

**Drinking Water Quality and Compliance**  
**SaskWater Elbow Potable Water Supply System**  
**Station Number SK05HF0220**  
**2019 Notification to Consumers**

The Water Security Agency (WSA) requires that, at least once each year, waterworks owners provide notification to consumers of the quality of water produced and supplied as well as information on the performance of the waterworks in submitting samples as required by a Permit to Operate a waterworks. The following is a summary of the SaskWater Elbow Potable Water Supply System water quality and sample submission compliance record for the January 1, 2019 to December 31, 2019 time period. This report was completed on February 10, 2020. Readers should refer to the WSA's Municipal Drinking Water Quality Monitoring Guidelines, October 2012, EPB 202 for more information on minimum sample submission requirements and types of samples. Permit requirements for a specific waterworks may require more sampling than outlined in the Agency's monitoring guidelines. If consumers need to know more about drinking water in Saskatchewan, more detailed information is available from: <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index-eng.php>.

**BACTERIOLOGICAL QUALITY**

| Parameter           | Limit                | Regular Samples Required | Regular Samples Submitted | # Positive of Regular Submitted |
|---------------------|----------------------|--------------------------|---------------------------|---------------------------------|
| Total Coliform      | 0 Organisms/100 mL   | 52                       | 52                        | 0                               |
| E. Coli             | 0 Organisms/100 mL   | 52                       | 52                        | 0                               |
| Background Bacteria | Less than 200/100 mL | 52                       | 52                        | 0                               |

Analysis is performed on a single sample for all parameters mentioned above. All waterworks are required to submit samples for bacteriological water quality; the frequency of monitoring depends on the population served by the waterworks.

**WATER DISINFECTION**

**Chlorine Residual – From Test Results Submitted with Bacteriological Samples from WTP**

| Parameter      | Minimum Limit (either/or) | Range (mg/L) | # Tests Required | # Tests Submitted | # Adequate Chlorine |
|----------------|---------------------------|--------------|------------------|-------------------|---------------------|
| Free Chlorine  | 0.1 mg/L                  | 0.69 – 1.25  | 52               | 52                | 52                  |
| Total Chlorine | 0.5 mg/L                  | 0.91 – 1.48  | 52               | 52                |                     |

A minimum of 0.1 milligrams per litre (mg/L) free chlorine residual **OR** 0.5 mg/L total chlorine residual is required at all times throughout the distribution system. An adequate chlorine is a result that indicates that the chlorine level is above the regulated minimums. A waterworks is required to submit chlorine residual test results on every bacteriological sample they submit.

**Free Chlorine Residual for Water Entering Distribution System**

| Parameter     | Limit (mg/L) | Range (mg/L) | Average (mg/L) | # Tests Required | # Tests Performed | % Adequate Chlorine |
|---------------|--------------|--------------|----------------|------------------|-------------------|---------------------|
| Free Chlorine | At least 0.1 | 0.52 – 1.64  | 0.92           | Continuous       | Continuous        | 100                 |

Residuals are continuously monitored and recorded. Tests routinely performed by waterworks operators are to be recorded in operation records.

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**TURBIDITY**

**Turbidity – From Test Results Submitted with Bacteriological Samples from the WTP**

| Parameter | Limit (NTU) | Range (NTU) | # Tests Required | # Tests Performed | # Exceeding Limit |
|-----------|-------------|-------------|------------------|-------------------|-------------------|
| Turbidity | No standard | 0.10 – 0.21 | 52               | 52                | 0                 |

**Turbidity for Water Leaving the Filter**

| Parameter | Limit (NTU)*   | Range (NTU)   | 95 <sup>th</sup> Percentile (NTU) | # Tests Required | # Tests Performed | # of Months Exceeding 95 <sup>th</sup> Percentile Limit |
|-----------|--|---------------|-----------------------------------|------------------|-------------------|---|
| Turbidity | < 0.3 or 0.2 – 95% of measurements each month; not to exceed 0.3 or 0.2 for more than 12 consecutive hours; never >1.0 | 0.011 – 0.331 | 0.128                             | Continuous       | Continuous        | 0   |

Turbidity is a measure of water treatment efficiency. Turbidity measures the “clarity” of the drinking water and is reported in Nephelometric Turbidity Units (NTU). All waterworks are required to monitor turbidity at the water treatment plant.

**CHEMICAL – GENERAL**

SaskWater’s Elbow Potable Water Supply System is required to submit samples for the WSA’s General Chemical category once per three months every second year. 2019 is not a required sampling year. Additional testing is done for informational purposes.

