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**Report Transmission Cover Page** 

Bill To: North Springbank Water Co-op

31173 TWP. Road 251A Calgary, AB, Canada

T3Z 1E5

Attn: Barry Okabe Sampled By:

Company:

Project ID: S4 Q1-2021

Project Name: NSWC

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1475716

Control Number:

Date Received: Feb 23, 2021
Date Reported: Mar 23, 2021
Report Number: 2606388

Report Number: 2606388

Contact	Company		Addres	s			
Barry Okabe North Springbank Water Co-op			31173 TWP. Road 251A				
			Calgary, AB T3Z 1E5				
			Phone:	(403) 863-9521	Fax:	(403)	247-6039
			Email:	bgokabe@gmail.com			
Delivery		<u>Format</u>		<u>Deliverables</u>			
Email - Merge Reports		PDF		COC / Test Report			
Email - Multiple Reports By	Agreement	PDF		COA			
Email - Single Report		PDF		Invoice			
Email - Single Report		Standard Crosstab Without Tabs		Test Report			
Bryce Johnson	North Spring	gbank Water Co-op	31173	ΓWP. Road 251A			
			Calgary	, AB T3Z 1E5			
			Phone:	(403) 247-1007	Fax:	(403)	247-6039
			Email:	brycej@telus.net, nswc@li	ve.ca		
Delivery		<u>Format</u>		<u>Deliverables</u>			
Email - Multiple Reports By	Agreement	PDF		COR			

### **Notes To Clients:**

- Mar 18, 2021 Report was issued to correct the total metals result on sample 1475716-1 previously reported incorrectly due to a volume error on previous report 2597110.
- Mar 18, 2021 Sample 1475716-1; 7399234: Sample 1475716-1: the repeated result for ICP-MS total metals analysis differs significantly from the original. The cause of the difference was an incorrect dilution factor.
- Mar 23, 2021 Report was issued to include missing Aluminum, Calcium, Iron, Magnesium, Manganese, Potassium, Silicon, Sodium and Sulfur analysis on sample 1.
   Previous report 2605019.

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**Analytical Report** 

Bill To: North Springbank Water Co-op

31173 TWP. Road 251A

Attn: Barry Okabe

Sampled By: Company:

Calgary, AB, Canada T3Z 1E5

Proj. Acct. code:

Project ID: S4 Q1-2021 **NSWC** 

Project Name: Project Location:

LSD: P.O.:

Lot ID: 1475716

Control Number:

Date Received: Feb 23, 2021 Date Reported: Mar 23, 2021 2606388 Report Number:

