



Office of Drinking Water
ATTN: BRIAN LUNDMARK
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Date Received: 11-DEC-19
Report Date: 06-FEB-20 13:25 (MT)
Version: FINAL REV. 2

Client Phone: 204-677-6704

Certificate of Analysis

Lab Work Order #: L2394902

Project P.O. #:

Contract#: 5648 (MICROCHEM)

Job Reference:

RURAL MUNICIPALITY OF KELSEY - PWS 101.25

C of C Numbers:

Legal Site Desc:

21366

Hua Wo
Chemistry Laboratory Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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ANALYTICAL REPORT

Physical Tests (WATER)

		ALS ID		L2394902-1	L2394902-2
		Sampled Date		09-DEC-19	09-DEC-19
		Sampled Time		08:50	08:35
		Sample ID		RM OF KELSEY	RM OF KELSEY
Analyte	Unit	Guide Limit #1	Guide Limit #2	1 - RAW	2 - TREATED
Colour, True	CU	15	-	<5.0	<5.0
Conductivity	umhos/cm	-	-	847	845
Hardness (as CaCO3)	mg/L	-	-	259 ^{HTC}	252 ^{HTC}
Langelier Index (4 C)	No Unit	-	-	0.69	0.66
Langelier Index (60 C)	No Unit	-	-	1.5	1.4
pH	pH units	7.00-10.5	-	8.37	8.35
Total Dissolved Solids	mg/L	500	-	452	463
Transmittance, UV (254 nm)	%T/cm	-	-	94.4	95.5
Turbidity	NTU	-	-	1.89	0.13

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Anions and Nutrients (WATER)

		ALS ID		L2394902-1	L2394902-2
		Sampled Date		09-DEC-19	09-DEC-19
		Sampled Time		08:50	08:35
		Sample ID		RM OF KELSEY	RM OF KELSEY
Analyte	Unit	Guide Limit #1	Guide Limit #2	1 - RAW	2 - TREATED
Alkalinity, Total (as CaCO3)	mg/L	-	-	252	249
Ammonia, Total (as N)	mg/L	-	-	0.125	<0.010
Bicarbonate (HCO3)	mg/L	-	-	298	298
Bromide (Br)	mg/L	-	-	0.564	0.083
Carbonate (CO3)	mg/L	-	-	4.44	2.88
Chloride (Cl)	mg/L	250	-	115	117
Fluoride (F)	mg/L	-	1.5	0.392	0.413
Hydroxide (OH)	mg/L	-	-	<0.34	<0.34
Iodide (I)	mg/L	-	-	<0.20	<0.20
Nitrate (as N)	mg/L	-	10	<0.0050	<0.0050
Nitrite (as N)	mg/L	-	1	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	-	-	<0.20	<0.20
Total Nitrogen	mg/L	-	-	<0.20	<0.20
Sulfate (SO4)	mg/L	500	-	34.3	34.4
Anion Sum	me/L	-	-	9.01	9.02
Cation Sum	me/L	-	-	9.79	9.60
Cation - Anion Balance	%	-	-	4.1	3.1

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)

#1: GCDWQ - Aesthetic Objective/Other Value

#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Detection Limit for result exceeds Guide Limit. Assessment against Guide Limit cannot be made.

Analytical result for this parameter exceeds Guide Limit listed on this report.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Organic / Inorganic Carbon (WATER)

		ALS ID		L2394902-1	L2394902-2
		Sampled Date		09-DEC-19	09-DEC-19
		Sampled Time		08:50	08:35
		Sample ID		RM OF KELSEY	RM OF KELSEY
Analyte	Unit	Guide Limit #1	Guide Limit #2	1 - RAW	2 - TREATED
Dissolved Organic Carbon	mg/L	-	-	0.52	0.61
Total Inorganic Carbon	mg/L	-	-	54.4	53.7
Total Organic Carbon	mg/L	-	-	0.56	<0.50

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)

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ANALYTICAL REPORT

Total Metals (WATER)

Analyte	Unit	ALS ID		L2394902-1	L2394902-2	L2394902-3
		Guide Limit #1	Guide Limit #2	Sampled Date Sampled Time Sample ID	Sampled Date Sampled Time Sample ID	Sampled Date Sampled Time Sample ID
				09-DEC-19 08:50	09-DEC-19 08:35	09-DEC-19 09:25
				RM OF KELSEY 1 - RAW	RM OF KELSEY 2 - TREATED	RM OF KELSEY 3 - DISTRIBUTION
Aluminum (Al)-Total	mg/L	0.1	-	<0.0030	<0.0030	<0.0030
Antimony (Sb)-Total	mg/L	-	0.006	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	-	0.01	0.00103	0.00096	0.00096
Barium (Ba)-Total	mg/L	-	2	0.0752	0.0711	0.0714
Beryllium (Be)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	<0.000050	<0.000050	0.000325
Boron (B)-Total	mg/L	-	5	0.426	0.410	0.422
Cadmium (Cd)-Total	mg/L	-	0.005	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	-	-	43.2	42.3	43.1
Cesium (Cs)-Total	mg/L	-	-	0.000013	0.000012	0.000011
Chromium (Cr)-Total	mg/L	-	0.05	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Total	mg/L	-	-	0.00025	0.00021	0.00011
Copper (Cu)-Total	mg/L	1	2	0.00160	0.00371	0.0448
Iron (Fe)-Total	mg/L	0.3	-	0.140	0.137	0.133
Lead (Pb)-Total	mg/L	-	0.005	0.000180	<0.000050	0.0114
Lithium (Li)-Total	mg/L	-	-	0.0504	0.0491	0.0493
Magnesium (Mg)-Total	mg/L	-	-	36.6	35.6	34.9
Manganese (Mn)-Total	mg/L	0.02	0.12	0.0206	0.0191	0.0177
Molybdenum (Mo)-Total	mg/L	-	-	0.000582	0.000538	0.000535
Nickel (Ni)-Total	mg/L	-	-	<0.00050	<0.00050	<0.00050
Phosphorus (P)-Total	mg/L	-	-	<0.050	<0.050	<0.030
Potassium (K)-Total	mg/L	-	-	11.0	10.6	10.6
Rubidium (Rb)-Total	mg/L	-	-	0.00503	0.00503	0.00495
Selenium (Se)-Total	mg/L	-	0.05	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total	mg/L	-	-	4.54	4.50	4.64
Silver (Ag)-Total	mg/L	-	-	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	200	-	99.6	98.5	97.3
Strontium (Sr)-Total	mg/L	-	7	0.510	0.513	0.512
Sulfur (S)-Total	mg/L	-	-			13.0
Tellurium (Te)-Total	mg/L	-	-	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	-	-	<0.000010	<0.000010	<0.000010
Thorium (Th)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	-	-	0.00016	0.00047	0.00453

