservation & Climate**	Laboratory	:	ALS Environmental - Winnipeg
Contact	:	Marc Balcaen	Account Manager	:	Sheriza Rajack-Ahamed
Address	:	14 Fultz Boulevard Winnipeg Manitoba Canada R3Y 0L6	Address	:	1329 Niakwa Road East, Unit 12 Winnipeg MB Canada R2J 3T4
Telephone	:		Telephone	:	+1 204 255 9720
Project	:	Rivers - PWS 181.00	Date Samples Received	:	21-Oct-2025 10:15
PO	:	----	Date Analysis Commenced	:	21-Oct-2025
C-O-C number	:	----	Issue Date	:	27-Oct-2025 12:04
Sampler	:	----			
Site	:	Rivers - PWS 181.00			
Quote number	:	2025 WTP Chemistry			
No. of samples received	:	3			
No. of samples analysed	:	3			

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*
Kevin Baxter	Supervisor - Inorganic	Inorganics, Winnipeg, Manitoba
Kevin Baxter	Supervisor - Inorganic	Administration, Winnipeg, Manitoba
Lee McTavish		Metals, Winnipeg, Manitoba
Lee McTavish		Inorganics, Winnipeg, Manitoba

Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
Rivers 1 - Raw Raw	Water	Colour, true	May interfere with disinfection; removal is important to ensure effective treatment.	CDWG	AO	22.0 CU	15 CU
	Water	Turbidity	For systems that use groundwater, turbidity should generally be below 1.0 NTU. Filtration systems should be designed and operated to reduce turbidity levels as low as reasonably achievable and strive to achieve a treated water turbidity target from individual filters of less than 0.1 NTU.	CDWG	AO	6.50 NTU	1 NTU
	Water	Manganese, total	Based on taste and staining of laundry and plumbing fixtures.	CDWG	AO	52.3 µg/L	20 µg/L
	Water	Aluminum, total	The OG value is established to minimize the potential for the distribution system and to avoid other operational and aesthetic issues. It takes treatment achievability into consideration.	CDWG	OG	287 µg/L	100 µg/L
Rivers 2 - Treated Treated	Water	Aluminum, total	The OG value is established to minimize the potential for the distribution system and to avoid other operational and aesthetic issues. It takes treatment achievability into consideration.	CDWG	OG	209 µg/L	100 µg/L
Rivers 3 - Distribution Mid Distribution	Water	Aluminum, total	The OG value is established to minimize the potential for the distribution system and to avoid other operational and aesthetic issues. It takes treatment achievability into consideration.	CDWG	OG	361 µg/L	100 µg/L

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.

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
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
µg/L	micrograms per litre
µS/cm	microsiemens per centimetre

>: 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	Rivers 1 - Raw Raw	Rivers 2 - Treated Treated	Rivers 3 - Distribution Mid Distribution	----	----	----	----
				Client sampling date / time	20-Oct-2025 09:30	20-Oct-2025 09:30	20-Oct-2025 10:00	----	----	----	----
				Sub-Matrix	Water	Water	Water	----	----	----	----
					WP2518411-001	WP2518411-002	WP2518411-003	----	----	----	----
					Result	Result	Result	----	----	----	----
Field Tests											
Chlorine, free, field	7782-50-5	EF001/WP	mg/L		----	1.32	1.1	----	----	----	----
Chlorine, total, field	7782-50-5	EF001/WP	mg/L		----	1.36	1.14	----	----	----	----
Sample Preparation											
Dissolved carbon filtration location	----	EP358/WP	-		lab	lab	----	----	----	----	----
Physical Tests											
Absorbance, UV (@ 254nm)	----	E404/WP	AU/cm		0.302	0.0110	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	E290/WP	mg/L		199	16.1	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WP	mg/L		28.4	<1.0	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WP	mg/L		<1.0	<1.0	----	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WP	mg/L		228	16.1	----	----	----	----	----
Colour, true	----	E329/WP	CU		22.0	<5.0	----	----	----	----	----
Conductivity	----	E100/WP	µS/cm		731	48.8	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WP	mg/L		310	7.93	----	----	----	----	----
Langelier index (@ 4°C)	----	EC105A/WP	-		1.12	-2.58	----	----	----	----	----
Langelier index (@ 60°C)	----	EC105A/WP	-		1.85	-1.81	----	----	----	----	----
pH	----	E108/WP	pH units		8.72	7.52	----	----	----	----	----
Solids, total dissolved [TDS]	----	E162-L/WP	mg/L		472	28.8	----	----	----	----	----
Turbidity	----	E121/WP	NTU		6.50	<0.10	----	----	----	----	----
Transmittance, UV (@ 254nm)	----	E404/WP	% T/cm		49.9	97.5	----	----	----	----	----