**Reference Number** 

Sample Date February 23, 2021 Sample Time 08:30

1475716-1

Sample Location

**Sample Description** 

Sample Matrix

S4 / Schedule 4 / 9.3°C

Water

				Nominal Detection	Guideline	Guideline
Analyte		Units	Result	Limit	Limit	Comments
Inorganic Nonmetallic	Parameters					
Ammonia - N		mg/L	< 0.025	0.025		
Ammonium/Ammonia			Yes			
Preservation						
Sulfide	Total	mg/L	<0.002	0.002	0.05	Below AO
Organic Carbon	Total Nonpurgeable	mg/L	2.2	0.5		
Chlorine	Total	mg/L	0.8	0.1		
Chlorine	Free	mg/L	0.7	0.1		
Chloramine		mg/L	0.2	0.1		
Chlorate	Dissolved	mg/L	<0.1	0.1	1.0	Below MAC
Chlorite	Dissolved	mg/L	<0.2	0.2	1.0	Below MAC
Cyanide	Dissolved	mg/L	<0.002	0.002	0.2	Below MAC
Bromate	Dissolved	mg/L	< 0.003	0.003	0.01	Below MAC
Hydrogen Sulfide	Calculated	mg/L	< 0.002			
Metals Dissolved						
Subsample			Lab Filtered			
Metals Total						
Aluminum	Total	mg/L	< 0.02	0.02	0.1	Below OG
Calcium	Total	mg/L	27.6	0.2		
Iron	Total	mg/L	< 0.05	0.05	0.3	Below AO
Magnesium	Total	mg/L	19.4	0.2		
Manganese	Total	mg/L	0.011	0.005	0.02 AO; 0.12 MAC	Below AO
Potassium	Total	mg/L	2.3	0.4		
Silicon	Total	mg/L	3.31	0.05		
Sodium	Total	mg/L	176	0.4	200	Below AO
Sulfur	Total	mg/L	57.9	0.3		
Mercury	Total	mg/L	< 0.000005	0.000005	0.001	Below MAC
Antimony	Total	mg/L	< 0.0002	0.0002	0.006	Below MAC
Arsenic	Total	mg/L	0.0006	0.0002	0.01	Below MAC
Barium	Total	mg/L	0.019	0.001	2.0	Below MAC
Beryllium	Total	mg/L	< 0.0001	0.0001		
Bismuth	Total	mg/L	< 0.0005	0.0005		
Boron	Total	mg/L	0.065	0.002	5.0	Below MAC
Cadmium	Total	mg/L	0.00001	0.00001	0.007	Below MAC
Chromium	Total	mg/L	<0.0005	0.0005	0.05	Below MAC
Cobalt	Total	mg/L	<0.0001	0.0001		
Copper	Total	mg/L	0.014	0.001	1 AO; 2 MAC	Below AO
Lead	Total	mg/L	0.0003	0.0001	0.005	Below MAC
Lithium	Total	mg/L	0.041	0.001		



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NSWC Project Name:

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1475716

Control Number:

Date Received: Feb 23, 2021 Date Reported: Mar 23, 2021 2606388 Report Number:

Reference Number

1475716-1 Sample Date February 23, 2021 Sample Time 08:30

Sample Location

**Sample Description** 

Water

Sample Matrix

		Sample Matrix	vvater			
Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Metals Total - Continued						
Molybdenum	Total	mg/L	0.005	0.001		
Nickel	Total	mg/L	< 0.0005	0.0005		
Selenium	Total	mg/L	0.0004	0.0002	0.05	Below MAC
Silver	Total	mg/L	< 0.00001	0.00001		
Strontium	Total	mg/L	0.418	0.001	7.0	Below MAC
Thallium	Total	mg/L	< 0.00005	0.00005		
Tin	Total	mg/L	<0.001	0.001		
Titanium	Total	mg/L	< 0.0005	0.0005		
Uranium	Total	mg/L	0.0015	0.0005	0.02	Below MAC
Vanadium	Total	mg/L	0.0003	0.0001		
Zinc	Total	mg/L	0.015	0.001	5.0	Below AO
Physical and Aggregate	Properties					
Colour	Apparent, Potable	Colour units	<5	5	15	Below AO
Turbidity		NTU	0.5	0.1	0.1	Above OG
Polycyclic Aromatic Hyd	rocarbons - Water					
Benzo(a)pyrene		mg/L	<0.000008	0.000008	0.00004	Below MAC
Routine Water						
рН			8.22	1	7.0-10.5	Within OG Range
Temperature of observed pH		°C	21.5			
Electrical Conductivity	at 25 °C	μS/cm	961	1		
Calcium	Dissolved	mg/L	26.4	0.2		
Magnesium	Dissolved	mg/L	19.3	0.2		
Sodium	Dissolved	mg/L	173	0.4	200	Below AO
Potassium	Dissolved	mg/L	2.2	0.4		
Iron	Dissolved	mg/L	<0.01	0.01	0.3	Below AO
Manganese	Dissolved	mg/L	<0.005	0.005	0.02 AO; 0.12 MAC	Below AO
Chloride	Dissolved	mg/L	12.7	0.4	250	Below AO
Fluoride		mg/L	0.74	0.05	1.5	Below MAC
Nitrate - N		mg/L	0.74	0.01	10	Below MAC
Nitrite - N		mg/L	< 0.005	0.005	1	Below MAC
Nitrate and Nitrite - N		mg/L	0.74	0.01	10	Below MAC
Sulfate (SO4)	Dissolved	mg/L	168	0.9	500	Below AO
Hydroxide		mg/L	<5			
Carbonate		mg/L	<6			
Bicarbonate		mg/L	415			
P-Alkalinity	as CaCO3	mg/L	<5	5		
T-Alkalinity	as CaCO3	mg/L	340	5		



