

# Falcon lake annual water report

# 2022

This report is to provide public awareness about the operation, requirements and results of the class 2 water treatment system for falcon lake MB. Under the Environment Act's Water and Wastewater Facility Operators Regulation this plant is classed as a Class 2 Treatment Facility because of the population it serves. Copies of this report will be made available at the falcon district office as well as on the Manitoba government website. Residents will be made aware of this report via e-mail and/or signage posted on bulletins around town. The Whiteshell cottagers association will also direct residents on how to access this report.

**We strive to  
provide clean  
potable water  
to our families**

## Plant operators and classification

Matthew Macinnis – MM3, WT2, WD2

Steve Kuharski – MM1, WT2, WD2

Jacob Klassen – TRH, WT1, WD1

### 💧 **Where does our water come from?**

- We have a very good clean and sufficient water source within close proximity of the water plant. This water source is an underground aquifer that is a completely separate water source than the lake, undergoing multiple tests throughout the years and having no influence from the lake water. We access this raw water source from a large diameter dug well that we have installed pumps to lift it to the water plant.

### 💧 **What is done to this raw water once it's at the water plant?**

- Once the water is pumped into the plant, chlorine (sodium hypochlorite) is added and mixed in the first reactor tank. From there, caustic soda (sodium hydroxide) is added as it enters reactor 2 to then be mixed. After the chemicals have been mixed the water then enters our iron/manganese filters which are filled with multiple layers of different sands and media which take out any impurities like iron from the water. Once this treatment process has finished the now clean potable water is stored in 4 underground reservoirs totaling 121,000 gals of potable water that is constantly circulating from one to the other until it is needed in the distribution system. We are required to have a minimum of 20 minutes of chlorine contact time. This means that the chlorine must have at least 20 minutes of contact with the raw water before going to the distribution system. Between the four filtration tanks and four reservoirs we exceed the minimum requirement. There are another set of pumps for the stored potable water to distribute water to the town and maintain a constant pressure in the system at all times.

### 💧 **What is the purpose for adding these chemicals to the water?**

- The main purpose of the chlorine is that it disinfects and kills any harmful bacteria that may be present in the water. This makes chlorine your number one defense in providing safe drinking water, but it also helps with filtration process by pulling out particulates from the water so the filters can then remove them. The caustic soda is added to keep the water at a neutral PH level, if the PH is too high it will start scaling and restricting pipes, too low and it will eat or corrode pipes and fixtures. So with a neutral PH level your pipes and fixtures in your home can hopefully last as long as possible.

### 💧 **How does the plant operate when no one is there?**

- The water plant is controlled by a SCADA system which monitors the operation of the plant 24/7. It monitors system pressure, raw pumps, distribution pumps, water level, water flow, chlorine levels, PH, power, air pressure, security system, etc. If anything goes outside of our set parameters the automated system has an audible alarm, beacon

light as well as immediately calls our operators. When something does go wrong our operators can access this system anytime from anywhere to take control and start making immediate corrective actions keeping our water safe at all times.

💧 **So what would happen during a power outage?**

- If and when a power outage does occur the water plant is equipped with a generator that provides ample amount of power and starts up automatically to keep everything running. It also has a large power bank to keep things running for the couple seconds it takes for the generator to start up. The SCADA system will also call our operators to notify them that the water plant has lost power and running on the generator, so you may be left in the dark but you won't be left without water.

💧 **How can we be assured our water is safe at all times?**

- There is an entire branch of the government designated to monitoring water plants throughout the province called The Office of Drinking Water. These water officers work very closely with plant operators to help ensure water quality is at its best while also making sure operators are following all requirements under The Drinking Water Safety Acts and it's regulations on a daily basis.

💧 **What kind of regulations need to be met?**

- The Office of Drinking Water has different requirements for ever system depending on the water source, population, treatment method, etc. Falcon lake water treatment plant is required to test chlorine free and total in person every day of the year. We must also send water samples to an accredited laboratory every 2 weeks to be analyzed for E-coli and total coliforms. We do this test to the raw water, treatment water at the plant and from various sample points around town in the distribution system. The lab results are sent to the water officer every 2 weeks and our daily monitoring of chlorine levels are sent to the officer every month. We also must test for manganese on the raw, treated and distribution once a year as well as once every three years manganese samples must be taken quarterly on the distribution system. Failing to meet set requirements under The Drinking Water Safety Orders, charges, boil water advisories or water quality advisories.

