Public Water System Annual Report

-2023-

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

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

Contact Person: **Courtney Roehl**

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

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

Name of Operators: **Mr. Ivan Yakimishen & Mr. Michael Ukrainec**

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

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Courtney Roehl
Secretary/Treasurer
G3 Regional Water Co-op Inc.

Date Prepared: March 2024

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1. Introduction:

The 2023 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 within the Municipalities of Grandview and Gilbert Plains, as well as supplying water to approximately 485 residents in the RM of Dauphin. No corrective actions or emergency reporting was required. Full sampling results are attached in Appendix A.

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.

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 water 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, and can monitor flow and pressures at booster stations in Mun. of Gilbert Plains and RM of Dauphin.

Corrosion inhibitor is added to the Municipality of 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 Water Treatment Plant is a Class 2 Facility and the G-3 Water Distribution System is a Class 2 System. The lead operator is classified as Class 2 treatment and Class 2 distribution. The facility classifications are used to determine certification

requirements for the water system operators as per the Manitoba Environment's Water and Wastewater Facility Operators Regulation under the Environment Act.

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 G3 system is to meet the water quality standards as set in the G3 Operating License Table 1: Water Quality/Treatment Standards (see Table 1 below). 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.

Complete water chemistry analysis is only required every three years, however, testing was performed in 2022 and health based parameters were within the limits for the G3 Regional Water System (see Appendix A). 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 2023, and is fulfilling the requirements of their Operating Licence.

Table 1: Water Quality/Treatment Standards

Parameter	Quality Standard
Total coliform	Less than one total coliform bacteria detectable per 100 mL in all treated and distributed water
E. coli	Less than one *E. coli* bacteria detectable per 100 mL in all treated and distributed water
Chlorine Residual	A free chlorine residual of at least 0.5 mg/L in water entering the distribution system following a minimum contact time of 20 minutes A free chlorine residual of at least 0.1 mg/L at all times at any point in the water distribution system
Arsenic	Less than or equal to 0.01 mg/L
Benzene	Less than or equal to 0.005 mg/L
Ethylbenzene	Less than or equal to 0.14 mg/L
Fluoride	Less than or equal to 1.5 mg/L
Lead	Less than or equal to 0.005 mg/L
Manganese	Less than or equal to 0.12 mg/L
Nitrate	Less than or equal to 45 mg/L measured as nitrate (10 mg/L measured as nitrogen)
Nitrite	Less than or equal to 3 mg/L measured as nitrite (1 mg/L measured as nitrogen)
Trichloroethylene	Less than or equal to 0.005 mg/L
Tetrachloroethylene	Less than or equal to 0.01 mg/L
Toluene	Less than or equal to 0.06 mg/L
Total Xylenes	Less than or equal to 0.09 mg/L
Uranium	Less than or equal to 0.02 mg/L

4. Water System Incidents and Corrective Actions

There was one major water system incident in 2023 which involved the fouling of the membranes in the 2 reverse osmosis skids. 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 in 2023, nor were any charges laid on the system.

6. Major Expenses Incurred

There were no major expenses for the G3 Regional Water System in 2023.

7. Future System Expansion

The water distribution system will continue expansion into the RM of Dauphin (at their cost for capital expenditures), and is a growing customer of the G-3 Co-op.

The G-3 member municipalities plan to continue expansion of their distribution networks as funding opportunities arise and finances are available.

