Public Water System Annual Report

-2016-

Name of the Public Water System: **G3 Regional Water Co-op**

Name of the Legal Owner: **G3 Regional Water Co-operative Inc.**

Contact Person: **Susan Boyachek**

Phone: **(204) 548-2326**

Emergency number: **(204) 647-1148**

Name of Operator: **Mr. Ivan Yakimishen**

Phone during business hours: **(204) 548-4561**

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Susan Boyachek
Secretary Treasurer
G3 Regional Water Co-op Inc.

Date Prepared: March 2017

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1. Introduction:

The 2016 G3 Regional Water Co-op Annual Report summarizes the water utility's ability to provide safe potable water and comply with provincial regulations.

2. Description of the Water System

The G3 Water Co-op provides potable drinking water to a population of approximately 2500 residents. No corrective actions or emergency reporting was required. Full results have been attached in Section 3.

The G3 Regional Co-op water system consists of two wells, raw water supply pipeline, water treatment plant (WTP), and a network of distribution pipelines.

2.1. Water Supply Source

The G3 Regional Water Co-op receives its raw water supply from two 300 mm groundwater wells. The wells are located approximately 1 km north of the WTP on municipal right-of-way west of the NW 26-26-23 W. One well can supply the system, however a fully equipped and redundant back-up well is provided to ensure supply can be maintained at all times.

The system provides treated water to the Municipality of Gilbert Plains (formed by the amalgamation between Town of Gilbert Plains and Rural Municipality of Gilbert Plains), and the Municipality of Grandview (formerly the Town of Grandview).

2.2 Water Treatment Process

The treatment system is comprised of: two parallel RO membrane filtration skids; manganese greensand bypass filter; and forced air degasification for carbon dioxide (CO_2) removal to provide pH adjustment. The treatment system ensures that the water meets the *Guidelines for Canadian Drinking Water Quality* and the provincial *Drinking Water Safety Act.*

The water treatment process is designed to reduce iron and manganese concentrations, ammonia reduction, and reduce hardness to an acceptable level. Iron and manganese are metals that cause laundry and plumbing fixture staining problems, and can build up in the distribution pipes and cause reduced flow. Calcium carbonate ($CaCO_3$) causes hardness in water which diminishes the ability of the water to react with soap and form lather. Hardness also forms scale deposits in kettles and hot water tanks which can reduce the life expectancy of these appliances. Ammonia creates a high chlorine demand and complicates water disinfection where free chlorine residual must be maintained as the primary disinfectant.

Since membranes are capable of removing most of the hardness ions, a percentage of the raw water bypasses the membrane system and is filtered through a 2.1 m diameter manganese greensand pressure filter. Water passing through the pressure filter is blended with membrane permeate to produce the desired finished water hardness of approximately 100 mg/L (as $CaCO_3$).

The membranes reject approximately 25% concentrate to Sulfur Spring Creek as permitted by Environment Act Licence No. 2853.

Potassium Permanganate is injected prior to the green sand filter to oxidize iron and manganese. Iron is precipitated and filtered out, while manganese is removed mostly by adsorption within the green sand layer of the pressure filter.

Antiscalent is injected in the membrane raw water supply to minimize RO membrane fouling by sequestering dissolved metals and minerals during the treatment and concentrate phases. Since membranes remove dissolved minerals, water stabilization through pH adjustment is required to produce a non-corrosive treated water supply. Forced air degasification is used to remove dissolved CO_2, which provides an efficient and economical method to increase pH while minimizing sodium hydroxide chemical usage.

The raw water supply contains ammonia which, unless removed through the treatment system, interferes with chlorine disinfection capability. Ammonia is removed through membrane treatment but not typically through the greensand filter. Chlorine for disinfection is added to maintain an adequate free chlorine residual concentration in the reservoir. Plant operators are required to test the water several times throughout the day at various points within the WTP to ensure break-point chlorination required for water safety is being achieved.

Treated water is stored in a 1.2 ML, three-cell reinforced concrete reservoir. The reservoir is equipped with ultrasonic level control and monitored with a SCADA system. The SCADA system also has the capability of monitoring and controlling reservoir levels located in the Grandview and Gilbert Plains.

Corrosion inhibitor is added to the Gilbert Plains line at their request to sequester any remaining metals in a dissolved state to minimize the probability of discoloured water in the distribution system.

A schematic of the water treatment process can be found in Appendix B.