| Parameter                     | MAC          | AO *      | Sample Results | # of Samples Required | # of Samples Submitted |
|-------------------------------|--------------|-----------|----------------|-----------------------|------------------------|
| Total Alkalinity (mg/L)       |              | 500       | 152            | 0                     | 4                      |
| Bicarbonate (mg/L)            | No Objective |           | 185            | 0                     | 4                      |
| Calcium (mg/L)                | No Objective |           | 45             | 0                     | 4                      |
| Carbonate (mg/L)              | No Objective |           | <1             | 0                     | 4                      |
| Chloride (mg/L)               |              | 250       | 16.6           | 0                     | 4                      |
| Fluoride (mg/L)               | 1.5          |           | 0.14           | 0                     | 4                      |
| Total Hardness (mg/L)         |              | 800       | 182            | 0                     | 4                      |
| Hydroxide (mg/L)              | No Objective |           | <1             | 0                     | 4                      |
| Magnesium (mg/L)              |              | 200       | 17             | 0                     | 4                      |
| Nitrate (mg/L)                | 45           |           | 1.1            | 0                     | 4                      |
| pH (pH units)                 |              | 6.5 – 9.0 | 8.17           | 0                     | 4                      |
| Potassium (mg/L)              | No Objective |           | 3.6            | 0                     | 4                      |
| Sodium (mg/L)                 |              | 300       | 27             | 0                     | 4                      |
| Specific Conductivity (µs/cm) | No Objective |           | 477            | 0                     | 4                      |
| Sulphate (mg/L)               |              | 500       | 71.6           | 0                     | 4                      |
| Sum of Ions                   | No Objective |           | 374            | 0                     | 1                      |
| Total Dissolved Solids (mg/L) |              | 1500      | 341            | 0                     | 4                      |

MAC – Maximum Acceptable Concentration

AO – Aesthetic Objective

**Elbow Potable Water Supply System**

**CHEMICAL – HEALTH**

SaskWater’s Elbow Potable Water Supply System is required to submit water samples for the WSA’s Chemical Health category once every 2 years. 2019 is not a required sample year. Additional testing is done for informational purposes.

| Parameter | MAC (mg/L)   | IMAC (mg/L) | AO * (mg/L) | Sample Results (mg/L) | # of Samples Required | # of Samples Submitted |
|-----------|--------------|-------------|-------------|-----------------------|-----------------------|------------------------|
| Aluminum  | No Objective |             |             | 0.453                 | 0                     | 1                      |
| Antimony  |              |             |             | <0.00016              | 0                     | 1                      |
| Arsenic   | 0.010        |             |             | 0.00080               | 0                     | 1                      |
| Barium    | 1.0          |             |             | 0.0804                | 0                     | 1                      |
| Boron     |              | 5.0         |             | <0.1                  | 0                     | 1                      |
| Cadmium   | 0.005        |             |             | <0.00015              | 0                     | 1                      |
| Chromium  | 0.05         |             |             | <0.00019              | 0                     | 1                      |
| Copper    |              |             | 1.0         | <0.00829              | 0                     | 1                      |
| Iron      |              |             | 0.3         | <0.1                  | 0                     | 3                      |
| Lead      | 0.01         |             |             | <0.00007              | 0                     | 1                      |
| Manganese |              |             | 0.05        | <0.01                 | 0                     | 3                      |
| Selenium  | 0.01         |             |             | <0.00113              | 0                     | 1                      |
| Silver    |              |             |             | <0.00020              | 0                     | 1                      |
| Uranium   | 0.02         |             |             | 0.0010                | 0                     | 1                      |
| Zinc      |              |             | 5           | <0.00400              | 0                     | 1                      |

MAC – Maximum Acceptable Concentration IMAC – Interim Maximum Acceptable Concentration  
 AO – Aesthetic Objective

\*Objectives apply to certain characteristics of or substances found in water for human consumptive or hygienic use. The presence of these substances will affect the acceptance of water by consumers and/or interfere with the practice of supplying good quality water. Compliance with drinking water aesthetic objectives is not mandatory as these objectives are in the range where they do not constitute a health hazards.

**CHEMICAL – TRIHALOMETHANES (THM)**

Trihalomethanes are formed when chlorine reacts with organic matter in water. The four THM compounds are: chloroform, dibromochloromethane, bromodichloromethane (BCDM) and bromoform. The sum of the concentrations of these four components is referred to as Total Trihalomethanes. The limit for THM is a long term objective based on an annual average of seasonal samples.

| Parameter             | Limit (mg/L) | Average (mg/L) | # Samples Required | # Samples Submitted |
|-----------------------|--------------|----------------|--------------------|---------------------|
| Total Trihalomethanes | 0.100        | 0.073          | 4                  | 4                   |

**CHEMICAL – HALOACETIC ACIDS (HAAs)**

Haloacetic acids are formed when chlorine reacts with organic matter in water. The five regulated haloacetic acids are: monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid. The sum of the concentrations of these five components is referred to as HAA5.

| Parameter          | Limit (mg/L) | Average (mg/L) | # Samples Required | # Samples Submitted |
|--------------------|--------------|----------------|--------------------|---------------------|
| Haloacetic Acids 5 | No Standard  | 0.051          | 4                  | 4                   |

**Elbow Potable Water Supply System**

**MICROCYSTIN LR and/or TOTAL MICROCYSTIN TOXINS**

The Elbow Potable Water Supply System is required to sample for microcystin at the water treatment plant following detection of significant algal blooms affecting the water intake. The last sample was submitted on August 12, 2019.

| Parameter   | Limit (mg/L) | Average (mg/L) | # Samples Required | # Samples Submitted |
|-------------|--------------|----------------|--------------------|---------------------|
| Microcystin | No Standard  | <0.0001        | 1                  | 1                   |

**More information on water quality and sample submission performance may be obtained from:**

SaskWater  
200 - 111 Fairford Street East  
Moose Jaw SK S6H 1C8  
Toll Free: 1-888-230-1111  
Fax: 306-694-3207  
Email: [customerservice@saskwater.com](mailto:customerservice@saskwater.com)