Matrix: Water

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Rivers 1 - Raw Raw	Rivers 2 - Treated Treated	Rivers 3 - Distribution Mid Distribution	----	----	----	----
				Client sampling date / time	20-Oct-2025 09:30	20-Oct-2025 09:30	20-Oct-2025 10:00	----	----	----	----
				Sub-Matrix	Water	Water	Water	----	----	----	----
					WP2518411-001	WP2518411-002	WP2518411-003	----	----	----	----
					Result	Result	Result	----	----	----	----
Anions and Nutrients											
Ammonia, total (as N)	7664-41-7	E298/WP	mg/L		0.0206	0.0147	----	----	----	----	----
Bromide	24959-67-9	E235.Br-L/WP	mg/L		0.024	Not Detected	----	----	----	----	----
Chloride	16887-00-6	E235.Cl-L/WP	mg/L		10.0	2.40	----	----	----	----	----
Fluoride	16984-48-8	E235.F/WP	mg/L		0.158	0.010	----	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3-L/WP	mg/L		0.0510	0.0217	----	----	----	----	----
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		170	3.17	----	----	----	----	----
Organic / Inorganic Carbon											
Carbon, dissolved organic [DOC]	----	E358-L/WP	mg/L		14.1	0.73	----	----	----	----	----
Carbon, total organic [TOC]	----	E355-L/WP	mg/L		15.3	1.23	----	----	----	----	----
Ion Balance											
Anion sum	----	EC101A/WP	meq/L		8.39	0.46	----	----	----	----	----
Cation sum (total)	----	EC101A/WP	meq/L		8.23	0.48	----	----	----	----	----
Ion balance (cations/anions)	----	EC101A/WP	%		98.1	104	----	----	----	----	----
Ion balance (APHA)	----	EC101A/WP	%		-0.963	2.13	----	----	----	----	----
Total Metals											
Aluminum, total	7429-90-5	E420/WP	µg/L		287	209	361	----	----	----	----
Antimony, total	7440-36-0	E420/WP	µg/L		0.16	0.011	0.012	----	----	----	----
Arsenic, total	7440-38-2	E420/WP	µg/L		4.50	0.11	0.16	----	----	----	----
Barium, total	7440-39-3	E420/WP	µg/L		42.3	2.01	2.45	----	----	----	----

Matrix: Water

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Rivers 1 - Raw Raw	Rivers 2 - Treated Treated	Rivers 3 - Distribution Mid Distribution	----	----	----	----
				Client sampling date / time	20-Oct-2025 09:30	20-Oct-2025 09:30	20-Oct-2025 10:00	----	----	----	----
				Sub-Matrix	Water	Water	Water	----	----	----	----
					WP2518411-001	WP2518411-002	WP2518411-003	----	----	----	----
					Result	Result	Result	----	----	----	----
Total Metals											
Beryllium, total	7440-41-7	E420/WP	µg/L		0.0070	0.0052	0.0082	----	----	----	----
Bismuth, total	7440-69-9	E420/WP	µg/L		0.00093	0.0014	0.021	----	----	----	----
Boron, total	7440-42-8	E420/WP	µg/L		214	154	183	----	----	----	----
Cadmium, total	7440-43-9	E420/WP	µg/L		0.0043	Not Detected	0.0014	----	----	----	----
Calcium, total	7440-70-2	E420/WP	µg/L		58500	1710	2090	----	----	----	----
Cesium, total	7440-46-2	E420/WP	µg/L		0.0078	0.0029	0.0050	----	----	----	----
Chromium, total	7440-47-3	E420/WP	µg/L		0.21	0.16	0.20	----	----	----	----
Cobalt, total	7440-48-4	E420/WP	µg/L		0.25	Not Detected	0.010	----	----	----	----
Copper, total	7440-50-8	E420/WP	µg/L		0.45	1.25	14.5	----	----	----	----
Iron, total	7439-89-6	E420/WP	µg/L		35	4.6	7.6	----	----	----	----
Lead, total	7439-92-1	E420/WP	µg/L		0.122	0.090	0.312	----	----	----	----
Lithium, total	7439-93-2	E420/WP	µg/L		79.4	10.1	9.6	----	----	----	----
Magnesium, total	7439-95-4	E420/WP	µg/L		39900	889	863	----	----	----	----
Manganese, total	7439-96-5	E420/WP	µg/L		52.3	0.20	3.08	----	----	----	----
Molybdenum, total	7439-98-7	E420/WP	µg/L		2.15	0.050	0.050	----	----	----	----
Nickel, total	7440-02-0	E420/WP	µg/L		1.16	0.085	0.097	----	----	----	----
Phosphorus, total	7723-14-0	E420/WP	µg/L		148	166	175	----	----	----	----
Potassium, total	7440-09-7	E420/WP	µg/L		7900	827	838	----	----	----	----
Rubidium, total	7440-17-7	E420/WP	µg/L		2.62	0.32	0.34	----	----	----	----

Matrix: Water

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	Rivers 1 - Raw Raw	Rivers 2 - Treated Treated	Rivers 3 - Distribution Mid Distribution	----	----	----	----
				Client sampling date / time	20-Oct-2025 09:30	20-Oct-2025 09:30	20-Oct-2025 10:00	----	----	----	----
				Sub-Matrix	Water	Water	Water	----	----	----	----
					WP2518411-001	WP2518411-002	WP2518411-003	----	----	----	----
					Result	Result	Result	----	----	----	----
Total Metals											
Selenium, total	7782-49-2	E420/WP	µg/L		0.294	Not Detected	0.0083	----	----	----	----
Silicon, total	7440-21-3	E420/WP	µg/L		5150	650	720	----	----	----	----
Silver, total	7440-22-4	E420/WP	µg/L		0.0014	Not Detected	0.0022	----	----	----	----
Sodium, total	7440-23-5	E420/WP	µg/L		41100	6250	6440	----	----	----	----
Strontium, total	7440-24-6	E420/WP	µg/L		307	10.1	12.0	----	----	----	----
Sulfur, total	7704-34-9	E420/WP	µg/L		61000	1070	1020	----	----	----	----
Tellurium, total	13494-80-9	E420/WP	µg/L		0.041	Not Detected	Not Detected	----	----	----	----
Thallium, total	7440-28-0	E420/WP	µg/L		Not Detected	Not Detected	Not Detected	----	----	----	----
Thorium, total	7440-29-1	E420/WP	µg/L		0.012	Not Detected	0.017	----	----	----	----
Tin, total	7440-31-5	E420/WP	µg/L		0.029	0.023	0.031	----	----	----	----
Titanium, total	7440-32-6	E420/WP	µg/L		0.75	0.15	0.25	----	----	----	----
Tungsten, total	7440-33-7	E420/WP	µg/L		Not Detected	Not Detected	0.015	----	----	----	----
Uranium, total	7440-61-1	E420/WP	µg/L		2.30	0.044	0.037	----	----	----	----
Vanadium, total	7440-62-2	E420/WP	µg/L		1.70	0.25	0.30	----	----	----	----
Zinc, total	7440-66-6	E420/WP	µg/L		0.82	1.9	1.4	----	----	----	----
Zirconium, total	7440-67-7	E420/WP	µg/L		0.12	0.067	0.065	----	----	----	----