💧 **What is free and total? And how do you know how much chlorine to make the water safe?**

- Free chlorine is the amount of unused chlorine in the water and total chlorine is the total amount of chlorine that was in the water, the difference between the two is how much chlorine was needed to treat the water and make it safe. The Drinking Water Safety Acts requires that we maintain no less than 0.5 mg/l of free chlorine at the water plant at all times as well as 0.1 mg/l in the piping/distribution system. The chart below is our free and total readings at the water plant for everyday of the year. The second chart shows our bi weekly readings of the distribution system.

|    | January |       | February |       | March |       | April |       | May  |       | June |       | July |       | August |       | September |       | October |       | November |       | December |       |
|----|---------|-------|----------|-------|-------|-------|-------|-------|------|-------|------|-------|------|-------|--------|-------|-----------|-------|---------|-------|----------|-------|----------|-------|
|    | Free    | total | Free     | total | Free  | total | Free  | total | Free | total | Free | total | Free | total | Free   | total | Free      | total | Free    | total | Free     | total | Free     | total |
| 1  | .61     | .72   | .54      | .62   | .57   | .68   | .57   | .66   | .59  | .72   | .59  | .71   | .70  | .81   | .55    | .64   | .62       | .78   | .63     | .71   | .59      | .70   | .58      | .76   |
| 2  | .58     | .74   | .53      | .62   | .55   | .66   | .54   | .67   | .62  | .72   | .59  | .72   | .73  | .84   | .69    | .83   | .68       | .81   | .61     | .73   | .58      | .66   | .57      | .69   |
| 3  | .60     | .72   | .71      | .85   | .67   | .76   | .53   | .63   | .63  | .72   | .60  | .74   | .65  | .73   | .68    | .83   | .55       | .65   | .59     | .73   | .58      | .65   | .58      | .67   |
| 4  | .52     | .63   | .56      | .64   | .68   | .79   | .57   | .66   | .59  | .67   | .59  | .71   | .74  | .87   | .67    | .78   | .63       | .73   | .55     | .67   | .52      | .61   | .58      | .67   |
| 5  | .65     | .73   | .51      | .62   | .72   | .83   | .55   | .64   | .57  | .68   | .63  | .71   | .55  | .64   | .61    | .71   | .65       | .76   | .59     | .70   | .55      | .62   | .55      | .65   |
| 6  | .66     | .72   | .58      | .67   | .74   | .86   | .58   | .69   | .64  | .75   | .54  | .63   | 1.05 | 1.15  | .57    | .67   | .55       | .64   | .59     | .69   | .56      | .64   | .54      | .66   |
| 7  | .55     | .66   | .61      | .71   | .76   | .88   | .58   | .68   | .59  | .68   | .53  | .62   | .69  | .81   | .71    | .83   | .66       | .78   | .57     | .68   | .59      | .68   | .65      | .72   |
| 8  | .65     | .67   | .62      | .74   | .76   | .85   | .55   | .66   | .58  | .68   | .60  | .72   | .68  | .78   | .55    | .67   | .54       | .66   | .57     | .67   | .57      | .68   | .64      | .75   |
| 9  | .61     | .69   | .68      | .80   | .68   | .79   | .51   | .62   | .60  | .68   | .69  | .78   | .52  | .65   | .68    | .79   | .70       | .84   | .61     | .69   | .65      | .77   | .65      | .76   |
| 10 | .61     | .76   | .67      | .78   | .64   | .75   | .50   | .61   | .62  | .71   | .68  | .75   | .55  | .64   | .63    | .74   | .64       | .74   | .56     | .65   | .68      | .80   | .67      | .76   |
| 11 | .61     | .74   | .63      | .71   | .63   | .73   | .52   | .62   | .63  | .74   | .68  | .75   | .68  | .75   | .65    | .74   | .59       | .68   | .55     | .65   | .71      | .79   | .73      | .84   |