Appendix A

Results of Water Chemistry, Bacterial and Chlorine Residual Analysis

Chlorine Residual and TC/EC Analyses

Collection Date	Sample Identification	TC	EC	CL2 Free	CL2 Total
2023-01-03	G3 1 - RAW	0	0	na	na
2023-01-03	G3 2 - TREATED	0	0	0.96	1.01
2023-01-03	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.82	0.89
2023-01-17	G3 1 - RAW	0	0	na	na
2023-01-17	G3 2 - TREATED	0	0	0.92	0.97
2023-01-17	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.90	0.95
2023-01-31	G3 1 - RAW	0	0	na	na
2023-01-31	G3 2 - TREATED	0	0	0.98	1.01
2023-01-31	G3 3 - DISTRIBUTION Gilbert Plains	0	0	1.03	1.10
2023-02-14	G3 1 - RAW	0	0	na	na
2023-02-14	G3 2 - TREATED	0	0	0.94	0.98
2023-02-14	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.88	0.92
2023-02-28	G3 1 - RAW	0	0	na	na
2023-02-28	G3 2 - TREATED	0	0	0.95	1.08
2023-02-28	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.94	1.00
2023-03-14	G3 1 - RAW	0	0	na	Na
2023-03-14	G3 2 - TREATED	0	0	1.06	1.13
2023-03-14	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.87	0.91
2023-03-28	G3 1 - RAW	0	0	na	Na
2023-03-28	G3 2 - TREATED	0	0	0.93	1.00
2023-03-28	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.87	0.91
2023-04-11	G3 1 - RAW	0	0	na	Na
2023-04-11	G3 2 - TREATED	0	0	0.97	1.02
2023-04-11	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.87	0.88
2023-04-25	G3 1 - RAW	0	0	na	Na
2023-04-25	G3 2 - TREATED	0	0	1.01	1.07
2023-04-25	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.86	0.90
2023-05-09	G3 1 - RAW	0	0	na	na
2023-05-09	G3 2 - TREATED	0	0	0.90	0.95
2023-05-09	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.86	0.90
2023-05-23	G3 1 - RAW	0	0	na	na
2023-05-23	G3 2 - TREATED	0	0	0.90	0.94
2023-05-23	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.85	0.88
2023-06-06	G3 1 - RAW	0	0	na	na

Chlorine Residual and TC/EC Analyses (continued)

Collection Date	Sample Identification	TC	EC	CL2 Free	CL2 Total
2023-06-06	G3 2 - TREATED	0	0	0.79	0.82
2023-06-06	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.90	0.97
2023-06-20	G3 1 - RAW	0	0	na	na
2023-06-20	G3 2 - TREATED	0	0	0.95	1.00
2023-06-20	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.81	0.84
2023-07-04	G3 1 - RAW	0	0	na	na
2023-07-04	G3 2 - TREATED	0	0	1.09	1.17
2023-07-04	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.96	0.99
2023-07-18	G3 1 - RAW	0	0	na	na
2023-07-18	G3 2 - TREATED	0	0	0.91	0.99
2023-07-18	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.95	0.96
2023-08-01	G3 1 - RAW	0	0	na	na
2023-08-01	G3 2 - TREATED	0	0	0.94	0.99
2023-08-01	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.96	1.01
2023-08-15	G3 1 - RAW	0	0	na	na
2023-08-15	G3 2 - TREATED	0	0	0.86	0.90
2023-08-15	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.95	1.00
2023-08-29	G3 1 - RAW	0	0	na	na
2023-08-29	G3 2 - TREATED	0	0	0.87	0.91
2023-08-29	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.87	0.91
2023-09-05	G3 1 - RAW	0	0	na	na
2023-09-05	G3 2 - TREATED	0	0	0.95	0.99
2023-09-05	G3 3 - DISTRIBUTION Gilbert Plains	0	0	1.02	1.06
2023-09-12	G3 1 - RAW	0	0	na	na
2023-09-12	G3 2 - TREATED	0	0	0.94	0.99
2023-09-12	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.85	0.87
2023-09-26	G3 1 - RAW	0	0	na	na
2023-09-26	G3 2 - TREATED	0	0	0.91	0.97
2023-09-26	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.80	0.84
2023-10-10	G3 1 - RAW	0	0	na	na
2023-10-10	G3 2 - TREATED	0	0	0.83	0.88
2023-10-10	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.85	0.87
2023-10-24	G3 1 - RAW	0	0	na	na
2023-10-24	G3 2 - TREATED	0	0	0.87	0.90
2023-10-24	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.83	0.87

Chlorine Residual and TC/EC Analyses (continued)

Collection Date	Sample Identification	TC	EC	CL2 Free	CL2 Total
2023-11-07	G3 1 - RAW	0	0	na	na
2023-11-07	G3 2 - TREATED	0	0		
2023-11-07	G3 3 - DISTRIBUTION Gilbert Plains	0	0		
2023-11-21	G3 1 – RAW	0	0	na	na
2023-11-21	G3 2 – TREATED	0	0	0.80	0.85
2023-11-21	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.88	0.94
2023-12-05	G3 1 – RAW	0	0	na	na
2023-12-05	G3 2 – TREATED	0	0	0.87	0.94
2023-12-05	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.81	0.88
2023-12-19	G3 1 – RAW	0	0	na	na
2023-12-19	G3 2 – TREATED	0	0	1.02	1.06
2023-12-19	G3 3 - DISTRIBUTION Gilbert Plains	0	0	0.95	0.99