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

Summary of Guideline Limits

Analyte	CAS Number	Unit	CDWG AO	CDWG MAC	CDWG OG				
Field Tests									
Chlorine, free, field	7782-50-5	mg/L	----	----	----	----	----	----	----
Chlorine, total, field	7782-50-5	mg/L	----	----	----	----	----	----	----
Sample Preparation									
Dissolved carbon filtration location	----	-	----	----	----	----	----	----	----
Physical Tests									
Absorbance, UV (@ 254nm)		AU/cm	----	----	----	----	----	----	----
Alkalinity, bicarbonate (as CaCO3)	----	mg/L	----	----	----	----	----	----	----
Alkalinity, carbonate (as CaCO3)		mg/L	----	----	----	----	----	----	----
Alkalinity, hydroxide (as CaCO3)		mg/L	----	----	----	----	----	----	----
Alkalinity, total (as CaCO3)		mg/L	----	----	----	----	----	----	----
Colour, true		CU	**15 CU**	----	----	----	----	----	----
Conductivity	----	µS/cm	----	----	----	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg		mg/L	----	----	----	----	----	----	----
Langelier index (@ 4°C)		-	----	----	----	----	----	----	----
Langelier index (@ 60°C)		-	----	----	----	----	----	----	----
pH	----	pH units	----	----	**7 - 10.5 pH units**	----	----	----	----
Solids, total dissolved [TDS]		mg/L	**500 mg/L**	----	----	----	----	----	----
Turbidity	----	NTU	**1 NTU**	----	----	----	----	----	----
Transmittance, UV (@ 254nm)		% T/cm	----	----	----	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	mg/L	----	----	----	----	----	----	----
Bromide	24959-67-9	mg/L	----	----	----	----	----	----	----
Chloride	16887-00-6	mg/L	**250 mg/L**	----	----	----	----	----	----

Fluoride	16984-48-8	mg/L	----	**1.5 mg/L**	----	----	----	----	----
Nitrate (as N)	14797-55-8	mg/L	----	**10 mg/L**	----	----	----	----	----
Nitrite (as N)	14797-65-0	mg/L	----	**1 mg/L**	----	----	----	----	----
Sulfate (as SO4)	14808-79-8	mg/L	**500 mg/L**	----	----	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]		mg/L	----	----	----	----	----	----	----
Carbon, total organic [TOC]		mg/L	----	----	----	----	----	----	----
Ion Balance									
Anion sum		meq/L	----	----	----	----	----	----	----
Cation sum (total)	----	meq/L	----	----	----	----	----	----	----
Ion balance (cations/anions)	----	%	----	----	----	----	----	----	----
Ion balance (APHA)	----	%	----	----	----	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	µg/L	----	**2900 µg/L**	**100 µg/L**	----	----	----	----
Antimony, total	7440-36-0	µg/L	----	**6 µg/L**	----	----	----	----	----
Arsenic, total	7440-38-2	µg/L	----	**10 µg/L**	----	----	----	----	----
Barium, total	7440-39-3	µg/L	----	**2000 µg/L**	----	----	----	----	----
Beryllium, total	7440-41-7	µg/L	----	----	----	----	----	----	----
Bismuth, total	7440-69-9	µg/L	----	----	----	----	----	----	----
Boron, total	7440-42-8	µg/L	----	**5000 µg/L**	----	----	----	----	----
Cadmium, total	7440-43-9	µg/L	----	**7 µg/L**	----	----	----	----	----
Calcium, total	7440-70-2	µg/L	----	----	----	----	----	----	----
Cesium, total	7440-46-2	µg/L	----	----	----	----	----	----	----
Chromium, total	7440-47-3	µg/L	----	**50 µg/L**	----	----	----	----	----
Cobalt, total	7440-48-4	µg/L	----	----	----	----	----	----	----
Copper, total	7440-50-8	µg/L	**1000 µg/L**	**2000 µg/L**	----	----	----	----	----
Iron, total	7439-89-6	µg/L	**100 µg/L**	----	----	----	----	----	----
Lead, total	7439-92-1	µg/L	----	**5 µg/L**	----	----	----	----	----