2.3 Classification and Certification

The G3 Treatment Plant is a Class 2 water treatment facility and the G-3 Water Distribution System is classified as Class 1 water distribution. The facility classifications are used to determine certification requirements for the water system operators.

3. List of Water Quality Standards

The Province of Manitoba has adopted a number of water quality standards from the Health Canada *Guidelines for Canadian Drinking Water Quality*. The health-based parameters express the maximum acceptable concentrations for drinking water. Concentration values in excess of the guidelines constitute a health-related issue and require corrective actions. All health based parameters were within the limits in 2016 for the G3 Regional Water System. Public water systems are required to monitor chlorine levels and undertake regular bacterial testing. The G3 system met all requirements for water quality standards and monitoring requirements in 2016 and is fulfilling the requirements of their Operating Licence.

4. Water System Incidents and Corrective Actions

There were no major water system incidents in 2016. There were no corrective actions or emergency reporting required.

5. Drinking Water Safety Orders, Warnings, and Charges

There were no Drinking Water Safety Orders or warnings issued, nor were any charges laid on the system.

6. Major Expenses Incurred

There were no major expenses for the G3 Regional Water System in 2016.

7. Future System Expansion

The water distribution system is expanding into the RM of Dauphin at their cost, and the RM will become a customer of the G-3 Co-op in 2017.

Appendix A

Results of Water Chemistry, Bacterial and Chlorine Residual Analysis

Collection Date	Sample Identification	TC	EC	CL2 Free	CL2 Total
11-Jan-16	G3 1 - RAW	0	0	na	na
11-Jan-16	G3 2 - TREATED	0	0	0.87	1.07
11-Jan-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.87	1.04
25-Jan-16	G3 1 - RAW	0	0	na	na
25-Jan-16	G3 2 - TREATED	0	0	1.01	1.18
25-Jan-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.87	1.04
08-Feb-16	G3 1 - RAW	0	0	na	na
08-Feb-16	G3 2 - TREATED	0	0	0.86	1.09
08-Feb-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.82	0.94
22-Feb-16	G3 1 - RAW	0	0	na	na
22-Feb-16	G3 2 - TREATED	0	0	0.88	1.13
22-Feb-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.85	1.02
07-Mar-16	G3 1 - RAW	0	0	na	na
07-Mar-16	G3 2 - TREATED	0	0	0.93	1.15
07-Mar-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.85	1.01
21-Mar-16	G3 1 - RAW	0	0	na	na
21-Mar-16	G3 2 - TREATED	0	0	0.92	1.09
21-Mar-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.83	1.02
04-Apr-16	G3 1 - RAW	0	0	na	na
04-Apr-16	G3 2 - TREATED	0	0	0.79	0.99
04-Apr-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.86	1.05
18-Apr-16	G3 1 - RAW	0	0	na	na
18-Apr-16	G3 2 - TREATED	0	0	0.85	1.12
18-Apr-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.87	1.07
02-May-16	G3 1 - RAW	0	0	na	na
02-May-16	G3 2 - TREATED	0	0	0.84	1.08
02-May-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.85	1.01
16-May-16	G3 1 - RAW	0	0	na	na
16-May-16	G3 2 - TREATED	0	0	0.86	1.06
16-May-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.81	0.99
30-May-16	G3 1 - RAW	0	0	na	na
30-May-16	G3 2 - TREATED	0	0	0.86	1.13
30-May-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.86	1.08
13-Jun-16	G3 1 - RAW	0	0	na	na
13-Jun-16	G3 2 - TREATED	0	0	1.00	1.15
13-Jun-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.85	1.07
27-Jun-16	G3 1 - RAW	0	0	na	na
27-Jun-16	G3 2 - TREATED	0	0	0.93	1.14
27-Jun-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.80	0.95
11-Jul-16	G3 1 - RAW	0	0	na	na
11-Jul-16	G3 2 - TREATED	0	0	0.85	1.06
11-Jul-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.92	1.10