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ANALYTICAL REPORT

Total Metals (WATER)

		ALS ID		L2394902-1	L2394902-2	L2394902-3
		Sampled Date		09-DEC-19	09-DEC-19	09-DEC-19
		Sampled Time		08:50	08:35	09:25
		Sample ID		RM OF KELSEY	RM OF KELSEY	RM OF KELSEY
Analyte	Unit	Guide Limit #1	Guide Limit #2	1 - RAW	2 - TREATED	3 - DISTRIBUTION
Titanium (Ti)-Total	mg/L	-	-	<0.00030	<0.00030	<0.00030
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	0.000382	0.000387	0.000374
Vanadium (V)-Total	mg/L	-	-	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	5	-	<0.0030	<0.0030	0.0172
Zirconium (Zr)-Total	mg/L	-	-	<0.00020	<0.00020	<0.00020

Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020)

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Volatile Organic Compounds (WATER)

		ALS ID		L2394902-4
		Sampled Date		09-DEC-19
		Sampled Time		08:50
		Sample ID		RM OF KELSEY
Analyte	Unit	Guide Limit #1	Guide Limit #2	1 - RAW
Benzene	mg/L	-	0.005	<0.00050
1,1-dichloroethene	mg/L	-	0.014	<0.00050
Dichloromethane	mg/L	-	0.05	<0.00050
Ethylbenzene	mg/L	0.0016	0.14	<0.00050
MTBE	mg/L	0.015	-	<0.00050
1,1,1,2-Tetrachloroethane	mg/L	-	-	<0.00050
1,1,2,2-Tetrachloroethane	mg/L	-	-	<0.00050
Tetrachloroethene	mg/L	-	0.01	<0.00050
Toluene	mg/L	0.024	0.06	<0.00050
1,1,1-Trichloroethane	mg/L	-	-	<0.00050
1,1,2-Trichloroethane	mg/L	-	-	<0.00050
Trichloroethene	mg/L	-	0.005	<0.00050
o-Xylene	mg/L	-	-	<0.00050
M+P-Xylenes	mg/L	-	-	<0.00040
Xylenes (Total)	mg/L	0.02	0.09	<0.00064

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Analytical result for this parameter exceeds Guide Limit listed on this report.

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Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
HTC	Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO ₃ 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO ₃ -/L.			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO ₃)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO ₃ - and H ₂ CO ₃ endpoints indicated electrometrically.			
BR-L-IC-N-WP	Water	Bromide in Water by IC (Low Level)	EPA 300.1 (mod)-LR
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
C-DOC-HTC-WP	Water	Dissolved Organic Carbon by Combustion	APHA 5310 B-WP
Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO ₂ which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
C-TIC-HTC-WP	Water	Total Inorganic Carbon by Combustion	APHA 5310 B-WP
Sample is injected into a heated reaction chamber where it is acidified converting all inorganic carbon to CO ₂ , which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
C-TOC-HTC-WP	Water	Total Organic Carbon by Combustion	APHA 5310 B-WP
Sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO ₂ which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-L-IC-N-WP	Water	Chloride in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COLOUR-TRUE-WP	Water	Colour, True	APHA 2120C
True Colour is measured spectrophotometrically by comparison to platinum-cobalt standards using the single wavelength method (450 - 465 nm) after filtration of sample through a 0.45 um filter. Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.			
EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
ETL-LANGELIER-4-WP	Water	Langelier Index 4C	Calculated
ETL-LANGELIER-60-WP	Water	Langelier Index 60C	Calculated
ETL-N-TOT-ANY-WP	Water	Total Nitrogen Calculated	Calculated
F-IC-N-WP	Water	Fluoride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
HARDNESS-CALC-WP	Water	Hardness Calculated	APHA 2340B
Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO ₃ equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.			
I-IC-AD	Water	Iodide in Water - Datachem Ohio	SEE SUBLET LAB RESULTS
IONBALANCE-CALC-WP	Water	Ion Balance Calculation	APHA 1030E
Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.			
Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance (as % difference) cannot be calculated accurately for waters with very low electrical conductivity (EC), and is reported as "Low EC" where EC < 100 uS/cm (umhos/cm). Ion Balance is calculated as:			
Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]			
MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.			
Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2-L-IC-N-WP	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-L-IC-N-WP	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaporated to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			
UV-%TRANS-WP	Water	UV Transmittance (Calculated)	APHA 5910B
Test method is adapted from APHA Method 5910B. A sample is filtered through a 0.45 um polyethersulfone (PES) filter and its UV Absorbance is measured in a quartz cell at 254 nm. UV Transmittance is calculated from the UV Absorbance result and reported as UV Transmittance per cm. The analysis is carried out without pH adjustment.			
VOC+F1-HSMS-WP	Water	VOC plus F1 by GCMS	EPA 8260C / EPA 5021A
In this method samples are analyzed using a headspace autosampler interfaced to a dual column gas chromatograph with MS and Flame Ionization detectors.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
AD	ALS ENVIRONMENTAL - CINCINNATI, OHIO, USA
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

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. Guideline limits 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.