Lithium, total	7439-93-2	µg/L	----	----	----	----	----	----	----
Magnesium, total	7439-95-4	µg/L	----	----	----	----	----	----	----
Manganese, total	7439-96-5	µg/L	**20 µg/L**	**120 µg/L**	----	----	----	----	----
Molybdenum, total	7439-98-7	µg/L	----	----	----	----	----	----	----
Nickel, total	7440-02-0	µg/L	----	----	----	----	----	----	----
Phosphorus, total	7723-14-0	µg/L	----	----	----	----	----	----	----
Potassium, total	7440-09-7	µg/L	----	----	----	----	----	----	----
Rubidium, total	7440-17-7	µg/L	----	----	----	----	----	----	----
Selenium, total	7782-49-2	µg/L	----	**50 µg/L**	----	----	----	----	----
Silicon, total	7440-21-3	µg/L	----	----	----	----	----	----	----
Silver, total	7440-22-4	µg/L	----	----	----	----	----	----	----
Sodium, total	7440-23-5	µg/L	**200000 µg/L**	----	----	----	----	----	----
Strontium, total	7440-24-6	µg/L	----	**7000 µg/L**	----	----	----	----	----
Sulfur, total	7704-34-9	µg/L	----	----	----	----	----	----	----
Tellurium, total	13494-80-9	µg/L	----	----	----	----	----	----	----
Thallium, total	7440-28-0	µg/L	----	----	----	----	----	----	----
Thorium, total	7440-29-1	µg/L	----	----	----	----	----	----	----
Tin, total	7440-31-5	µg/L	----	----	----	----	----	----	----
Titanium, total	7440-32-6	µg/L	----	----	----	----	----	----	----
Tungsten, total	7440-33-7	µg/L	----	----	----	----	----	----	----
Uranium, total	7440-61-1	µg/L	----	**20 µg/L**	----	----	----	----	----
Vanadium, total	7440-62-2	µg/L	----	----	----	----	----	----	----
Zinc, total	7440-66-6	µg/L	**5000 µg/L**	----	----	----	----	----	----
Zirconium, total	7440-67-7	µg/L	----	----	----	----	----	----	----

Key:

CDWG		Canada Guidelines for Canadian Drinking Water Quality (JAN, 2023)
	AO	Aesthetic Objective
	MAC	Maximum Acceptable Concentrations
	OG	Operational Guidance

Quality Control Interpretive Report

Work Order	:	**WP2518411**		
Client	:	Manitoba Conservation & Climate	Laboratory	: ALS Environmental - Winnipeg
Contact	:	Marc Balcaen	Account Manager	: Sheriza Rajack-Ahamed
Address	:	14 Fultz Boulevard Winnipeg MB Canada R3Y 0L6	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg MB Canada R2J 3T4
Telephone	:		Telephone	: +1 204 255 9720
Project	:	Rivers - PWS 181.00	Date Samples Received	: 21-Oct-2025 10:15
PO	:	----	Issue Date	: 05-Nov-2025 06:01
C-O-C number	:	----		
Sampler	:	----		
Site	:	Rivers - PWS 181.00		
Quote number	:	2025 WTP Chemistry		
No. of samples received	:	3		
No. of samples analysed	:	3		

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 Services 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 Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Laboratory Control Sample Duplicate (LCSD) outliers occur
- No Matrix Spike outliers occur.
- No Matrix Spike Duplicate (MSD) outliers occur.
- 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.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

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	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence												
Amber glass total (sulfuric acid)												
Rivers 1 - Raw - Raw	001	2290794	E298	20-Oct-2025	21-Oct-2025	28 days	1 days	✓	22-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2290794	E298	20-Oct-2025	21-Oct-2025	28 days	1 days	✓	22-Oct-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)												
HDPE												
Rivers 1 - Raw - Raw	001	2291631	E235.Br-L	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291631	E235.Br-L	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC (Low Level)												
HDPE												
Rivers 1 - Raw - Raw	001	2291632	E235.Cl-L	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291632	E235.Cl-L	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC												
HDPE												
Rivers 1 - Raw - Raw	001	2291630	E235.F	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291630	E235.F	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓

Matrix: Water

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

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)												
HDPE												
Rivers 1 - Raw - Raw	001	2291633	E235.NO3-L	20-Oct-2025	22-Oct-2025	3 days	2 days	✓	22-Oct-2025	3 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291633	E235.NO3-L	20-Oct-2025	22-Oct-2025	3 days	2 days	✓	22-Oct-2025	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)												
HDPE												
Rivers 1 - Raw - Raw	001	2291635	E235.NO2-L	20-Oct-2025	22-Oct-2025	3 days	2 days	✓	22-Oct-2025	3 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291635	E235.NO2-L	20-Oct-2025	22-Oct-2025	3 days	2 days	✓	22-Oct-2025	3 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC												
HDPE												
Rivers 1 - Raw - Raw	001	2291629	E235.SO4	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291629	E235.SO4	20-Oct-2025	22-Oct-2025	28 days	2 days	✓	22-Oct-2025	28 days	2 days	✓
Field Tests : Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine												
HDPE total (nitric acid)												
Rivers 2 - Treated - Treated	002		EF001	20-Oct-2025	----	----	----		23-Oct-2025	----	----	
Rivers 3 - Distribution Mid - Distribution	003		EF001	20-Oct-2025	----	----	----		23-Oct-2025	----	----	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)												
Amber glass - dissolved (field filtered/sulfuric acid)												
Rivers 1 - Raw - Raw	001	2290740	E358-L	20-Oct-2025	21-Oct-2025	28 days	1 days	✓	22-Oct-2025	28 days	1 days	✓
Rivers 2 - Treated - Treated	002	2290740	E358-L	20-Oct-2025	21-Oct-2025	28 days	1 days	✓	22-Oct-2025	28 days	1 days	✓