| 12 | .61     | .73   | .62      | .73   | .61   | .74   | .55   | .64   | .68  | .75   | .68  | .76   | .83  | .91   | .63    | .75   | .66       | .78   | .53     | .62   | .78      | .92   | .78      | .88   |
| 13 | .57     | .65   | .66      | .79   | .64   | .71   | .56   | .66   | .60  | .71   | .59  | .70   | .63  | .74   | .58    | .67   | .66       | .78   | .56     | .67   | .75      | .88   | .64      | .83   |
| 14 | .59     | .71   | .78      | .89   | .58   | .71   | .66   | .76   | .57  | .64   | .94  | 1.05  | .74  | .87   | .57    | .71   | .63       | .77   | .57     | .74   | .83      | .97   | .59      | .72   |
| 15 | .53     | .63   | .75      | .86   | .60   | .67   | .64   | .72   | .55  | .64   | .58  | .68   | .60  | .71   | .64    | .72   | .56       | .66   | .58     | .69   | .76      | .85   | .63      | .71   |
| 16 | .60     | .73   | .70      | .81   | .54   | .64   | .62   | .75   | .58  | .66   | .58  | .68   | .64  | .75   | .54    | .62   | .61       | .72   | .56     | .64   | .62      | .71   | .59      | .68   |
| 17 | .63     | .74   | .67      | .79   | .56   | .64   | .73   | .81   | .62  | .69   | .78  | .86   | .62  | .73   | .79    | .88   | .65       | .77   | .61     | .73   | .67      | .78   | .60      | .70   |
| 18 | .54     | .62   | .66      | .74   | .59   | .68   | .65   | .77   | .50  | .60   | .81  | .91   | .78  | .87   | .57    | .69   | .67       | .77   | .68     | .79   | .71      | .81   | .58      | .69   |
| 21 | .65     | .79   | .57      | .66   | .57   | .66   | .71   | .82   | .54  | .61   | 1.04 | 1.15  | .68  | .78   | .61    | .75   | .68       | .78   | .84     | .93   | .72      | .83   | .58      | .70   |
| 22 | .67     | .75   | .54      | .65   | .57   | .67   | .68   | .78   | .57  | .65   | 1.04 | 1.18  | .70  | .78   | .72    | .88   | .69       | .78   | .80     | .87   | .70      | .81   | .54      | .67   |
| 23 | .64     | .75   | .55      | .66   | .54   | .62   | .68   | .79   | .63  | .76   | 1.14 | 1.22  | .55  | .63   | .65    | .77   | .59       | .70   | .71     | .84   | .74      | .83   | .55      | .68   |
| 24 | .66     | .77   | .62      | .73   | .53   | .62   | .66   | .79   | .59  | .70   | .62  | .80   | .57  | .67   | .53    | .64   | .59       | .68   | .72     | .81   | .64      | .75   | .65      | .76   |
| 25 | .60     | .67   | .64      | .77   | .59   | .69   | .74   | .85   | .55  | .63   | .58  | .69   | .75  | .86   | .67    | .80   | .53       | .64   | .55     | .67   | .63      | .75   | .64      | .76   |
| 26 | .59     | .68   | .62      | .71   | .56   | .67   | .68   | .79   | .79  | .92   | .59  | .70   | .57  | .69   | .65    | .74   | .59       | .70   | .63     | .75   | .62      | .74   | .60      | .73   |
| 27 | .56     | .65   | .57      | .68   | .57   | .69   | .65   | .77   | .99  | 1.19  | .61  | .70   | .56  | .66   | .69    | .81   | .67       | .75   | .64     | .73   | .61      | .69   | .69      | .81   |
| 28 | .54     | .66   | .58      | .69   | .57   | .68   | .64   | .75   | .84  | 1.02  | .64  | .72   | .51  | .60   | .68    | .81   | .61       | .70   | .59     | .70   | .62      | .69   | .70      | .84   |
| 29 | .62     | .68   |          |       | .59   | .70   | .63   | .72   | .67  | .81   | .56  | .64   | .82  | .93   | .52    | .62   | .58       | .69   | .61     | .69   | .60      | .71   | .71      | .85   |
| 30 | .58     | .71   |          |       | .59   | .71   | .62   | .71   | .75  | .87   | .56  | .65   | .69  | .79   | .66    | .82   | .55       | .69   | .54     | .68   | .62      | .71   | .63      | .72   |
| 31 | .56     | .66   |          |       | .60   | .71   |       |       | .68  | .76   |      |       | .68  | .79   | .69    | .85   |           |       | .60     | .69   |          |       | .71      | .81   |