Notes:

CL2: Reported in units of mg/L

TC/EC: Reported in units of MPN/100 mL

Water Chemistry

MWSB - G3 PWS
ATTN: IVAN YAKAMISHEN
G3 PWS
Box 642
Gilbert Plains MB R0L 0X0

Date Received: 11-MAY-22
Report Date: 20-MAY-22 11:48 (MT)
Version: FINAL

Client Phone: 204-548-4561

Certificate of Analysis

Lab Work Order #: L2705132
Project P.O. #: NOT SUBMITTED
Job Reference: G3 PWS 71.25
C of C Numbers:
Legal Site Desc: 44602

Hua Wo
Chemistry Laboratory Manager

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

Physical Tests (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2705132-1 Sampled Date: 10-MAY-22 Sampled Time: 10:00 Sample ID: G3 1 - RAW	ALS ID: L2705132-2 Sampled Date: 10-MAY-22 Sampled Time: 10:20 Sample ID: G3 2 - TREATED
Colour, True	CU	15	-	<5.0	<5.0
Conductivity	umhos/cm	-	-	993	223
Hardness (as CaCO3)	mg/L	-	-	557 HTC	83.7 HTC
Langelier Index (4 C)	No Unit	-	-	0.45	-0.028
Langelier Index (60 C)	No Unit	-	-	1.2	0.74
pH	pH units	7.00-10.5	-	7.51	8.39
Total Dissolved Solids	mg/L	500	-	637	132
Transmittance, UV (254 nm)	%T/cm	-	-	90.8	98.2
Turbidity	NTU	-	-	0.11	<0.10

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Anions and Nutrients (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2705132-1 Sampled Date: 10-MAY-22 Sampled Time: 10:00 Sample ID: G3 1 - RAW	ALS ID: L2705132-2 Sampled Date: 10-MAY-22 Sampled Time: 10:20 Sample ID: G3 2 - TREATED
Alkalinity, Total (as CaCO3)	mg/L	-	-	379	79.1
Ammonia, Total (as N)	mg/L	-	-	0.87	0.016
Bicarbonate (HCO3)	mg/L	-	-	462	93.1
Bromide (Br)	mg/L	-	-	0.022	<0.010
Carbonate (CO3)	mg/L	-	-	<0.60	1.68
Chloride (Cl)	mg/L	250	-	4.95	3.60
Fluoride (F)	mg/L	-	1.5	0.254	0.044
Hydroxide (OH)	mg/L	-	-	<0.34	<0.34
Nitrate (as N)	mg/L	-	10	<0.0050	0.0233
Nitrite (as N)	mg/L	-	1	<0.0010	<0.0010
Sulfate (SO4)	mg/L	500	-	201	31.7

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
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Organic / Inorganic Carbon (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2705132-1 Sampled Date: 10-MAY-22 Sampled Time: 10:00 Sample ID: G3 1 - RAW	ALS ID: L2705132-2 Sampled Date: 10-MAY-22 Sampled Time: 10:20 Sample ID: G3 2 - TREATED
Dissolved Organic Carbon	mg/L	-	-	2.70	0.55
Total Organic Carbon	mg/L	-	-	2.86	<0.50

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
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#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