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 1 of 14

Client: Office of Drinking Water
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Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP								
	Water							
Batch	R4943946							
WG3243409-10	DUP	L2394902-1						
Alkalinity, Total (as CaCO3)		252	250		mg/L	0.7	20	13-DEC-19
WG3243409-9	LCS							
Alkalinity, Total (as CaCO3)			102.4		%		85-115	13-DEC-19
WG3243409-6	MB							
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	13-DEC-19
BR-L-IC-N-WP								
	Water							
Batch	R4942534							
WG3240153-11	DUP	L2394902-1						
Bromide (Br)		0.564	0.558		mg/L	1.1	20	11-DEC-19
WG3240153-10	LCS							
Bromide (Br)			97.6		%		85-115	11-DEC-19
WG3240153-9	MB							
Bromide (Br)			<0.010		mg/L		0.01	11-DEC-19
WG3240153-12	MS	L2394902-1						
Bromide (Br)			N/A	MS-B	%		-	11-DEC-19
C-DOC-HTC-WP								
	Water							
Batch	R4942549							
WG3241798-2	LCS							
Dissolved Organic Carbon			102.9		%		80-120	12-DEC-19
WG3241798-1	MB							
Dissolved Organic Carbon			<0.50		mg/L		0.5	12-DEC-19
WG3241798-4	MS	L2394902-2						
Dissolved Organic Carbon			106.0		%		70-130	12-DEC-19
Batch	R4943736							
WG3243207-3	DUP	L2396080-1						
Dissolved Organic Carbon		3.92	3.84		mg/L	2.1	20	13-DEC-19
WG3243207-2	LCS							
Dissolved Organic Carbon			97.7		%		80-120	13-DEC-19
WG3243207-1	MB							
Dissolved Organic Carbon			<0.50		mg/L		0.5	13-DEC-19
WG3243207-4	MS	L2395105-6						
Dissolved Organic Carbon			95.9		%		70-130	13-DEC-19
C-TIC-HTC-WP								
	Water							



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Page 2 of 14

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-TIC-HTC-WP		Water						
Batch	R4943721							
WG3243176-3	DUP	L2394902-1						
Total Inorganic Carbon		54.4	54.1		mg/L	0.5	20	13-DEC-19
WG3243176-2	LCS							
Total Inorganic Carbon			100.2		%		80-120	13-DEC-19
WG3243176-1	MB							
Total Inorganic Carbon			<0.50		mg/L		0.5	13-DEC-19
WG3243176-4	MS	L2394902-2						
Total Inorganic Carbon			N/A	MS-B	%		-	13-DEC-19
C-TOC-HTC-WP		Water						
Batch	R4942539							
WG3241803-3	DUP	L2394906-1						
Total Organic Carbon		6.33	6.33		mg/L	0.0	20	12-DEC-19
WG3241803-2	LCS							
Total Organic Carbon			97.9		%		80-120	12-DEC-19
WG3241803-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	12-DEC-19
WG3241803-4	MS	L2394906-2						
Total Organic Carbon			96.8		%		70-130	12-DEC-19
Batch	R4943741							
WG3243216-3	DUP	L2395724-1						
Total Organic Carbon		7.11	6.96		mg/L	2.1	20	13-DEC-19
WG3243216-2	LCS							
Total Organic Carbon			99.7		%		80-120	13-DEC-19
WG3243216-1	MB							
Total Organic Carbon			<0.50		mg/L		0.5	13-DEC-19
WG3243216-4	MS	L2395724-2						
Total Organic Carbon			N/A	MS-B	%		-	13-DEC-19
CL-L-IC-N-WP		Water						
Batch	R4942534							
WG3240153-11	DUP	L2394902-1						
Chloride (Cl)		115	116		mg/L	0.8	20	11-DEC-19
WG3240153-10	LCS							
Chloride (Cl)			99.4		%		90-110	11-DEC-19
WG3240153-9	MB							
Chloride (Cl)			<0.10		mg/L		0.1	11-DEC-19
WG3240153-12	MS	L2394902-1						
Chloride (Cl)			N/A	MS-B	%		-	11-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 3 of 14