| Date          | Location                 | Free | Total | Date           | Location              | Free | total |
|---------------|--------------------------|------|-------|----------------|-----------------------|------|-------|
| <b>Jan 12</b> | Staff trailer village    | .30  | .39   | <b>Jul 13</b>  | Lunch room            | .51  | .62   |
| <b>Jan 2</b>  | Maintenance yard         | .48  | .57   | <b>Jul 25</b>  | Staff trailer village | .53  | .62   |
| <b>Feb 15</b> | Staff trailer village    | .46  | .55   | <b>Aug 9</b>   | Cottonwood            | .53  | .60   |
| <b>Feb 23</b> | Maintenance yard         | .42  | .50   | <b>Aug 10</b>  | Cottonwood            | .42  | .51   |
| <b>Mar 9</b>  | Lunch room               | .52  | .67   | <b>Aug 22</b>  | townsite              | .41  | .50   |
| <b>Mar 22</b> | Staff trailer village    | .42  | .51   | <b>Sept 7</b>  | Maintenance yard      | .41  | .54   |
| <b>Apr</b>    | Maintenance yard         | .40  | .52   | <b>Sept 21</b> | Staff trailer village | .25  | .32   |
| <b>Apr 20</b> | office                   | .41  | .50   | <b>Oct 4</b>   | Maintenance yard      | .44  | .50   |
| <b>May 4</b>  | office                   | .43  | .52   | <b>Oct 20</b>  | Maintenance yard      | .39  | .50   |
| <b>May 16</b> | Seasonal trailer village | .29  | .39   | <b>Nov 3</b>   | Staff trailer village | .33  | .41   |
| <b>May 17</b> | Lakeshore campground     | .29  | .41   | <b>Nov 18</b>  | Lunch room            | .53  | .65   |
| <b>Jun 14</b> | Staff trailer village    | .51  | .60   | <b>Dec 2</b>   | Lunch room            | .34  | .60   |
| <b>Jun 15</b> | Maintenance yard         | .52  | .61   | <b>Dec 15</b>  | Lunch room            | .50  | .60   |
| <b>Jun 16</b> | Lakeshore campground     | .45  | .54   | <b>Dec 29</b>  | Maintenance yard      | .50  | .62   |

#### 💧 What happens if you fail to meet any of these regulations?

- With constant computer monitoring of the chlorine levels, we are warned of the chlorine becoming too low before it ever gets below the regulation and the issue is attended to immediately and corrected. If any lab samples come back with positive results then the laboratory immediately notifies us as well as the Water Officer. With a positive result for bacteria, The Office of Drinking Water and / or Medical Officer of Health will provide instructions on how to proceed.

#### 💧 Will we be notified if a problem occurs?

- Yes, if for any reason a boil water advisory is put in place then you will be notified via call/e-mail list and signage will be posted around town. The Whiteshell cottagers association will also immediately be notified and can reach residents through social platforms.

💧 **Is there anything else in the water that should be monitored or regulations you should meet?**

- Our main focus is the disinfection and bacteria in the water because that has the most concerning effect to the public's direct health, but yes there is much more that we monitor. Things that don't directly affect your health like how the water looks, tastes, smells, etc. is monitored through a full lab analysis to insure their limits are within the regulated guidelines. Below is a full analytical report on our water from the laboratory, this includes raw water, treated water and distribution water giving any limits set and the results of our water.