Collection Date	Sample Identification	TC	EC	CL2 Free	CL2 Total
25-Jul-16	G3 1 - RAW	0	0	na	na
25-Jul-16	G3 2 - TREATED	0	0	0.88	1.22
25-Jul-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.95	1.08
08-Aug-16	G3 1 - RAW	0	0	na	na
08-Aug-16	G3 2 - TREATED	0	0	0.89	1.09
08-Aug-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.84	1.02
22-Aug-16	G3 1 - RAW	0	0	na	na
22-Aug-16	G3 2 - TREATED	0	0	0.98	1.23
22-Aug-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.78	0.95
06-Sep-16	G3 1 - RAW	0	0	na	na
06-Sep-16	G3 2 - TREATED	0	0	0.90	1.07
06-Sep-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.85	1.06
19-Sep-16	G3 1 - RAW	0	0	na	na
19-Sep-16	G3 2 - TREATED	0	0	1.02	1.29
19-Sep-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.93	1.03
03-Oct-16	G3 1 - RAW	0	0	na	na
03-Oct-16	G3 2 - TREATED	0	0	0.99	1.26
03-Oct-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.89	1.02
17-Oct-16	G3 1 - RAW	0	0	na	na
17-Oct-16	G3 2 - TREATED	0	0	0.85	1.12
17-Oct-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.89	1.03
31-Oct-16	G3 1 - RAW	0	0	na	na
31-Oct-16	G3 2 - TREATED	0	0	0.89	1.14
31-Oct-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.82	0.96
14-Nov-16	G3 1 - RAW	0	0	na	na
14-Nov-16	G3 2 - TREATED	0	0	0.83	1.07
14-Nov-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.82	1.01
28-Nov-16	G3 1 - RAW	0	0	na	na
28-Nov-16	G3 2 - TREATED	0	0	0.87	1.05
28-Nov-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.91	1.02
12-Dec-16	G3 1 - RAW	0	0	na	na
12-Dec-16	G3 2 - TREATED	0	0	0.84	1.09
12-Dec-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.87	1.01
27-Dec-16	G3 1 - RAW	0	0	na	na
27-Dec-16	G3 2 - TREATED	0	0	0.95	1.11
27-Dec-16	G3 3 - DISTRIBUTION GP (INCOMING)	0	0	0.82	0.95

Water Chemistry

ALS Environmental

ANALYTICAL REPORT

Physical Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID	L1828151-1		L1828151-2	
				Sampled Date	13-SEP-16		13-SEP-16	
				Sampled Time	13:00		13:00	
				Sample ID	G3 1 - RAW		G3 2 - TREATED	
Colour, True	CU	15	-		7.7		<5.0	
Conductivity	umhos/cm	-	-		985		262	
Hardness (as CaCO3)	mg/L	-	-		490	HTC	94.6	HTC
Langelier Index (4 C)	No Unit	-	-		0.65		-0.35	
Langelier Index (60 C)	No Unit	-	-		1.4		0.42	
pH	pH units	6.5-8.5	-		7.75		7.94	
Total Dissolved Solids	mg/L	500	-		644		154	
Transmittance, UV (254 nm)	%T/cm	-	-		89.7		96.6	
Turbidity	NTU	-	-		32.7		0.15	

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
#1: GCDWQ - Aesthetic Objective
#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Anions and Nutrients (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID	L1828151-1		L1828151-2	
				Sampled Date	13-SEP-16		13-SEP-16	
				Sampled Time	13:00		13:00	
				Sample ID	G3 1 - RAW		G3 2 - TREATED	
Alkalinity, Total (as CaCO3)	mg/L	-	-		394		95.9	
Ammonia, Total (as N)	mg/L	-	-		0.89		<0.010	
Bicarbonate (HCO3)	mg/L	-	-		481		117	
Bromide (Br)	mg/L	-	-		<0.20	DLM	<0.10	
Carbonate (CO3)	mg/L	-	-		<0.60		<0.60	
Chloride (Cl)	mg/L	250	-		5.50		4.69	
Fluoride (F)	mg/L	-	1.5		0.213		0.058	
Hydroxide (OH)	mg/L	-	-		<0.34		<0.34	
Nitrate (as N)	mg/L	-	10		0.032		0.0375	
Nitrite (as N)	mg/L	-	1		<0.0020	DLM	<0.0010	
Sulfate (SO4)	mg/L	500	-		201		38.1	

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
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Organic / Inorganic Carbon (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID	L1828151-1	L1828151-2
				Sampled Date	13-SEP-16	13-SEP-16
				Sampled Time	13:00	13:00
				Sample ID	G3 1 - RAW	G3 2 - TREATED
Dissolved Organic Carbon	mg/L	-	-		2.08	<0.50
Total Organic Carbon	mg/L	-	-		1.89	<0.50

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Total Metals (WATER)