Client: Office of Drinking Water
 Box 28, 59 Elizabeth Drive
 Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
COLOUR-TRUE-WP		Water						
Batch	R4943963							
WG3242204-3	DUP	L2393730-1						
Colour, True		<5.0	<5.0	RPD-NA	CU	N/A	20	11-DEC-19
WG3242204-2	LCS							
Colour, True			99.0		%		85-115	11-DEC-19
WG3242204-1	MB							
Colour, True			<5.0		CU		5	11-DEC-19
EC-WP		Water						
Batch	R4943946							
WG3243409-10	DUP	L2394902-1						
Conductivity		847	838		umhos/cm	1.1	10	13-DEC-19
WG3243409-8	LCS							
Conductivity			99.2		%		90-110	13-DEC-19
WG3243409-6	MB							
Conductivity			<1.0		umhos/cm		1	13-DEC-19
F-IC-N-WP		Water						
Batch	R4942534							
WG3240153-11	DUP	L2394902-1						
Fluoride (F)		0.392	0.385		mg/L	1.8	20	11-DEC-19
WG3240153-10	LCS							
Fluoride (F)			98.7		%		90-110	11-DEC-19
WG3240153-9	MB							
Fluoride (F)			<0.020		mg/L		0.02	11-DEC-19
WG3240153-12	MS	L2394902-1						
Fluoride (F)			108.1		%		75-125	11-DEC-19
MET-T-CCMS-WP		Water						
Batch	R4953431							
WG3243211-4	DUP	WG3243211-3						
Aluminum (Al)-Total		0.0440	0.0444		mg/L	1.0	20	23-DEC-19
Antimony (Sb)-Total		0.00036	0.00035		mg/L	4.2	20	23-DEC-19
Arsenic (As)-Total		0.00066	0.00066		mg/L	0.2	20	23-DEC-19
Barium (Ba)-Total		0.0234	0.0236		mg/L	0.7	20	23-DEC-19
Beryllium (Be)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-DEC-19
Bismuth (Bi)-Total		<0.000050	<0.000050	RPD-NA	mg/L	N/A	20	23-DEC-19
Boron (B)-Total		0.236	0.237		mg/L	0.1	20	23-DEC-19
Cadmium (Cd)-Total		0.0000090	0.0000125	J	mg/L	0.0000035	0.00001	23-DEC-19
Calcium (Ca)-Total		85.8	85.1		mg/L	0.9	20	23-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 4 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP								
	Water							
Batch	R4953431							
WG3243211-4	DUP	WG3243211-3						
Cesium (Cs)-Total		0.000059	0.000061		mg/L	4.7	20	23-DEC-19
Chromium (Cr)-Total		0.00030	0.00034		mg/L	13	20	23-DEC-19
Cobalt (Co)-Total		0.00039	0.00038		mg/L	2.7	20	23-DEC-19
Copper (Cu)-Total		0.00062	0.00058		mg/L	7.3	20	23-DEC-19
Iron (Fe)-Total		0.050	0.051		mg/L	1.8	20	23-DEC-19
Lead (Pb)-Total		0.000316	0.000311		mg/L	1.9	20	23-DEC-19
Lithium (Li)-Total		0.0800	0.0796		mg/L	0.5	20	23-DEC-19
Magnesium (Mg)-Total		46.9	48.0		mg/L	2.2	20	23-DEC-19
Manganese (Mn)-Total		0.131	0.134		mg/L	2.2	20	23-DEC-19
Molybdenum (Mo)-Total		0.00744	0.00754		mg/L	1.3	20	23-DEC-19
Nickel (Ni)-Total		0.00400	0.00411		mg/L	2.9	20	23-DEC-19
Potassium (K)-Total		37.2	37.6		mg/L	1.2	20	23-DEC-19
Phosphorus (P)-Total		0.036	0.043		mg/L	17	20	23-DEC-19
Rubidium (Rb)-Total		0.0264	0.0269		mg/L	1.7	20	23-DEC-19
Selenium (Se)-Total		0.000698	0.000667		mg/L	4.5	20	23-DEC-19
Silicon (Si)-Total		7.33	7.58		mg/L	3.3	20	23-DEC-19
Silver (Ag)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-DEC-19
Sodium (Na)-Total		218	218		mg/L	0.0	20	23-DEC-19
Strontium (Sr)-Total		0.265	0.268		mg/L	1.0	20	23-DEC-19
Sulfur (S)-Total		145	151		mg/L	4.1	20	23-DEC-19
Tellurium (Te)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	23-DEC-19
Thallium (Tl)-Total		<0.000010	<0.000010	RPD-NA	mg/L	N/A	20	23-DEC-19
Thorium (Th)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-DEC-19
Tin (Sn)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-DEC-19
Titanium (Ti)-Total		<0.00030	<0.00030	RPD-NA	mg/L	N/A	20	23-DEC-19
Tungsten (W)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	23-DEC-19
Uranium (U)-Total		0.00327	0.00320		mg/L	2.0	20	23-DEC-19
Vanadium (V)-Total		0.00065	0.00072		mg/L	9.8	20	23-DEC-19
Zinc (Zn)-Total		0.0436	0.0450		mg/L	3.2	20	23-DEC-19
Zirconium (Zr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	23-DEC-19
WG3243211-2	LCS							
Aluminum (Al)-Total			103.6		%		80-120	23-DEC-19
Antimony (Sb)-Total			106.9		%		80-120	23-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 5 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP								
	Water							
Batch	R4953431							
WG3243211-2	LCS							
Arsenic (As)-Total			100.9		%		80-120	23-DEC-19
Barium (Ba)-Total			103.0		%		80-120	23-DEC-19
Beryllium (Be)-Total			104.3		%		80-120	23-DEC-19
Bismuth (Bi)-Total			99.0		%		80-120	23-DEC-19
Boron (B)-Total			100.0		%		80-120	23-DEC-19
Cadmium (Cd)-Total			102.0		%		80-120	23-DEC-19
Calcium (Ca)-Total			107.0		%		80-120	23-DEC-19
Cesium (Cs)-Total			102.6		%		80-120	23-DEC-19
Chromium (Cr)-Total			100.7		%		80-120	23-DEC-19
Cobalt (Co)-Total			100.3		%		80-120	23-DEC-19
Copper (Cu)-Total			99.3		%		80-120	23-DEC-19
Iron (Fe)-Total			92.6		%		80-120	23-DEC-19
Lead (Pb)-Total			101.3		%		80-120	23-DEC-19
Lithium (Li)-Total			105.1		%		80-120	23-DEC-19
Magnesium (Mg)-Total			114.7		%		80-120	23-DEC-19
Manganese (Mn)-Total			102.4		%		80-120	23-DEC-19
Molybdenum (Mo)-Total			104.4		%		80-120	23-DEC-19
Nickel (Ni)-Total			99.9		%		80-120	23-DEC-19
Potassium (K)-Total			106.2		%		80-120	23-DEC-19
Phosphorus (P)-Total			105.5		%		80-120	23-DEC-19
Rubidium (Rb)-Total			101.9		%		80-120	23-DEC-19
Selenium (Se)-Total			104.9		%		80-120	23-DEC-19
Silicon (Si)-Total			107.3		%		80-120	23-DEC-19
Silver (Ag)-Total			101.4		%		80-120	23-DEC-19
Sodium (Na)-Total			103.9		%		80-120	23-DEC-19
Strontium (Sr)-Total			103.1		%		80-120	23-DEC-19
Sulfur (S)-Total			106.4		%		80-120	23-DEC-19
Tellurium (Te)-Total			98.8		%		80-120	23-DEC-19
Thallium (Tl)-Total			101.0		%		80-120	23-DEC-19
Thorium (Th)-Total			98.3		%		80-120	23-DEC-19
Tin (Sn)-Total			103.1		%		80-120	23-DEC-19
Titanium (Ti)-Total			100.6		%		80-120	23-DEC-19
Tungsten (W)-Total			100.2		%		80-120	23-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 6 of 14