Environmental

## ANALYTICAL REPORT

### Physical Tests (WATER)

| Analyte                    | Unit     | ALSID     |                 | L251 0633-1                          | L2510633-2                               |
|----------------------------|----------|-----------|-----------------|--------------------------------------|--|
|                            |          | Guide     | Sample 10 Guide | 29-SEP-20 15:35 FAI CON I AKF 1 -RAW | 29-SEP-20 15:35 FAI CON I AKF 2 -TREATED |
| Colour, True               | CU       | 15        | -               | <5.0                                 | <5.0                                     |
| Conductivity               | umhos/cm | -         | -               | 678                                  | 693                                      |
| Hardness (as CaCO3)        | mg/l     | -         | -               | 228 °C                               | 233 HTO                                  |
| Langelier Index (4 C)      | No Unit  | -         | -               | -0.057                               | 0.16                                     |
| Langelier Index (60 C)     | No Unit  | -         | -               | 0.71                                 | 0.93                                     |
| pH                         | pH units | 7.00-10.5 | -               | 7.62                                 | 7.83                                     |
| Total Dissolved Solids     | mg/l     | 500       | -               | 410                                  | 422                                      |
| Transmittance, UV (254 nm) | T/cm     | -         | -               | 91.0                                 | 92.7                                     |
| Turbidity                  | NTU      | -         | -               | 48.1                                 | 0.52                                     |

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

#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

# Anions and Nutrients (WATER)

|   |      | ALSID        |          | L2510633-1    | L251 0633-2   |
|---|------|--------------|----------|---------------|---------------|
|   |      | Sampled Date |          | 29-SEP-20     | 29-SEP-20     |
|   |      | Sampled Time |          | 15:35         | 15:35         |
|   |      | Sample 10    |          | FALCON LAKE 1 | FALCON LAKE 2 |
|   |      | Guide        | Guide    | -RAW          | -TREATED      |
| Analyte                                   | Unit | Limit #1     | Limit #2 |               |               |
| Alkalinity, Total (as CaCO <sub>3</sub> ) | mg/L | -            | -        | 155           | 155           |
| Ammonia, Total (as N)                     | mg/l | -            | -        | 0.052         | 0.017         |
| Bicarbonate (HCO <sub>3</sub> )           | mg/l | -            | -        | 189           | 189           |
| Bromide (Br)                              | mg/l | -            | -        | 0.050         | <0.010        |
| Carbonate (CO <sub>3</sub> )              | mg/l | -            | -        | <0.60         | <0.60         |
| Chloride (Cl)                             | mg/L | 250          | -        | 107           | 110           |
| Fluoride (F)                              | mg/l | -            | 1.5      | 0.066         | 0.064         |
| Hydroxide (OH)                            | mg/l | -            | -        | <0.34         | <0.34         |
| Iodide (I)                                | mg/L | -            | -        | <0.20         | <0.20         |
| Nitrate (as N)                            | mg/l | -            | 10       | 0.135         | 0.134         |
| 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 (SO <sub>4</sub> )                | mg/L | 500          | -        | 26.7          | 27.1          |
| Anion Sum                                 | me/l | -            | -        | 6.68          | 6.78          |
| Cation Sum                                | me/l | -            | -        | 6.31          | 6.52          |
| Cation - Anion Balance                    |      | -            | -        | -2.9          | -2.0          |

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

#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs-Jan.2020)

## Organic {Inorganic Carbon (WATER)

|                          |      | ALSID        |          | L2S10633-1    | L2S10633-2    |
|--------------------------|------|--------------|----------|---------------|---------------|
|                          |      | Sampled Date |          | 29-SEP-20     | 29-SEP-20     |
|                          |      | Sampled Time |          | 15:35         | 15:35         |
|                          |      | Sample 10    |          | FALCON LAKE 1 | FALCON LAKE 2 |
|                          |      | Guide        | Guide    | - RAW         | - TREATED     |
| Analyte                  | Unit | Limit #1     | Limit #2 |               |               |
| Dissolved Organic Carbon | mg/L | -            | -        | 2~37          | 2.58          |
| Total Inorganic Carbon   | mg/L | -            | -        | 28.1          | 26.1          |
| Total Organic Carbon     | mg/L | -            | -        | 2.34          | 2~37          |