				ALS ID	L1828151-1	L1828151-2
				Sampled Date	13-SEP-16	13-SEP-16
				Sampled Time	13:00	13:00
				Sample ID	**G3 1 - RAW**	**G3 2 - TREATED**
Analyte	Unit	Guide Limit #1	Guide Limit #2			
Aluminum (Al)-Total	mg/L	0.1	-		<0.0050	<0.0050
Antimony (Sb)-Total	mg/L	-	0.006		<0.00020	<0.00020
Arsenic (As)-Total	mg/L	-	0.01		0.00734	0.00264
Barium (Ba)-Total	mg/L	-	1		0.0227	0.00265
Beryllium (Be)-Total	mg/L	-	-		<0.00020	<0.00020
Bismuth (Bi)-Total	mg/L	-	-		<0.00020	<0.00020
Boron (B)-Total	mg/L	-	5		0.147	0.114
Cadmium (Cd)-Total	mg/L	-	0.005		<0.000010	<0.000010
Calcium (Ca)-Total	mg/L	-	-		118	22.4
Cesium (Cs)-Total	mg/L	-	-		<0.00010	<0.00010
Chromium (Cr)-Total	mg/L	-	0.05		<0.0010	<0.0010
Cobalt (Co)-Total	mg/L	-	-		<0.00020	<0.00020
Copper (Cu)-Total	mg/L	1	-		<0.00020	0.00288
Iron (Fe)-Total	mg/L	0.3	-		3.26	0.078
Lead (Pb)-Total	mg/L	-	0.01		<0.000090	<0.000090
Lithium (Li)-Total	mg/L	-	-		0.0452	0.0147
Magnesium (Mg)-Total	mg/L	-	-		47.4	9.38
Manganese (Mn)-Total	mg/L	0.05	-		0.162	0.00694
Molybdenum (Mo)-Total	mg/L	-	-		0.00351	0.00054
Nickel (Ni)-Total	mg/L	-	-		<0.0020	<0.0020
Phosphorus (P)-Total	mg/L	-	-		0.13	<0.10
Potassium (K)-Total	mg/L	-	-		6.48	1.94
Rubidium (Rb)-Total	mg/L	-	-		0.00161	0.00047
Selenium (Se)-Total	mg/L	-	0.05		<0.0010	<0.0010
Silicon (Si)-Total	mg/L	-	-		12.8	3.03
Silver (Ag)-Total	mg/L	-	-		<0.00010	<0.00010
Sodium (Na)-Total	mg/L	200	-		33.0	15.5
Strontium (Sr)-Total	mg/L	-	-		0.472	0.0859
Tellurium (Te)-Total	mg/L	-	-		<0.00020	<0.00020
Thallium (Tl)-Total	mg/L	-	-		<0.00010	<0.00010
Thorium (Th)-Total	mg/L	-	-		<0.00010	<0.00010
Tin (Sn)-Total	mg/L	-	-		<0.00020	<0.00020
Titanium (Ti)-Total	mg/L	-	-		<0.00050	<0.00050

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
#1: GCDWQ - Aesthetic Objective
#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

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ANALYTICAL REPORT

Total Metals (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID / Sampled Date / Sampled Time / Sample ID: L1828151-1 / 13-SEP-16 / 13:00 / G3 1 - RAW	L1828151-2 / 13-SEP-16 / 13:00 / G3 2 - TREATED
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	0.00024	<0.00010
Vanadium (V)-Total	mg/L	-	-	<0.00020	<0.00020
Zinc (Zn)-Total	mg/L	5	-	<0.0020	<0.0020
Zirconium (Zr)-Total	mg/L	-	-	<0.00040	<0.00040

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Volatile Organic Compounds (WATER)