Matrix: Water

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

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)												
Amber glass total (sulfuric acid)												
Rivers 1 - Raw - Raw	001	2291506	E355-L	20-Oct-2025	21-Oct-2025	28 days	1 days	✓	22-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2291506	E355-L	20-Oct-2025	21-Oct-2025	28 days	1 days	✓	22-Oct-2025	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration												
HDPE												
Rivers 1 - Raw - Raw	001	2293225	E290	20-Oct-2025	23-Oct-2025	14 days	2 days	✓	23-Oct-2025	14 days	2 days	✓
Rivers 2 - Treated - Treated	002	2293225	E290	20-Oct-2025	23-Oct-2025	14 days	2 days	✓	23-Oct-2025	14 days	2 days	✓
Physical Tests : Colour (True) by Spectrometer (5 CU)												
HDPE												
Rivers 1 - Raw - Raw	001	2289998	E329	20-Oct-2025	21-Oct-2025	3 days	1 days	✓	21-Oct-2025	3 days	1 days	✓
Rivers 2 - Treated - Treated	002	2289998	E329	20-Oct-2025	21-Oct-2025	3 days	1 days	✓	21-Oct-2025	3 days	1 days	✓
Physical Tests : Conductivity in Water												
HDPE												
Rivers 1 - Raw - Raw	001	2293226	E100	20-Oct-2025	23-Oct-2025	28 days	2 days	✓	23-Oct-2025	28 days	2 days	✓
Rivers 2 - Treated - Treated	002	2293226	E100	20-Oct-2025	23-Oct-2025	28 days	2 days	✓	23-Oct-2025	28 days	2 days	✓
Physical Tests : pH by Meter												
HDPE												
Rivers 1 - Raw - Raw	001	2293224	E108	20-Oct-2025	23-Oct-2025	0.25 hrs	58 hrs	× EHTR-FM	23-Oct-2025	0.25 hrs	58 hrs	× EHTR-FM
Rivers 2 - Treated - Treated	002	2293224	E108	20-Oct-2025	23-Oct-2025	0.25 hrs	58 hrs	× EHTR-FM	23-Oct-2025	0.25 hrs	58 hrs	× EHTR-FM

Matrix: Water

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

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	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 : TDS by Gravimetry (Low Level)												
HDPE												
Rivers 1 - Raw - Raw	001	2292209	E162-L	20-Oct-2025	----	----	----		23-Oct-2025	7 days	3 days	✓
Rivers 2 - Treated - Treated	002	2292209	E162-L	20-Oct-2025	----	----	----		23-Oct-2025	7 days	3 days	✓
Physical Tests : Turbidity by Nephelometry												
HDPE												
Rivers 1 - Raw - Raw	001	2290846	E121	20-Oct-2025	----	----	----		22-Oct-2025	3 days	2 days	✓
Rivers 2 - Treated - Treated	002	2290846	E121	20-Oct-2025	----	----	----		22-Oct-2025	3 days	2 days	✓
Physical Tests : UV Absorbance and Transmittance by Spectrometry												
HDPE												
Rivers 1 - Raw - Raw	001	2297875	E404	20-Oct-2025	----	----	----		24-Oct-2025	3 days	4 days	× EHT
Rivers 2 - Treated - Treated	002	2297875	E404	20-Oct-2025	----	----	----		24-Oct-2025	3 days	4 days	× EHT
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
Rivers 1 - Raw - Raw	001	2294785	E420	20-Oct-2025	24-Oct-2025	180 days	4 days	✓	24-Oct-2025	180 days	4 days	✓
Rivers 2 - Treated - Treated	002	2294785	E420	20-Oct-2025	24-Oct-2025	180 days	4 days	✓	24-Oct-2025	180 days	4 days	✓
Rivers 3 - Distribution Mid - Distribution	003	2294785	E420	20-Oct-2025	24-Oct-2025	180 days	4 days	✓	24-Oct-2025	180 days	4 days	✓

Legend & Qualifier Definitions

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

EHT: Exceeded ALS recommended hold time prior to analysis.

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)							
Conductivity in Water	E100	2293226	1	15	6.7	5.0	✓
pH by Meter	E108	2293224	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	2290846	1	20	5.0	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	2292209	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2291631	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	2291632	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	2291630	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2291635	1	2	50.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2291633	1	2	50.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2291629	1	16	6.2	5.0	✓
Alkalinity Species by Titration	E290	2293225	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2290794	1	20	5.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	2289998	1	18	5.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2291506	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2290740	1	19	5.3	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	2297875	1	11	9.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2294785	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Water	E100	2293226	1	15	6.7	5.0	✓
pH by Meter	E108	2293224	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	2290846	1	20	5.0	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	2292209	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2291631	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	2291632	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	2291630	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2291635	1	2	50.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2291633	1	2	50.0	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)							
Sulfate in Water by IC	E235.SO4	2291629	1	16	6.2	5.0	✓
Alkalinity Species by Titration	E290	2293225	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2290794	1	20	5.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	2289998	1	18	5.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2291506	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2290740	1	19	5.3	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	2297875	1	11	9.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2294785	1	20	5.0	5.0	✓
Method Blanks (MB)							
Conductivity in Water	E100	2293226	1	15	6.7	5.0	✓
Turbidity by Nephelometry	E121	2290846	1	20	5.0	5.0	✓
TDS by Gravimetry (Low Level)	E162-L	2292209	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	2291631	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	2291632	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	2291630	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2291635	1	2	50.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	2291633	1	2	50.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2291629	1	16	6.2	5.0	✓
Alkalinity Species by Titration	E290	2293225	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2290794	1	20	5.0	5.0	✓
Colour (True) by Spectrometer (5 CU)	E329	2289998	1	18	5.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2291506	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2290740	1	19	5.3	5.0	✓
UV Absorbance and Transmittance by Spectrometry	E404	2297875	1	11	9.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2294785	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC (Low Level)	E235.Br-L	2291631	1	2	50.0	5.0	✓
Chloride in Water by IC (Low Level)	E235.Cl-L	2291632	1	2	50.0	5.0	✓
Fluoride in Water by IC	E235.F	2291630	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	2291635	1	2	50.0	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
Matrix Spikes (MS)							
Nitrate in Water by IC (Low Level)	E235.NO3-L	2291633	1	2	50.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2291629	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2290794	1	20	5.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	2291506	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2290740	1	19	5.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2294785	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
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)
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.
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.
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.
Conductivity Screen (Internal Use Only)	ES100 ALS Environmental - Winnipeg	Water	APHA 2510 (mod)	Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.
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 CO2. 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).
Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3,Chloramine	EF001 ALS Environmental - Winnipeg	Water	Field Measurement (Client Supplied)	Field pH,EC,Salinity, TDS, Cl2,ClO2,ORP,DO, Turbidity,T,T-P,o-PO4,NH3 or Chloramine measurements provided by client and recorded on ALS report may affect the validity of results.
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.
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 as 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 hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.