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

#1: GCDWQ • Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ • Maximum Acceptable Concentrations (MACs-Jan.2020)



Total Metals (WATER)

|                       |      | ALSID          |                | L251 0633-1   | L2510633-2    | L2510633-3     |
|-----------------------|------|----------------|----------------|---------------|---------------|----------------|
|                       |      | Sampled Date   |                | 29-SEP-20     | 29-SEP-20     | 29-SEP-20      |
|                       |      | Sampled Time   |                | 15:35         | 15:35         | 15:35          |
|                       |      | Sample ID      |                | FALCON LAKE 1 | FALCON LAKE 2 | FALCON LAKE 3  |
|                       |      |                |                | -RAW          | -TREATED      | - DISTRIBUTION |
| Analyte               | Unit | Guide Limit #1 | Guide Limit #2 |               |               |                |
| 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.Q1           | 0.00125       | 0.00012       | 0.00011        |
| Barium (Ba)-Total     | mg/L | -              | 2              | 0.0446        | 0.0399        | 0.0408         |
| Beryllium (Be)-Total  | mg/L | -              | -              | <0.00010      | <0.00010      | <0.00010       |
| Bismuth (Bi)-Total    | mg/L | -              | -              | <0.000050     | <0.000050     | <0.000050      |
| Boron (B)-Total       | mg/L | -              | 5              | 0.027         | 0.023         | 0.022          |
| Cadmium (Cd)-Total    | mg/L | -              | 0.005          | 0.0000094     | <0.0000050    | 0.0000092      |
| Calcium (Ca)-Total    | mg/l | -              | -              | 66.1          | 67.9          | 67.1           |
| Cesium (Cs)-Total     | mg/L | -              | -              | 0.000983      | 0.000995      | 0.000985       |
| Chromium (Cr)-Total   | mg/L | -              | 0.05           | <0.00010      | <0.00010      | <0.00010       |
| Cobalt (Co)-Total     | mg/l | -              | -              | 0.00044       | <0.00010      | <0.00010       |
| Copper (Cu)-Total     | mg/l | 1              | 2              | 0.00270       | 0.00686       | 0.104          |
| Iron (Fe)-Total       | mg/l | 0.3            | -              | 3.69          | 0.014         | 0.069          |
| Lead (Pb)-Total       | mg/l | -              | 0.005          | <0.000050     | 0.000360      | 0.00363        |
| Lithium (Li)-Total    | mg/L | -              | -              | 0.0076        | 0.0076        | 0.0076         |
| Magnesium (Mg)-Total  | mg/l | -              | -              | 15.4          | 15.3          | 15.1           |
| Manganese (Mn)-Total  | mg/l | 0.02           | 0.12           | 0.259         | 0.00052       | 0.00102        |
| Molybdenum (Mo)-Total | mg/l | -              | -              | 0.000231      | 0.000155      | 0.000166       |
| Nickel (Ni)-Total     | mg/l | -              | -              | 0.00303       | 0.00202       | 0.00219        |
| Phosphorus (P)-Total  | mg/l | -              | -              | <0.050        | <0.050        | <0.030         |
| Potassium (K)-Total   | mg/l | -              | -              | 3.16          | 3.12          | 3.14           |
| Rubidium (Rb)-Total   | mg/L | -              | -              | 0.00816       | 0.00820       | 0.00801        |
| Selenium (Se)-Total   | mg/L | -              | 0.05           | 0.000101      | 0.000087      | 0.000072       |
| Silicon (Si)-Total    | mg/L | -              | -              | 10.3          | 10.1          | 10.2           |
| Silver (Ag)-Total     | mg/l | -              | -              | <0.000010     | <0.000010     | 0.000018       |
| Sodium (Na)-Total     | mg/L | 200            | -              | 38.2          | 41.1          | 40.4           |
| Strontium (Sr)-Total  | mg/L | -              | 7              | 0.133         | 0.134         | 0.137          |
| Sulfur (S)-Total      | mg/l | -              | -              |               |               | 9.49           |
| 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      | <0.00010       |

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

#1: GCDWQ • Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs.Jan.2020)