Client: Office of Drinking Water
 Box 28, 59 Elizabeth Drive
 Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP								
	Water							
Batch	R4953431							
WG3243211-2	LCS							
Uranium (U)-Total			97.7		%		80-120	23-DEC-19
Vanadium (V)-Total			101.0		%		80-120	23-DEC-19
Zinc (Zn)-Total			99.2		%		80-120	23-DEC-19
Zirconium (Zr)-Total			99.3		%		80-120	23-DEC-19
WG3243211-1	MB							
Aluminum (Al)-Total			<0.0030		mg/L		0.003	23-DEC-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	23-DEC-19
Boron (B)-Total			<0.010		mg/L		0.01	23-DEC-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	23-DEC-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	23-DEC-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	23-DEC-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Copper (Cu)-Total			<0.000050		mg/L		0.00005	23-DEC-19
Iron (Fe)-Total			<0.010		mg/L		0.01	23-DEC-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	23-DEC-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	23-DEC-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	23-DEC-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	23-DEC-19
Nickel (Ni)-Total			<0.000050		mg/L		0.00005	23-DEC-19
Potassium (K)-Total			<0.050		mg/L		0.05	23-DEC-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	23-DEC-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	23-DEC-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	23-DEC-19
Silicon (Si)-Total			<0.10		mg/L		0.1	23-DEC-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	23-DEC-19
Sodium (Na)-Total			<0.050		mg/L		0.05	23-DEC-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	23-DEC-19
Sulfur (S)-Total			<0.50		mg/L		0.5	23-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 7 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP								
	Water							
Batch	R4953431							
WG3243211-1 MB								
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	23-DEC-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	23-DEC-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	23-DEC-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	23-DEC-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	23-DEC-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	23-DEC-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	23-DEC-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	23-DEC-19
WG3243211-5 MS		WG3243211-3						
Aluminum (Al)-Total			100.6		%		70-130	23-DEC-19
Antimony (Sb)-Total			110.1		%		70-130	23-DEC-19
Arsenic (As)-Total			99.98		%		70-130	23-DEC-19
Barium (Ba)-Total			N/A	MS-B	%		-	23-DEC-19
Beryllium (Be)-Total			103.2		%		70-130	23-DEC-19
Bismuth (Bi)-Total			92.5		%		70-130	23-DEC-19
Boron (B)-Total			N/A	MS-B	%		-	23-DEC-19
Cadmium (Cd)-Total			98.9		%		70-130	23-DEC-19
Calcium (Ca)-Total			N/A	MS-B	%		-	23-DEC-19
Cesium (Cs)-Total			100.4		%		70-130	23-DEC-19
Chromium (Cr)-Total			97.5		%		70-130	23-DEC-19
Cobalt (Co)-Total			95.3		%		70-130	23-DEC-19
Copper (Cu)-Total			90.9		%		70-130	23-DEC-19
Iron (Fe)-Total			95.7		%		70-130	23-DEC-19
Lead (Pb)-Total			96.0		%		70-130	23-DEC-19
Lithium (Li)-Total			104.1		%		70-130	23-DEC-19
Magnesium (Mg)-Total			N/A	MS-B	%		-	23-DEC-19
Manganese (Mn)-Total			N/A	MS-B	%		-	23-DEC-19
Molybdenum (Mo)-Total			110.3		%		70-130	23-DEC-19
Nickel (Ni)-Total			93.9		%		70-130	23-DEC-19
Potassium (K)-Total			N/A	MS-B	%		-	23-DEC-19
Phosphorus (P)-Total			108.5		%		70-130	23-DEC-19
Rubidium (Rb)-Total			N/A	MS-B	%		-	23-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 8 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP								
	Water							
Batch	R4953431							
WG3243211-5 MS		WG3243211-3						
Selenium (Se)-Total			99.9		%		70-130	23-DEC-19
Silicon (Si)-Total			93.4		%		70-130	23-DEC-19
Silver (Ag)-Total			96.9		%		70-130	23-DEC-19
Sodium (Na)-Total			N/A	MS-B	%		-	23-DEC-19
Strontium (Sr)-Total			N/A	MS-B	%		-	23-DEC-19
Sulfur (S)-Total			N/A	MS-B	%		-	23-DEC-19
Tellurium (Te)-Total			102.2		%		70-130	23-DEC-19
Thallium (Tl)-Total			95.0		%		70-130	23-DEC-19
Thorium (Th)-Total			99.96		%		70-130	23-DEC-19
Tin (Sn)-Total			103.4		%		70-130	23-DEC-19
Titanium (Ti)-Total			102.7		%		70-130	23-DEC-19
Tungsten (W)-Total			101.7		%		70-130	23-DEC-19
Uranium (U)-Total			97.6		%		70-130	23-DEC-19
Vanadium (V)-Total			100.8		%		70-130	23-DEC-19
Zinc (Zn)-Total			95.4		%		70-130	23-DEC-19
Zirconium (Zr)-Total			106.6		%		70-130	23-DEC-19
N-TOTKJ-WP								
	Water							
Batch	R4944486							
WG3241736-3 DUP		L2394902-1						
Total Kjeldahl Nitrogen			<0.20	RPD-NA	mg/L	N/A	20	16-DEC-19
WG3241736-2 LCS								
Total Kjeldahl Nitrogen			95.2		%		75-125	16-DEC-19
WG3241736-1 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	16-DEC-19
WG3241736-4 MS		L2394902-1						
Total Kjeldahl Nitrogen			100.7		%		70-130	16-DEC-19
NH3-COL-WP								
	Water							
Batch	R4943785							
WG3243267-11 DUP		L2396072-1						
Ammonia, Total (as N)			<0.010	RPD-NA	mg/L	N/A	20	13-DEC-19
WG3243267-10 LCS								
Ammonia, Total (as N)			100.9		%		85-115	13-DEC-19
WG3243267-9 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	13-DEC-19
WG3243267-12 MS		L2396072-1						