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).
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.
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.
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.
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.
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.
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.
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.
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 carbonate-based Inorganic Carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. Forms of carbon associated with inorganic or organic molecules (e.g. SCN and CN) are included in NPOC if they are not removed by purging under acidic conditions. Notably, NPOC excludes most volatile organic compounds and free cyanide. For samples where the majority of Total Carbon is inorganic, this method provides greater accuracy and reliability versus the TOC by subtraction method (TC minus TIC).
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.
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.
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 Autotitrator	EP108-TITR ALS Environmental - Winnipeg	Water		Sample preparation for parameters analysed by Autotitrator

Preparation for Colour	EP329-COL ALS Environmental - Winnipeg	Water		Sample preparation for analysis of colour
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Winnipeg	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Preparation for Ion Chromatography	EP235-IC ALS Environmental - Winnipeg	Water		Sample preparation for ion chromatography
Preparation for Total Organic Carbon by Combustion	EP355 ALS Environmental - Winnipeg	Water		Preparation for Total Organic Carbon by Combustion
Total Metals Water Digestion	EP420 ALS Environmental - Winnipeg	Water	EPA 200.2 (mod)	Water samples are digested with HNO3 and HCl to liberate "total recoverable" metals.

QUALITY CONTROL REPORT

Work Order	: **WP2518411**	Page	: 1 of 13
Client	: Manitoba Conservation & Climate	Laboratory	: ALS Environmental - Winnipeg
Contact	: Marc Balcaen	Account Manager	: Sheriza Rajack-Ahamed
Address	: 181.00 - Rivers - PWS Box 520 Rivers MB Canada R0K 1X0	Address	: 1329 Niakwa Road East, Unit 12 Winnipeg, Manitoba Canada R2J 3T4
Telephone	: ----	Telephone	: +1 204 255 9720
Project	: Rivers - PWS 181.00	Date Samples Received	: 21-Oct-2025 10:15
PO	: ----	Date Analysis Commenced	: 21-Oct-2025
C-O-C number	: ----	Issue Date	: 27-Oct-2025 12:04
Sampler	: ----		
Site	: Rivers - PWS 181.00		
Quote number	: 2025 WTP Chemistry		
No. of samples received	: 3		
No. of samples analysed	: 3		

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*
Kevin Baxter	Supervisor - Inorganic	Winnipeg Administration, Winnipeg, Manitoba
Kevin Baxter	Supervisor - Inorganic	Winnipeg Inorganics, Winnipeg, Manitoba
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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: 2289998)											
WP2518256-001	Anonymous	Colour, true	----	E329	5.0	CU	16.6	17.9	1.3	Diff <2x LOR	----
Physical Tests (QC Lot: 2290846)											
WP2518388-001	Anonymous	Turbidity	----	E121	0.10	NTU	3.98	3.85	3.37%	15%	----
Physical Tests (QC Lot: 2292209)											
WP2518407-003	Anonymous	Solids, total dissolved [TDS]	----	E162-L	15.0	mg/L	592	588	0.593%	20%	----
Physical Tests (QC Lot: 2293224)											
WP2518411-002	Rivers 2 - Treated Treated	pH	----	E108	0.10	pH units	7.52	7.58	0.795%	4%	----
Physical Tests (QC Lot: 2293225)											
WP2518411-002	Rivers 2 - Treated Treated	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	16.1	16.0	0.623%	20%	----
Physical Tests (QC Lot: 2293226)											
WP2518411-002	Rivers 2 - Treated Treated	Conductivity	----	E100	2.0	µS/cm	48.8	48.5	0.617%	10%	----
Physical Tests (QC Lot: 2297875)											
WP2518335-001	Anonymous	Absorbance, UV (@ 254nm)	----	E404	0.0050	AU/cm	0.0970	0.0970	0.00%	20%	----
Anions and Nutrients (QC Lot: 2290794)											
WP2518378-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	1.68	1.66	0.999%	20%	----
Anions and Nutrients (QC Lot: 2291629)											
WP2518411-001	Rivers 1 - Raw Raw	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	170	171	0.899%	20%	----
Anions and Nutrients (QC Lot: 2291630)											
WP2518411-001	Rivers 1 - Raw Raw	Fluoride	16984-48-8	E235.F	0.020	mg/L	0.158	0.155	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2291631)											
WP2518411-001	Rivers 1 - Raw 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: 2291632)											
WP2518411-001	Rivers 1 - Raw Raw	Chloride	16887-00-6	E235.Cl-L	0.10	mg/L	10.0	10.1	0.502%	20%	----
Anions and Nutrients (QC Lot: 2291633)											
WP2518411-001	Rivers 1 - Raw Raw	Nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0510	0.0451	0.0059	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2291635)											
WP2518411-001	Rivers 1 - Raw Raw	Nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2290740)											
WP2518238-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	11.7	12.0	2.18%	20%	----
Organic / Inorganic Carbon (QC Lot: 2291506)											