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Sampled By: Company:

Project ID: S4 Q1-2021

NSWC Project Name:

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1475716

Control Number:

Date Received: Feb 23, 2021 Date Reported: Mar 23, 2021 Report Number: 2606388

Reference Number 1475716-1

> Sample Date Sample Time

February 23, 2021 08:30

S4 / Schedule 4 / 9.3°C

Sample Location

**Sample Description** 

Water

Sample Matrix

		Sample Matrix	Water			
Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Routine Water - Continue	d					
Total Dissolved Solids	Calculated	mg/L	605	1	500	Above AO
Hardness	Dissolved as CaCO3	mg/L	146.0			
Ionic Balance	Dissolved	%	98			
General Water Quality						
Microcystin-Total	ELISA	μg/L	<0.2	0.2	1.5	Below MAC
Glyphosate in Water						
Glyphosate		μg/L	<10	10	280	Below MAC
AMPA		μg/L	<10	10		
Subcontracted Analysis						
Nitrilotriacetic Acid		mg/L	<0.1	0.1		
N-Nitrosodimethylamine	NDMA	μg/L	<0.001	0.001	0.04	Below MAC
Health Canada Drinking V	Vater - Organics					
Benzene		mg/L	<0.001	0.001	0.005	Below MAC
Bromodichloromethane		mg/L	0.010	0.001		
Bromoform		mg/L	<0.001	0.001		
Carbon Tetrachloride		mg/L	<0.001	0.001	0.002	Below MAC
Chlorobenzene		mg/L	< 0.001	0.001	0.03	Below AO
Chloroform		mg/L	0.013	0.001		
Dibromochloromethane		mg/L	0.006	0.001		
1,2-Dichlorobenzene		mg/L	<0.001	0.001	0.003 AO; 0.2 MAC	Below AO
1,4-Dichlorobenzene		mg/L	<0.001	0.001	0.001 AO; 0.005 MAC	Below AO
1,2-Dichloroethane		mg/L	< 0.001	0.001	0.005	Below MAC
1,1-Dichloroethene		mg/L	< 0.001	0.001	0.014	Below MAC
2,4 & 2,5-Dichlorophenol		mg/L	<0.0001	0.0001	0.0003 AO; 0.9 MAC	Below AO
Ethylbenzene		mg/L	<0.001	0.001	0.0016 AO; 0.14 MAC	Below AO
Methyl t-Butyl Ether		mg/L	<0.001	0.001	0.015	Below AO
Methylene Chloride		mg/L	< 0.005	0.005	0.05	Below MAC
Pentachlorophenol		mg/L	<0.0001	0.0001	0.03	Below AO
Tetrachloroethene		mg/L	<0.001	0.001	0.01	Below MAC
2,3,4,6-Tetrachlorophenol		mg/L	<0.0001	0.0001	0.001	Below AO
Toluene		mg/L	<0.001	0.001	0.024 AO; 0.060 MAC	Below AO
Total Trihalomethanes		mg/L	0.029	0.001	0.1	Below MAC
Total Xylenes (m,p,o)		mg/L	<0.001	0.001	0.02 AO; 0.09 MAC	Below AO
Trichloroethene		mg/L	<0.001	0.001	0.005	Below MAC
2,4,6-Trichlorophenol		mg/L	<0.0001	0.0001	0.002	Below AO



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T3Z 1E5

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Company:

Project ID: S4 Q1-2021

Project Name: NSWC

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1475716

Control Number:

Date Received: Feb 23, 2021
Date Reported: Mar 23, 2021
Report Number: 2606388

Reference Number 1475716-1

**Sample Date** February 23, 2021 **Sample Time** 08:30

Sample Location

Sample Description

S4 / Schedule 4 / 9.3°C

Sample Matrix Water

Analyte		Units	Result	Nominal Detection Limit	Guideline Limit	Guideline Comments
Health Canada Drinking Water	er - Organics - Con	tinued				
Vinyl Chloride		mg/L	< 0.002	0.002	0.002	Below MAC
Health Canada Drinking Water	er - Pesticides	-				
Aldicarb		mg/L	< 0.0001	0.0001		
Aldrin		mg/L	< 0.0005	0.0005		
Dieldrin		mg/L	< 0.0005	0.0005		
Atrazine		mg/L	< 0.0001	0.0001	0.005	Below MAC
Deethylatrazine		mg/L	< 0.0001	0.0001	0.005	Below MAC
Deisopropylatrazine		mg/L	<0.0001	0.0001	0.005	Below MAC
Didealkylatrazine		mg/L	< 0.0001	0.0001	0.005	Below MAC
Azinphos-methyl		mg/L	< 0.0005	0.0005	0.02	Below MAC
Bendiocarb		mg/L	< 0.0001	0.0001		
Bromoxynil		mg/L	<0.0001	0.0001	0.005	Below MAC
Carbaryl		mg/L	< 0.0001	0.0001	0.09	Below MAC
Carbofuran		mg/L	< 0.0001	0.0001	0.09	Below MAC
Chlorpyrifos		mg/L	< 0.0005	0.0005	0.09	Below MAC
Cyanazine		mg/L	< 0.0001	0.0001		
2,4-D		mg/L	< 0.0001	0.0001	0.1	Below MAC
Diazinon		mg/L	< 0.0001	0.00010	0.02	Below MAC
Dicamba		mg/L	< 0.0001	0.0001	0.12	Below MAC
Diclofop-methyl		mg/L	< 0.0002	0.0002	0.009	Below MAC
Dimethoate		mg/L	< 0.0005	0.0005	0.02	Below MAC
Dinoseb		mg/L	< 0.0001	0.0001		
Diuron		mg/L	< 0.0001	0.0001	0.15	Below MAC
Malathion		mg/L	< 0.0001	0.0001	0.19	Below MAC
MCPA		mg/L	< 0.0001	0.0001	0.1	Below MAC
Methoxychlor		mg/L	< 0.0005	0.0005		
Metolachlor		mg/L	< 0.0005	0.0005	0.05	Below MAC
Metribuzin		mg/L	< 0.0005	0.0005	80.0	Below MAC
Parathion		mg/L	< 0.0005	0.0005		
Phorate		mg/L	< 0.0005	0.0005	0.002	Below MAC
Picloram		mg/L	<0.0001	0.0001	0.19	Below MAC
Simazine		mg/L	<0.0001	0.0001	0.01	Below MAC
Terbufos		mg/L	< 0.0005	0.0005	0.001	Below MAC
Triallate		mg/L	<0.0001	0.00010		
Trifluralin		mg/L	<0.0001	0.0001	0.045	Below MAC
Health Canada DW - Pesticid	es - Surrogate Rec	•				
TPP S	urrogate	%	115	50-140		
	urrogate	%	74	50-140		
	urrogate	%	61	50-140		



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Sampled By: Company: Project ID: S4 Q1-2021

Project Name: **NSWC** 

Project Location:

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Sample Date Sample Time

February 23, 2021 08:30

S4 / Schedule 4 / 9.3°C

1475716-1

**Sample Location** 

**Sample Description** Sample Matrix

Detection Guideline nit Limit	Guideline Comments
	Comments
40	
)	
)	
)	
)	
)	
0 80	Below MAC
50	
)	

Approved by:

Benjamin Morris, B.Sc **Operations Manager** 



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**Methodology and Notes** 

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Sampled By:

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Project Location:

LSD: P.O.:

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Control Number:

Date Received: Feb 23, 2021 Date Reported: Mar 23, 2021 Report Number: 2606388

**Method of Analysis** Method Name

Company:

Method Name	Reference	Method Date Analysis Location Started	
Alkalinity, pH, and EC in water	APHA	Alkalinity - Titration Method, 2320 B Feb 24, 2021 Element Edmonton - Road	Roper
Alkalinity, pH, and EC in water	APHA	Conductivity, 2510 B Feb 24, 2021 Element Edmonton - Road	Roper
Alkalinity, pH, and EC in water	APHA	pH - Electrometric Method, 4500-H+ B Feb 24, 2021 Element Edmonton - Road	Roper
Ammonium-N in Water	APHA	Automated Phenate Method, 4500-NH3 G Mar 1, 2021 Element Edmonton - Road	Roper
Anions (Routine) by Ion Chromatography	APHA	Ion Chromatography with Chemical Feb 25, 2021 Element Edmonton - Suppression of Eluent Cond., 4110 B Road	Roper
Approval-Edmonton	APHA	Checking Correctness of Analyses, 1030 Mar 1, 2021 Element Edmonton - Road	Roper
Bromate in Water	APHA	Single-Column Ion Chromatography with Feb 25, 2021 Element Edmonton - Electronic Suppression, 4110 C Road	Roper
Carbon Organic (Total) in water (TOC)	APHA	High-Temperature Combustion Method, Feb 25, 2021 Element Edmonton - 5310 B Road	Roper
Chlorate and Chlorite by Ion Chromatography	APHA	Ion Chromatography with Chemical Feb 24, 2021 Element Edmonton - Suppression of Eluent Cond., 4110 B Road	Roper
Chloride in Water	APHA	Automated Ferricyanide Method, 4500-Cl- Feb 24, 2021 Element Edmonton - Road	Roper
Chlorine (Free) in water	APHA	DPD Colorimetric Method, 4500-Cl G Feb 24, 2021 Element Edmonton - Road	Roper
Chlorine (Total) in water	APHA	DPD Colorimetric Method, 4500-Cl G Feb 24, 2021 Element Edmonton - Road	Roper
Colour (Apparent) in water	APHA	Visual Comparison Method, 2120 B Feb 24, 2021 Element Edmonton - Road	Roper
Cyanide (Dissolved) in water	Alta. Env. Method	Cyanide, Simple Extractable (Automated Pyridine-Barbituric Acid Colorimetric Road Method), 06608L	Roper
Glyphosate - Water	US EPA	Solvent Extractable Nonvolatile Feb 25, 2021 Element Calgary Compounds by HPLC/TS/MS or UV Detection, 8321 B	
Haloacetic Acids - Water	US EPA	Determination of Haloacetic Acids and Dalapon in drinking water by liquid-liquid microextraction, derivatization, and gas chromatography with electron capture detection, 552.3 Feb 23, 2021 Element Calgary E	
HCGCMS Pesticides - Water	US EPA	OC Pesticides by Gas Chromatography, Feb 24, 2021 Element Calgary 8081B	
HCGCMS Pesticides - Water	US EPA	OP Compounds by Gas Chromatography: Feb 24, 2021 Element Calgary Capillary Column Techniq, 8141A	
HCLCMS Pesticides - Water	USGS	Determination of Pesticides in Water by Graphitized Carbon-Based SPE & HPLC/MS, O-2060-1	
HCVOC - Water	US EPA	Volatile Organic Compounds by GCMS / Feb 24, 2021 Element Calgary Purge and Trap for Aqueous Samples, 8260B/5030B	