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 9 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-COL-WP								
	Water							
Batch	R4943785							
WG3243267-12	MS	L2396072-1						
Ammonia, Total (as N)			98.9		%		75-125	13-DEC-19
NO2-L-IC-N-WP								
	Water							
Batch	R4942534							
WG3240153-11	DUP	L2394902-1						
Nitrite (as N)		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	11-DEC-19
WG3240153-10	LCS							
Nitrite (as N)			99.0		%		90-110	11-DEC-19
WG3240153-9	MB							
Nitrite (as N)			<0.0010		mg/L		0.001	11-DEC-19
WG3240153-12	MS	L2394902-1						
Nitrite (as N)			105.5		%		75-125	11-DEC-19
NO3-L-IC-N-WP								
	Water							
Batch	R4942534							
WG3240153-11	DUP	L2394902-1						
Nitrate (as N)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	11-DEC-19
WG3240153-10	LCS							
Nitrate (as N)			100.9		%		90-110	11-DEC-19
WG3240153-9	MB							
Nitrate (as N)			<0.0050		mg/L		0.005	11-DEC-19
WG3240153-12	MS	L2394902-1						
Nitrate (as N)			109.4		%		75-125	11-DEC-19
PH-WP								
	Water							
Batch	R4943946							
WG3243409-10	DUP	L2394902-1						
pH		8.37	8.38	J	pH units	0.01	0.2	13-DEC-19
WG3243409-7	LCS							
pH			7.42		pH units		7.3-7.5	13-DEC-19
SO4-IC-N-WP								
	Water							
Batch	R4942534							
WG3240153-11	DUP	L2394902-1						
Sulfate (SO4)		34.3	34.3		mg/L	0.0	20	11-DEC-19
WG3240153-10	LCS							
Sulfate (SO4)			102.6		%		90-110	11-DEC-19
WG3240153-9	MB							
Sulfate (SO4)			<0.30		mg/L		0.3	11-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 10 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WP Water								
Batch	R4942534							
WG3240153-12	MS	L2394902-1						
Sulfate (SO4)			108.8		%		75-125	11-DEC-19
TDS-WP Water								
Batch	R4942852							
WG3241096-3	DUP	L2394902-1						
Total Dissolved Solids		452	472		mg/L	4.4	20	12-DEC-19
WG3241096-2	LCS							
Total Dissolved Solids			102.4		%		85-115	12-DEC-19
WG3241096-1	MB							
Total Dissolved Solids			<4.0		mg/L		4	12-DEC-19
TURBIDITY-WP Water								
Batch	R4941234							
WG3240489-3	DUP	L2394872-1						
Turbidity		158	160		NTU	1.3	15	11-DEC-19
WG3240489-2	LCS							
Turbidity			107.0		%		85-115	11-DEC-19
WG3240489-1	MB							
Turbidity			<0.10		NTU		0.1	11-DEC-19
UV-%TRANS-WP Water								
Batch	R4942132							
WG3241231-3	DUP	L2394902-1						
Transmittance, UV (254 nm)		94.4	95.3		%T/cm	0.9	20	12-DEC-19
WG3241231-1	IRM	BLANK						
Transmittance, UV (254 nm)			100.0		%		99.5-100.5	12-DEC-19
WG3241231-2	LCS							
Transmittance, UV (254 nm)			98.2		%		85-115	12-DEC-19
VOC+F1-HSMS-WP Water								
Batch	R4946253							
WG3244634-4	DUP	L2396304-6						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
1,1-dichloroethene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
Dichloromethane		<0.0050	<0.0050	RPD-NA	mg/L	N/A	30	18-DEC-19
Ethylbenzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
MTBE		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
1,1,1,2-Tetrachloroethane		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 11 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP								
	Water							
Batch	R4946253							
WG3244634-4 DUP		L2396304-6						
1,1,2,2-Tetrachloroethane		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
Tetrachloroethene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
Toluene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
1,1,1-Trichloroethane		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
1,1,2-Trichloroethane		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
Trichloroethene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
M+P-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	18-DEC-19
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	18-DEC-19
WG3244634-2 LCS								
Benzene			82.5		%		70-130	17-DEC-19
1,1-dichloroethene			82.5		%		70-130	17-DEC-19
Dichloromethane			85.3		%		70-130	17-DEC-19
Ethylbenzene			100.6		%		70-130	17-DEC-19
MTBE			106.7		%		70-130	17-DEC-19
1,1,1,2-Tetrachloroethane			107.5		%		70-130	17-DEC-19
1,1,2,2-Tetrachloroethane			114.0		%		70-130	17-DEC-19
Tetrachloroethene			103.0		%		70-130	17-DEC-19
Toluene			108.3		%		70-130	17-DEC-19
1,1,1-Trichloroethane			83.4		%		70-130	17-DEC-19
1,1,2-Trichloroethane			107.0		%		70-130	17-DEC-19
Trichloroethene			82.3		%		70-130	17-DEC-19
M+P-Xylenes			100.3		%		70-130	17-DEC-19
o-Xylene			110.8		%		70-130	17-DEC-19
WG3244634-1 MB								
Benzene			<0.00050		mg/L		0.0005	18-DEC-19
1,1-dichloroethene			<0.00050		mg/L		0.0005	18-DEC-19
Dichloromethane			<0.00050		mg/L		0.0005	18-DEC-19
Ethylbenzene			<0.00050		mg/L		0.0005	18-DEC-19
MTBE			<0.00050		mg/L		0.0005	18-DEC-19
1,1,1,2-Tetrachloroethane			<0.00050		mg/L		0.0005	18-DEC-19
1,1,2,2-Tetrachloroethane			<0.00050		mg/L		0.0005	18-DEC-19
Tetrachloroethene			<0.00050		mg/L		0.0005	18-DEC-19
Toluene			<0.00050		mg/L		0.0005	18-DEC-19
1,1,1-Trichloroethane			<0.00050		mg/L		0.0005	18-DEC-19



Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Page 12 of 14

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Contact: BRIAN LUNDMARK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC+F1-HSMS-WP	Water							
Batch	R4946253							
WG3244634-1 MB								
1,1,2-Trichloroethane			<0.00050		mg/L		0.0005	18-DEC-19
Trichloroethene			<0.00050		mg/L		0.0005	18-DEC-19
M+P-Xylenes			<0.00040		mg/L		0.0004	18-DEC-19
o-Xylene			<0.00050		mg/L		0.0005	18-DEC-19

Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Page 13 of 14

Contact: BRIAN LUNDMARK

Legend:

Limit ALS Control Limit (Data Quality Objectives)
DUP Duplicate
RPD Relative Percent Difference
N/A Not Available
LCS Laboratory Control Sample
SRM Standard Reference Material
MS Matrix Spike
MSD Matrix Spike Duplicate
ADE Average Desorption Efficiency
MB Method Blank
IRM Internal Reference Material
CRM Certified Reference Material
CCV Continuing Calibration Verification
CVS Calibration Verification Standard
LCSD Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2394902

Report Date: 06-FEB-20

Client: Office of Drinking Water
Box 28, 59 Elizabeth Drive
Thompson MB R8N 1X4

Page 14 of 14

Contact: BRIAN LUNDMARK

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	09-DEC-19 08:50	13-DEC-19 12:00	0.25	99	hours	EHTR-FM
	2	09-DEC-19 08:35	13-DEC-19 12:00	0.25	99	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2394902 were received on 11-DEC-19 12:45.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



17-Dec-2019

Craig Riddell
ALS Laboratory Group
Unit 12 - 1329 Niakwa Rd. E.
Winnipeg, MB R2J 3T4

Tel: (204) 255-9749
Fax: (204) 255-9721

Re: L2394902

Work Order: **1912481**

Dear Craig,

ALS Environmental received 2 samples on 13-Dec-2019 09:49 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 7.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Shawn Smythe

Electronically approved by: Shawn Smythe

Shawn Smythe
Project Manager

ADDRESS 4388 Glendale Milford Rd Cincinnati, OH 45242- | PHONE (513) 733-5336 | FAX (513) 733-5347

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Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: ALS Laboratory Group
Project: L2394902
Work Order: 1912481

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1912481-01	L2394902-1 RM of Kelsey 1-Raw	Water		12/9/2019	12/13/2019 09:49	<input type="checkbox"/>
1912481-02	L2394902-2 RM of Kelsey 2-Treated	Water		12/9/2019	12/13/2019 09:49	<input type="checkbox"/>

Client: ALS Laboratory Group

Project: L2394902

Work Order: 1912481

Case Narrative

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Results relate only to the items tested and are not blank corrected unless indicated.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

ALS is an EPA recognized NLLAP laboratory for lead paint, soil, and dust wipe analyses under its AIHA-LAP accreditation.

ALS Environmental

Date: 17-Dec-19

Client: ALS Laboratory Group
Project: L2394902

Work Order: 1912481

Lab ID: 1912481-01A
Client Sample ID: L2394902-1 RM of Kelsey 1-Raw

Collection Date: 12/9/2019
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
IODIDE BY EPA 300 MOD. Iodide	ND		E300.0 0.20	mg/L	Prep Date: 12/16/2019 1	Analyst: AT 12/16/2019 06:15 PM

Lab ID: 1912481-02A
Client Sample ID: L2394902-2 RM of Kelsey 2-Treated

Collection Date: 12/9/2019
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
IODIDE BY EPA 300 MOD. Iodide	ND		E300.0 0.20	mg/L	Prep Date: 12/16/2019 1	Analyst: AT 12/16/2019 06:52 PM

Note:

ALS Environmental

Date: 17-Dec-19

Client: ALS Laboratory Group
 Work Order: 1912481
 Project: L2394902

QC BATCH REPORT

Batch ID: **63821** Instrument ID **IC1** Method: **E300.0**

MBLK	Sample ID DICK0815-63821						Units: mg/L	Analysis Date: 12/16/2019 04:24 PM			
Client ID:	Run ID: IC1_191216A						SeqNo: 2158644	Prep Date: 12/16/2019	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Iodide	ND	0.20									

LCS	Sample ID LCS-63821-63821						Units: mg/L	Analysis Date: 12/16/2019 04:36 PM			
Client ID:	Run ID: IC1_191216A						SeqNo: 2158645	Prep Date: 12/16/2019	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Iodide	11.23	0.20	10	0	112	70-130	0				

LCSD	Sample ID LCSD-63821-63821						Units: mg/L	Analysis Date: 12/16/2019 04:49 PM			
Client ID:	Run ID: IC1_191216A						SeqNo: 2158646	Prep Date: 12/16/2019	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Iodide	10.53	0.20	10	0	105	70-130	11.23	6.41	20		

MS	Sample ID 1912481-02A MS						Units: mg/L	Analysis Date: 12/16/2019 05:01 PM			
Client ID: L2394902-2 RM of Kelsey 2-Treated	Run ID: IC1_191216A						SeqNo: 2158647	Prep Date: 12/16/2019	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Iodide	11.8	0.20	10	0	118	70-130	0				

MSD	Sample ID 1912481-02A MSD						Units: mg/L	Analysis Date: 12/16/2019 05:13 PM			
Client ID: L2394902-2 RM of Kelsey 2-Treated	Run ID: IC1_191216A						SeqNo: 2158648	Prep Date: 12/16/2019	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Iodide	10.52	0.20	10	0	105	70-130	11.8	11.5	20		

The following samples were analyzed in this batch: 1912481-01A 1912481-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Laboratory Group
Project: L2394902
WorkOrder: 1912481

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
E	EPA Method
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SDL	Sample Detection Limit
SW	SW-846 Method

<u>Units Reported</u>	<u>Description</u>
mg/L	

Sample Receipt Checklist

Client Name: **ALS-WINNIPEG**

Date/Time Received: **13-Dec-19 09:49**

Work Order: **1912481**

Received by: **SNH**

Checklist completed by Joe Ribar 13-Dec-19
eSignature Date

Reviewed by: Shawn Smythe 13-Dec-19
eSignature Date

Matrices: water

Carrier name: UPS

Shipping container/cooler in good condition? Yes No Not Present

Custody seals intact on shipping container/cooler? Yes No Not Present

Custody seals intact on sample bottles? Yes No Not Present

Chain of custody present? Yes No

Chain of custody signed when relinquished and received? Yes No

Chain of custody agrees with sample labels? Yes No

Samples in proper container/bottle? Yes No

Sample containers intact? Yes No

Sufficient sample volume for indicated test? Yes No

All samples received within holding time? Yes No

Container/Temp Blank temperature in compliance? Yes No

Temperature(s)/Thermometer(s): 3.4c

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

[Empty text box for comments]

CorrectiveAction:

[Empty text box for corrective action]



Sustainable Development
Office of Drinking Water
1007 Century Street, Winnipeg, Manitoba,
Canada R3H 0W4



L2394902-COFC

st Form

ALS Environmental **L2394902**
1329 Niakwa Rd E, Unit 12, Winnipeg, MB R2J 3T4
(204) 255-9720 or 1-800-607-7555

Report to:

Name:	Brian Lundmark
Office Address:	Box 28 - 59 Elizabeth Dr., Thompson, MB R8N1X
Email:	brian.lundmark@gov.mb.ca
Phone:	(204) 677-6704

Additional Copy of Report sent to:

Office of Drinking Water
1007 Century St., Winnipeg, MB R3H 0W4
Phone: 204-945-5776
Joern.Muenster@gov.mb.ca

Regular Service Other

Other Service Types: _____

ALS Contact: Craig Riddell

Client / Project Information:						Account: W10477		MET-1-CCMS-WP (Total Metals)	54 - PWS	56 Hydrocarbons	Number of Containers
Operation Name: RURAL MUNICIPALITY OF KELSEY - PWS						Agency Code: 382					
Operation Code: 101.25						Report Type: ODW - UTIL					
Operation ID: 21366						Project: DWQ-A					
Sampled by: Brian Lundmark											

Sample Number	Station Number	Sample Identification	Free Chlorine (mg/L)	Total Chlorine (mg/L)	Sample Date	Sample Time	Sample Matrix	Sample Type	MET-1-CCMS-WP (Total Metals)	54 - PWS	56 Hydrocarbons	Number of Containers
1912BL0015	MB05KLD051	RM of Kelsey 1 - Raw			2019-12-09	8:50	6	1		X		5
1912BL0016	MB05KLD052	RM of Kelsey 2 - Treated	0.70		2019-12-09	8:35	10	1		X		5
1912BL0017	MB05KLD053	RM of Kelsey 3 - Distribution			2019-12-09	8:25	9	1	X			1
1912BL0018	MB05KLD051	RM of Kelsey 1 - Raw			2019-12-09	8:50	6	1		X		3

Special Instructions / Hazardous Details Sample Matrix: 6-Raw Water, 9-Distributed Water, 10-Treated Water, 11-Drinking Water Undisinfected
Sample Type: 1-Grab Sample, 33-Resample, 3-Duplicate Sample, 22-Field Blank

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the adjacent worksheet.

Relinquished By:	Brian Lundmark	Date & Time:		Validated By (lab use only):	Date & Time:
Received By:	<i>CD</i>	Date & Time:	Dec 11 2015	Temperature:	Samples Received in Good Condition? <i>Y/N</i>