				ALS ID	L1828151-1
				Sampled Date	13-SEP-16
				Sampled Time	13:00
				Sample ID	G3 1 - RAW
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Acetone	mg/L	-	-		<0.020
Benzene	mg/L	-	0.005		<0.00050
Bromobenzene	mg/L	-	-		<0.00050
Bromochloromethane	mg/L	-	-		<0.00050
Bromodichloromethane	mg/L	-	-		<0.00050
Bromoform	mg/L	-	-		<0.00050
Bromomethane	mg/L	-	-		<0.0010
n-Butylbenzene	mg/L	-	-		<0.00050
sec-Butylbenzene	mg/L	-	-		<0.00050
tert-Butylbenzene	mg/L	-	-		<0.00050
Carbon disulfide	mg/L	-	-		<0.00050
Carbon Tetrachloride	mg/L	-	0.005		<0.00050
Chlorobenzene	mg/L	0.03	0.08		<0.00050
Dibromochloromethane	mg/L	-	-		<0.00050
Chloroethane	mg/L	-	-		<0.0010
Chloroform	mg/L	-	-		<0.00050
Chloromethane	mg/L	-	-		<0.0010
2-Chlorotoluene	mg/L	-	-		<0.020
4-Chlorotoluene	mg/L	-	-		<0.00050
1,2-Dibromo-3-chloropropane	mg/L	-	-		<0.00050
1,2-Dibromoethane	mg/L	-	-		<0.00050
Dibromomethane	mg/L	-	-		<0.00050
1,2-Dichlorobenzene	mg/L	0.003	0.2		<0.00050
1,3-Dichlorobenzene	mg/L	-	-		<0.00050
1,4-Dichlorobenzene	mg/L	0.001	0.005		<0.00050
Dichlorodifluoromethane	mg/L	-	-		<0.0010
1,1-dichloroethane	mg/L	-	-		<0.00050
1,2-Dichloroethane	mg/L	-	0.005		<0.00050
1,1-dichloroethene	mg/L	-	0.014		<0.00050
cis-1,2-Dichloroethene	mg/L	-	-		<0.00050
trans-1,2-Dichloroethene	mg/L	-	-		<0.00050
Dichloromethane	mg/L	-	0.05		<0.00050
1,2-Dichloropropane	mg/L	-	-		<0.00050

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
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Volatile Organic Compounds (WATER)

				ALS ID	L1828151-1
				Sampled Date	13-SEP-16
				Sampled Time	13:00
				Sample ID	**G3 1 - RAW**
Analyte	Unit	Guide Limit #1	Guide Limit #2		
1,3-Dichloropropane	mg/L	-	-		<0.00050
2,2-Dichloropropane	mg/L	-	-		<0.00050
1,1-Dichloropropene	mg/L	-	-		<0.00050
cis-1,3-Dichloropropene	mg/L	-	-		<0.00050
trans-1,3-Dichloropropene	mg/L	-	-		<0.00050
Ethylbenzene	mg/L	0.0016	0.14		<0.00050
Hexachlorobutadiene	mg/L	-	-		<0.00050
Hexane	mg/L	-	-		<0.00050
2-Hexanone (Methyl butyl ketone)	mg/L	-	-		<0.020
Isopropylbenzene	mg/L	-	-		<0.00050
4-Isopropyltoluene	mg/L	-	-		<0.0010
MEK	mg/L	-	-		<0.020
MIBK	mg/L	-	-		<0.020
MTBE	mg/L	0.015	-		<0.00050
Naphthalene	mg/L	-	-		<0.00050
Styrene	mg/L	-	-		<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
1,2,3-Trichlorobenzene	mg/L	-	-		<0.00050
1,2,4-Trichlorobenzene	mg/L	-	-		<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
Trichlorofluoromethane	mg/L	-	-		<0.0010
1,2,3-Trichloropropane	mg/L	-	-		<0.00050
1,2,4-Trimethylbenzene	mg/L	-	-		<0.00050
1,3,5-Trimethylbenzene	mg/L	-	-		<0.00050
Vinyl Chloride	mg/L	-	0.002		<0.00050
o-Xylene	mg/L	-	-		<0.00050
M+P-Xylenes	mg/L	-	-		<0.00050
Surrogate: 4-Bromofluorobenzene (SS)	%	-	-		96.4

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#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.

Volatile Organic Compounds (WATER)

				ALS ID	L1828151-1
				Sampled Date	13-SEP-16
				Sampled Time	13:00
				Sample ID	G3 1 - RAW
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Surrogate: 1,4-Difluorobenzene (SS)	%	-	-		99.8

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
#1: GCDWQ - Aesthetic Objective
#2: GCDWQ - Maximum Acceptable Concentrations (MACs)

Trihalomethanes (WATER)

				ALS ID	L1828151-1
				Sampled Date	13-SEP-16
				Sampled Time	13:00
				Sample ID	G3 1 - RAW
Analyte	Unit	Guide Limit #1	Guide Limit #2		
Total THMs	mg/L	-	0.1		<0.0010

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2015)
#1: GCDWQ - Aesthetic Objective
#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.

Appendix B

Water Treatment Plant Process Diagram

Pipeline Schematic