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F 7				
Method Name	Reference	Method	Date Analysis Started	Location
Mercury (Total) in water	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	Feb 24, 2021	Element Edmonton - Roper Road
Mercury (Total) in water	US EPA	* Determination of Hg in Sediment by Cold Vapor Atomic Absorption Spec, 245.5	Feb 24, 2021	Element Edmonton - Roper Road
Metals ICP-MS (Total) in water	APHA/USEPA	* Metals By Inductively Coupled Plasma/Mass Spectrometry, APHA 3125 B / USEPA 200.2, 200.8		Element Edmonton - Roper Road
Metals ICP-MS (Total) in water	US EPA	<ul> <li>Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8</li> </ul>		Element Edmonton - Roper Road
Metals Trace (Dissolved) in water	APHA	Hardness by Calculation, 2340 B	Feb 24, 2021	Element Edmonton - Roper Road
Metals Trace (Dissolved) in water	APHA	<ul> <li>* Inductively Coupled Plasma (ICP)</li> <li>Method, 3120 B</li> </ul>	Feb 24, 2021	Element Edmonton - Roper Road
Metals Trace (Total) in water	APHA	<ul> <li>* Inductively Coupled Plasma (ICP)</li> <li>Method, 3120 B</li> </ul>	Feb 24, 2021	Element Edmonton - Roper Road
Microcystin in water	EnviroLogix	Microcystins Analysis in Water by ELISA Method, Catalog Number EP022	Feb 25, 2021	Element Calgary
NDMA in water	Ext. Lab	Analysis performed by external laboratory .	Mar 15, 2021	Pacific Rim Laboratories Inc.
Nitrilotriacetic acid in water	Ext. Lab	Analysis performed by external laboratory .	Feb 25, 2021	Saskatchewan Research Council
PAH - Water	US EPA	<ul> <li>Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, 8270</li> </ul>	Feb 24, 2021	Element Calgary
PCP - Water	US EPA	<ul> <li>Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, 8270</li> </ul>	Feb 24, 2021	Element Calgary
Sulfide in water	АРНА	<ul> <li>* Gas Dialysis, Automated Methylene Blue Method, 4500-S2- E</li> </ul>	Feb 26, 2021	Element Edmonton - Roper Road
Turbidity in Water	APHA	* Turbidity - Nephelometric Method, 2130 B	Feb 24, 2021	Element Edmonton - Roper Road
		* Peteranea Method Medified		

<sup>\*</sup> Reference Method Modified

## References

Alta. Env. Method Alberta Environment Method

APHA Standard Methods for the Examination of Water and Wastewater APHA/USEPA Standard Methods For Water/ Environmental Protection Agency

Envirologix QuantiPlate Kit for Microcystins EnviroLogix

EPA Environmental Protection Agency Test Methods - US

Ext. Lab **External Laboratory** 

**US EPA** US Environmental Protection Agency Test Methods **USGS** U.S. Geological Survey National Water Quality Laboratory

### Guidelines

Guideline Description Health Canada GCDWQ

Guidelines for Canadian Drinking Water Quality, Health Canada, Sept 2020 Guideline Source

Guideline Comments MAC = Maximum Acceptable Concentration

AO = Aesthetic Objective

OG = Operational Guideline for Water Treatment Plants



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T3Z 1E5
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Sampled By:

Company:

Project ID: S4 Q1-2021 Project Name: NSWC

Project Location:

LSD: P.O.:

Proj. Acct. code:

Lot ID: 1475716

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Guideline Comments (does not apply to private groundwater wells).

Refer to Health Canada for complete guidelines at www.hc-sc.gc.ca

#### Comments:

• Mar 18, 2021 - Report was issued to correct the total metals result on sample 1475716-1 previously reported incorrectly due to a volume error on previous report 2597110.

- Mar 18, 2021 Sample 1475716-1; 7399234: Sample 1475716-1: the repeated result for ICP-MS total metals analysis differs significantly from the original. The cause of the difference was an incorrect dilution factor.
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Previous report 2605019.

The comparison of test results to guideline limits is provided for information purposes only. This is not to be taken as a statement of conformance / nonconformance to any guideline, regulation or limit. The data user is responsible for all conclusions drawn with respect to the data and is advised to consult official regulatory references when evaluating compliance.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

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