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*
Organic / Inorganic Carbon (QC Lot: 2291506) - continued											
WP2518238-006	Anonymous	Carbon, total organic [TOC]	----	E355-L	0.50	mg/L	12.3	12.6	2.62%	20%	----
Total Metals (QC Lot: 2294785)											
WP2517900-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	44.6 µg/L	0.0525	16.2%	20%	----
		Antimony, total	7440-36-0	E420	0.00010	mg/L	<0.10 µg/L	0.00011	0.00001	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	10.9 µg/L	0.0109	0.107%	20%	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	238 µg/L	0.237	0.160%	20%	----
		Beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.100 µg/L	<0.000100	0	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	62 µg/L	0.073	0.011	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	73.5	81.4	10.2%	20%	----
		Cesium, total	7440-46-2	E420	0.000010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.15 µg/L	0.00015	0.000002	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.84 µg/L	0.00087	0.00002	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	87 µg/L	0.094	0.007	Diff <2x LOR	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.063 µg/L	0.000067	0.000004	Diff <2x LOR	----
		Lithium, total	7439-93-2	E420	0.0010	mg/L	0.0391	0.0393	0.499%	20%	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	37300 µg/L	37.5	0.564%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	12.4 µg/L	0.0124	0.596%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	1.52 µg/L	0.00166	8.92%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	1.45 µg/L	0.00153	0.00008	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	6250 µg/L	6.43	2.80%	20%	----
		Rubidium, total	7440-17-7	E420	0.00020	mg/L	1.97 µg/L	0.00200	0.00003	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.308 µg/L	0.000325	0.000018	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	10500 µg/L	10.5	0.317%	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	19500 µg/L	19.4	0.904%	20%	----
		Strontium, total	7440-24-6	E420	0.00020	mg/L	335 µg/L	0.377	11.9%	20%	----
		Sulfur, total	7704-34-9	E420	0.50	mg/L	23000 µg/L	23.1	0.580%	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	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		Thorium, total	7440-29-1	E420	0.00010	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----

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: 2294785) - continued											
WP2517900-001	Anonymous	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	2.00 µg/L	0.00209	0.00009	Diff <2x LOR	----
		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	2.70 µg/L	0.00279	3.01%	20%	----
		Vanadium, total	7440-62-2	E420	0.00050	mg/L	1.30 µg/L	0.00133	0.00004	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	<0.20 µg/L	<0.00020	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: 2289998)						
Colour, true	----	E329	5	CU	<5.0	----
Physical Tests (QCLot: 2290846)						
Turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 2292209)						
Solids, total dissolved [TDS]	----	E162-L	3	mg/L	<3.0	----
Physical Tests (QCLot: 2293225)						
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2293226)						
Conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 2297875)						
Absorbance, UV (@ 254nm)	----	E404	0.005	AU/cm	<0.0050	----
Anions and Nutrients (QCLot: 2290794)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2291629)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2291630)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2291631)						
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2291632)						
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 2291633)						
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2291635)						
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 2290740)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 2291506)						
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 2294785)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2294785) - continued						
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	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2294785) - continued						
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----

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: 2289998)									
Colour, true	----	E329	5	CU	250 CU	101	85.0	115	----
Physical Tests (QCLot: 2290846)									
Turbidity	----	E121	0.1	NTU	200 NTU	97.5	85.0	115	----
Physical Tests (QCLot: 2292209)									
Solids, total dissolved [TDS]	----	E162-L	3	mg/L	1000 mg/L	95.4	85.0	115	----
Physical Tests (QCLot: 2293224)									
pH	----	E108	----	pH units	7 pH units	99.9	98.0	102	----
Physical Tests (QCLot: 2293225)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	100 mg/L	101	85.0	115	----
Physical Tests (QCLot: 2293226)									
Conductivity	----	E100	1	µS/cm	1410 µS/cm	99.9	90.0	110	----
Physical Tests (QCLot: 2297875)									
Absorbance, UV (@ 254nm)	----	E404	0.005	AU/cm	0.544 AU/cm	101	85.0	115	----
Anions and Nutrients (QCLot: 2290794)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 2291629)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2291630)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2291631)									
Bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	99.0	85.0	115	----
Anions and Nutrients (QCLot: 2291632)									
Chloride	16887-00-6	E235.Cl-L	0.1	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2291633)									
Nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2291635)									
Nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Organic / Inorganic Carbon (QCLot: 2290740)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.9	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2291506)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Organic / Inorganic Carbon (QCLot: 2291506) - continued									
Carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	102	80.0	120	----
Total Metals (QCLot: 2294785)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	95.3	80.0	120	----
Antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	98.0	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	97.1	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	93.7	80.0	120	----
Beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	91.0	80.0	120	----
Bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	99.7	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	88.9	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	94.6	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	91.0	80.0	120	----
Cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	95.4	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	95.3	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	96.0	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	96.8	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	94.5	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	99.2	80.0	120	----
Lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	84.1	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.3	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	95.6	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	94.4	80.0	120	----
Phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	90.6	80.0	120	----
Rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	92.6	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	92.8	80.0	120	----
Silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	87.3	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	97.5	80.0	120	----
Strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	94.9	80.0	120	----
Sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	92.4	80.0	120	----
Tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	91.2	80.0	120	----
Thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	98.1	80.0	120	----
Thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.0	80.0	120	----
Tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	94.9	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: 2294785) - continued									
Titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	91.9	80.0	120	----
Tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	96.0	80.0	120	----
Uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	100	80.0	120	----
Vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	96.4	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	91.4	80.0	120	----
Zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	95.1	80.0	120	----