## ANALYTICAL REPORT

### Total Metals (WATER)

|  |      | ALSID          |                | L251 0633-1   | L251 0633-2   | L251 0633-3    |
|--|------|----------------|----------------|---------------|---------------|----------------|
|  |      | Sampled Date   |                | 29-SEP-20     | 29-SEP-20     | 29-SEP-20      |
|  |      | Sampled Time   |                | 15:35         | 15:35         | 15:35          |
|  |      | Sample 10      |                | FALCON LAKE 1 | FALCON LAKE 2 | FALCON LAKE 3  |
|  |      |                |                | -RAW          | -TREATED      | - DISTRIBUTION |
| Analyte  | Unit | Guide Limit #1 | Guide Limit #2 |               |               |                |
| 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           | 0.000530      | 0.000462      | 0.000457       |
| Vanadium (V)-Total   | mg/L | -              | -              | <0.00050      | <0.00050      | <0.00050       |
| Zinc (Zn)-Total  | mg/L | 5              | -              | 0.0191        | 0.0101        | 0.0395         |
| Federal Guidelines for Canadian Drinking Water Quality (JAN, 2020) |      |                |                | 0.020         | <0.00020      | <0.00020       |

#1: GCDWQ • Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs.Jan.2020)

### Volatile Organic Compounds (WATER)

|                            |      | ALSID          |                | L2510633-1    |
|----------------------------|------|----------------|----------------|---------------|
|                            |      | Sampled Date   |                | 29-SEP-20     |
|                            |      | Sampled Time   |                | 15:35         |
|                            |      | Sample 10      |                | FALCON LAKE 1 |
|                            |      |                |                | -RAW          |
| Analyte                    | Unit | Guide Limit #1 | Guide Limit #2 |               |
| 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      |
| 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      |
| a-Xylene                   | mg/L |                |                | <0.00050      |
| m+p-Xylenes                | mg/L |                |                | <0.00040      |
| Xylenes (Total)            | mg/L | 0.02           | 0.09           | <0.00064      |

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

#1: GCDWQ - Aesthetic Objective/Other Value (Jan.2020)

#2: GCDWQ - Maximum Acceptable Concentrations (MACs.Jan.2020)



## ANALYTICAL REPORT

L2687855 CONTD....  
PAGE 2 of 3  
02-MAR-22 14:35 (MT)

### Total Metals (WATER)

|                      |      |                |                |                         |
|----------------------|------|----------------|----------------|-------------------------|
|                      |      | ALS ID         |                | L2687855-1              |
|                      |      | Sampled Date   |                | 23-FEB-22               |
|                      |      | Sampled Time   |                | 07:40                   |
|                      |      | Sample ID      |                | FALCON LAKE 3           |
| Analyte              | Unit | Guide Limit #1 | Guide Limit #2 | - DISTRIBUTION MIDPOINT |
| Manganese (Mn)-Total | mg/L | 0.02           | 0.12           | 0.00066                 |

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)



## ANALYTICAL REPORT

L2711015 CONTD....  
PAGE 2 of 3  
13-JUN-22 07:56 (MT)

### Total Metals (WATER)

|                      |      |                |                |                                     |
|----------------------|------|----------------|----------------|-------------------------------------|
|                      |      | ALS ID         |                | L2711015-1                          |
|                      |      | Sampled Date   |                | 31-MAY-22                           |
|                      |      | Sampled Time   |                | 08:00                               |
|                      |      | Sample ID      |                | FALCON LAKE 3                       |
| Analyte              | Unit | Guide Limit #1 | Guide Limit #2 | - DISTRIBUTION MIDPOINT @ MART YARD |
| Manganese (Mn)-Total | mg/L | 0.02           | 0.12           | 0.00032                             |

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)



## ANALYTICAL REPORT

L2729501 CONTD....  
PAGE 2 of 3  
26-AUG-22 15:45 (MT)