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.
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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 L2705132-1 10-MAY-22 10:00 G3 1 - RAW	L2705132-2 10-MAY-22 10:20 G3 2 - TREATED	L2705132-3 10-MAY-22 10:50 G3 3 - DISTRIBUTION
Aluminum (Al)-Total	mg/L	0.1	2.9	0.0038	<0.0030	0.0081
Antimony (Sb)-Total	mg/L	-	0.006	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	-	0.01	0.0113	0.00260	0.00305
Barium (Ba)-Total	mg/L	-	2	0.0245	0.00233	0.00277
Beryllium (Be)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	<0.000050	<0.000050	0.000225
Boron (B)-Total	mg/L	-	5	0.175	0.129	0.131
Cadmium (Cd)-Total	mg/L	-	0.005	<0.0000050	<0.0000050	<0.0000050
Calcium (Ca)-Total	mg/L	-	-	135	20.0	20.2
Cesium (Cs)-Total	mg/L	-	-	<0.000010	<0.000010	<0.000010
Chromium (Cr)-Total	mg/L	-	0.05	0.00041	<0.00010	0.00019
Cobalt (Co)-Total	mg/L	-	-	0.00023	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	1	2	0.00158	<0.00050	0.0130
Iron (Fe)-Total	mg/L	0.3	-	3.72	0.018	0.169
Lead (Pb)-Total	mg/L	-	0.005	0.000059	<0.000050	0.000329
Lithium (Li)-Total	mg/L	-	-	0.0493	0.0101	0.0104
Magnesium (Mg)-Total	mg/L	-	-	53.2	8.20	8.47
Manganese (Mn)-Total	mg/L	0.02	0.12	0.175	0.00288	0.0164
Molybdenum (Mo)-Total	mg/L	-	-	0.00376	0.000465	0.000473
Nickel (Ni)-Total	mg/L	-	-	<0.00050	<0.00050	<0.00050
Phosphorus (P)-Total	mg/L	-	-	0.152	<0.050	0.087
Potassium (K)-Total	mg/L	-	-	6.58	1.39	1.39
Rubidium (Rb)-Total	mg/L	-	-	0.00157	0.00034	0.00036
Selenium (Se)-Total	mg/L	-	0.05	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total	mg/L	-	-	13.8	2.32	2.34
Silver (Ag)-Total	mg/L	-	-	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	200	-	36.5	16.7	17.1
Strontium (Sr)-Total	mg/L	-	7	0.501	0.0728	0.0736
Sulfur (S)-Total	mg/L	-	-			11.0
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	-	-	<0.00010	<0.00010	0.00115

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
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ANALYTICAL REPORT

Total Metals (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2705132-1 Sampled Date: 10-MAY-22 Sampled Time: 10:00 Sample ID: G3 1 - RAW	ALS ID: L2705132-2 Sampled Date: 10-MAY-22 Sampled Time: 10:20 Sample ID: G3 2 - TREATED	ALS ID: L2705132-3 Sampled Date: 10-MAY-22 Sampled Time: 10:50 Sample ID: G3 3 - DISTRIBUTION
Titanium (Ti)-Total	mg/L	-	-	0.00035	<0.00030	0.00060
Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Uranium (U)-Total	mg/L	-	0.02	0.000372	0.000051	0.000054
Vanadium (V)-Total	mg/L	-	-	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	5	-	0.0294	<0.0030	0.0041
Zirconium (Zr)-Total	mg/L	-	-	<0.00020	<0.00020	<0.00020

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)
#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

Volatile Organic Compounds (WATER)

Analyte	Unit	Guide Limit #1	Guide Limit #2	ALS ID: L2705132-1 Sampled Date: 10-MAY-22 Sampled Time: 10:00 Sample ID: G3 1 - RAW
Benzene	mg/L	-	0.005	<0.00050
1,1-dichloroethene	mg/L	-	0.014	<0.00050
Dichloromethane	mg/L	-	0.05	<0.0050
Ethylbenzene	mg/L	0.0016	0.14	<0.00050
MTBE	mg/L	0.015	-	<0.00050
Tetrachloroethene	mg/L	-	0.01	<0.00050
Toluene	mg/L	0.024	0.06	<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
Surrogate: 4-Bromofluorobenzene (SS)	%	-	-	82.5
Surrogate: 1,4-Difluorobenzene (SS)	%	-	-	98.4