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: 2290794)										
WP2518378-005	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2291629)										
WP2518411-001	Rivers 1 - Raw Raw	Sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2291630)										
WP2518411-001	Rivers 1 - Raw Raw	Fluoride	16984-48-8	E235.F	0.997 mg/L	1 mg/L	99.7	75.0	125	----
Anions and Nutrients (QCLot: 2291631)										
WP2518411-001	Rivers 1 - Raw Raw	Bromide	24959-67-9	E235.Br-L	0.518 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2291632)										
WP2518411-001	Rivers 1 - Raw Raw	Chloride	16887-00-6	E235.Cl-L	99.8 mg/L	100 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 2291633)										
WP2518411-001	Rivers 1 - Raw Raw	Nitrate (as N)	14797-55-8	E235.NO3-L	2.50 mg/L	2.5 mg/L	99.9	75.0	125	----
Anions and Nutrients (QCLot: 2291635)										
WP2518411-001	Rivers 1 - Raw Raw	Nitrite (as N)	14797-65-0	E235.NO2-L	0.485 mg/L	0.5 mg/L	97.1	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2290740)										
WP2518238-002	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2291506)										
WP2518335-001	Anonymous	Carbon, total organic [TOC]	----	E355-L	4.44 mg/L	5 mg/L	88.8	70.0	130	----
Total Metals (QCLot: 2294785)										
WP2517900-001	Anonymous	Aluminum, total	7429-90-5	E420	0.215 mg/L	0.2 mg/L	107	70.0	130	----
		Antimony, total	7440-36-0	E420	0.0223 mg/L	0.02 mg/L	112	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0227 mg/L	0.02 mg/L	113	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	----
		Bismuth, total	7440-69-9	E420	0.0102 mg/L	0.01 mg/L	102	70.0	130	----
		Boron, total	7440-42-8	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00415 mg/L	0.004 mg/L	104	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Cesium, total	7440-46-2	E420	0.0112 mg/L	0.01 mg/L	112	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0430 mg/L	0.04 mg/L	107	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		Copper, total	7440-50-8	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		Iron, total	7439-89-6	E420	2.11 mg/L	2 mg/L	106	70.0	130	----
		Lead, total	7439-92-1	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		Lithium, total	7439-93-2	E420	0.0933 mg/L	0.1 mg/L	93.3	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: 2294785) - continued										
WP2517900-001	Anonymous	Magnesium, total	7439-95-4	E420	ND mg/L	----	ND	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0227 mg/L	0.02 mg/L	114	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	----
		Phosphorus, total	7723-14-0	E420	10.9 mg/L	10 mg/L	109	70.0	130	----
		Potassium, total	7440-09-7	E420	ND mg/L	----	ND	70.0	130	----
		Rubidium, total	7440-17-7	E420	0.0211 mg/L	0.02 mg/L	105	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0438 mg/L	0.04 mg/L	110	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Silver, total	7440-22-4	E420	0.00446 mg/L	0.004 mg/L	111	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	0.0424 mg/L	0.04 mg/L	106	70.0	130	----
		Thallium, total	7440-28-0	E420	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		Thorium, total	7440-29-1	E420	0.0214 mg/L	0.02 mg/L	107	70.0	130	----
		Tin, total	7440-31-5	E420	0.0207 mg/L	0.02 mg/L	103	70.0	130	----
		Titanium, total	7440-32-6	E420	0.0416 mg/L	0.04 mg/L	104	70.0	130	----
		Tungsten, total	7440-33-7	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		Uranium, total	7440-61-1	E420	0.00427 mg/L	0.004 mg/L	107	70.0	130	----
		Vanadium, total	7440-62-2	E420	0.106 mg/L	0.1 mg/L	106	70.0	130	----
		Zinc, total	7440-66-6	E420	0.393 mg/L	0.4 mg/L	98.2	70.0	130	----
		Zirconium, total	7440-67-7	E420	0.0423 mg/L	0.04 mg/L	106	70.0	130	----

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:	Jeff Worth
Address:	Box 520, Rivers, MB R0K1X0
Phone:	(204) 710-7000
Email:	riverswtp@riverdalemb.ca

Report to Owner (email PDF):	
Contact:	Marci Quane
Address:	Box 520, Rivers, MB R0K1X0
Phone:	(204) 328-5250
Email:	cao@riverdalemb.ca

Email PDF copy to:	
DWO:	Christine Gerardy
DWO Address:	1129 Queens Ave., Brandon, MB R7A1L9
DWO Phone:	(204) 570-1405
COA Email:	odw.invoices@gov.mb.ca
EDD Email:	wqemsdata@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:	RIVERS - PWS	Expected Sample Time:	**January-2025**
Operation Code:	181.00		
Operation ID:	16843		
Sampled by:	Jeff Worth		

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	# of Containers
2501CG5006	MB05MFD041	Rivers 1 - Raw	Ø	Ø	20-Oct-2025	0930	6	1	X		4
2501CG5007	MB05MFD042	Rivers 2 - Treated	1.32	1.36	20-Oct-2025	0930	10	1	X		4
2501CG5008	MB05MFD043	Rivers 3 - Distributon Mid	1.10	1.14	20-Oct-2025	1000	9	1		X	1

Environmental Division
Winnipeg
Work Order Reference
WP2518411

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 W
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:	JWorth	Date & Time	Oct 20/25	Validated By (lab use only):	Date
				Sample Condition (lab use only)	
Received By: (lab use only)	AK	Date & Time: (lab use only)	Oct 21, 10:15	Temperature 9.9	Samples Received in Good Co