### Total Metals (WATER)

|                      |      |                |                |                                       |
|----------------------|------|----------------|----------------|---------------------------------------|
|                      |      | ALS ID         |                | L2729501-1                            |
|                      |      | Sampled Date   |                | 22-AUG-22                             |
|                      |      | Sampled Time   |                | 08:15                                 |
|                      |      | Sample ID      |                | FALCON LAKE 3                         |
| Analyte              | Unit | Guide Limit #1 | Guide Limit #2 | - DISTRIBUTION MIDPOINT @ TOWNSITE WR |
| Manganese (Mn)-Total | mg/L | 0.02           | 0.12           | 0.00049                               |

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)



## ANALYTICAL REPORT

L2740876 CONTD....  
PAGE 2 of 3  
29-NOV-22 13:58 (MT)

### Total Metals (WATER)

|                      |      |                |                |                                      |
|----------------------|------|----------------|----------------|--------------------------------------|
|                      |      | ALS ID         |                | L2740876-1                           |
|                      |      | Sampled Date   |                | -                                    |
|                      |      | Sampled Time   |                | -                                    |
|                      |      | Sample ID      |                | FALCON LAKE 3                        |
| Analyte              | Unit | Guide Limit #1 | Guide Limit #2 | - DISTRIBUTION MIDPOINT @ LUNCH ROOM |
| Manganese (Mn)-Total | mg/L | 0.02           | 0.12           | 0.00127                              |

💧 **Were there any issues or failures with meeting any requirements over the year?**

- This was our year to do our quarterly manganese samples for the distribution system which is down once every three years. Due to operator error and some confusion the four sets of samples were taken but the raw and treated samples which are taken once a year were missed. We received a non-compliance for this and will be back on track in the new year. The quarterly sample results are posted above.
- In February our bi weekly samples were taken and sent to the lab through Canada post but did not arrive in the allotted time. Samples were re taken and driven in by our staff but this left us with a period of 20 days between bi weekly samples going over the required 2 week period which resulted in a non-compliance. Since this issue we have not used any mailing services for our samples and staff members have driven samples in.
- On June 15<sup>th</sup> we received a bad sample from a public water post in lake shore campground, e. coli and total coliforms were detected. No boil water advisory was issued for this because system was currently already under an advisory from the storm that had shut down the water plant. We resampled the tap as well as water posts upstream and downstream of the affect water post. Upstream and downstream results were ok but total coliform was detected at the original water post so all samples were taken again. Upstream and downstream results were again ok but the original water post had total coliforms detected. With other samples coming back ok we realized this was a isolated incident and traced the source to some campers whom were using the public drinking tap to clean chicken, fish, etc contaminating the water post. All samples were again re taken and all came back clear. All bad samples result in a non-compliance.

💧 **Were there any unforeseen major issues or expenses over the year?**

- In June we had a storm that had knocked out one of the phase terminals on the transformer causing major electrical issues throughout the water plant affecting most electronics and instruments. This required multiple service technicians for various different equipment to be repaired, replaced and/or reprogrammed. The backup generator controls were also affected by this and came with costly repairs. As the town was put on a boil water advisory till we could confirm from the labs that the water quality was not affected and remained potable which the samples all came back good and the order was lifted.
- In July heavy rains lead to flooding causing some of our already old sewer main infrastructure to become overwhelmed and the added pressure caused a sewer collops. Which lead to some major replacement of sewer and water mains as well as multiple boil water

advisories until all repairs were made. The first boil water advisory for block D in July was for a shut down and repair of a service line. A water line break in August for this area caused another advisory until a repair was made and another advisory was implemented in November when construction began to replace as much of the detreating block to prevent further issues in this area. All samples taken for the boil water advisories came back good and each order was lifted.

💧 **Do you expect any major projects or expenses next year that we should be aware of, or that may affect my water service?**

- We are hoping to have our PLC and software program replaced which is now old and obsolete.
- We will be replacing sensor equipment which was affected from the storm earlier in the year.
- We are working on an infrastructure upgrade plan for water distribution and waste water collection, which we are hoping will start in the new year.

*Here at Falcon Lake Water Treatment Plant we'd love to give our thanks to our community for a great year and we plan to continue providing you with excellent and safe drinking water. THANK YOU!*

*Sincerely your operators*

*Matt, Steve and Jake*