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2021)
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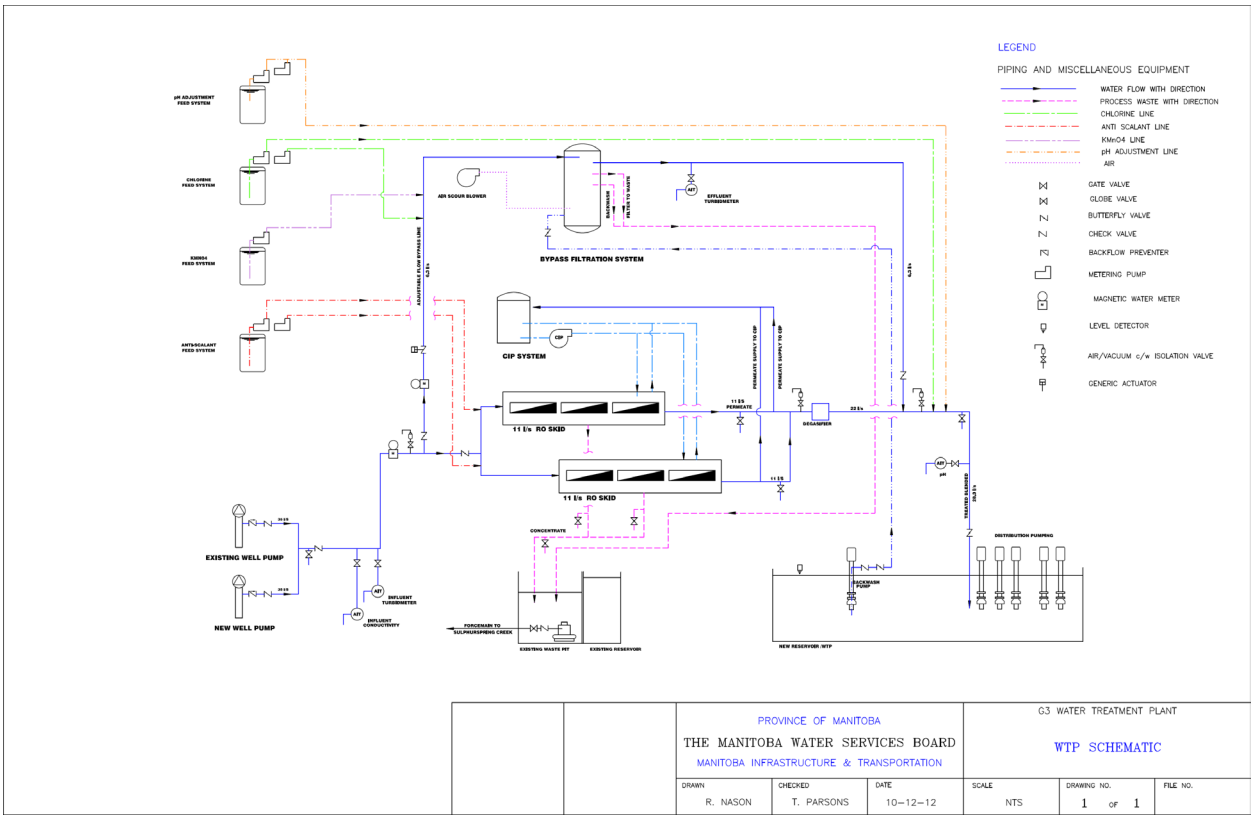
Appendix B

Water Treatment Plant Process Diagram

Pipeline Schematic


LEGEND
PIPING AND MISCELLANEOUS EQUIPMENT
WATER FLOW WITH DIRECTION
PROCESS WASTE WITH DIRECTION
CHLORINE LINE
ANTI SCALANT LINE
KMnO4 LINE
pH ADJUSTMENT LINE
AIR
GATE VALVE
GLOBE VALVE
BUTTERFLY VALVE
CHECK VALVE
BACKFLOW PREVENTER
METERING PUMP
MAGNETIC WATER METER
LEVEL DETECTOR
AIR/VACUUM c/w ISOLATION VALVE
GENERIC ACTUATOR
pH ADJUSTMENT FEED SYSTEM
CHLORINE FEED SYSTEM
KMnO4 FEED SYSTEM
ANTI-SCALANT FEED SYSTEM
AIR SCOUR BLOWER
BACKWASH
FILTER TO WASTE
EFFLUENT TURBIDIMETER
BYPASS FILTRATION SYSTEM
ADJUSTABLE FLOW BYPASS LINE
CIP SYSTEM
CIP
PERMEATE SUPPLY TO CIP
11 l/s RO SKID
11 l/s PERMEATE
DEGASIFIER
11 l/s RO SKID
CONCENTRATE
EXISTING WELL PUMP
NEW WELL PUMP
INFLUENT TURBIDIMETER
INFLUENT CONDUCTIVITY
FORCEMAIN TO SULPHURSPRINGS CREEK
EXISTING WASTE PIT
EXISTING RESERVOIR
BACKWASH PUMP
NEW RESERVOIR /WTP
DISTRIBUTION PUMPING
PROVINCE OF MANITOBA
THE MANITOBA WATER SERVICES BOARD
MANITOBA INFRASTRUCTURE & TRANSPORTATION
G3 WATER TREATMENT PLANT
WTP SCHEMATIC
DRAWN
R. NASON
CHECKED
T. PARSONS
DATE
10-12-12
SCALE
NTS
DRAWING NO.
1 OF 1
FILE NO.