

Drinking Water Quality and Compliance Annual Notice to Consumers

Introduction

Saskatchewan Environment (SE) 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 Minister's Order or Permit to Operate a waterworks. The following is a summary of the Town of Lumsden water quality and sample submission compliance record for the *January 1st to December 31, 2007* time period. This report was completed on March 31, 2008. Readers should refer to SE's "Municipal Drinking Water Quality Monitoring Guidelines, November 2002, EPB 202" for more information on minimum sample submission requirements and the meaning of type of sample. Permit requirements for a specific waterworks may require more sampling than outlined in the department's monitoring guidelines. If consumers need more information on the nature and significance of specific water tests, for example, "what is the significance of Selenium in a water supply", more detailed information is available from: <http://www.saskh2o.ca>

Water Quality Standards

Bacteriological Quality

| Parameter/Location | Limit | Regular Samples Required | Regular Samples Submitted | # of Positive Regular Submitted (%) |
|--|--|--------------------------|---------------------------|-------------------------------------|
| Total Coliform and Background Bacteria | 0 Organisms/100 mL Less than 200/100 mL | 52 | 55 | 0 (0%) |

Water Disinfection – Chlorine Residual in Distribution System for Test Results Submitted with Bacteriological Samples

| Parameter | Minimum Limit | Free Chlorine Residual Range | Total Chlorine Residual Range | # Tests Submitted | # Inadequate Chlorine (%) | # Adequate Chlorine (%) |
|-------------------|------------------------------------|------------------------------|-------------------------------|-------------------|---------------------------|-------------------------|
| Chlorine Residual | 0.1 mg/L free OR 0.5 mg/L total | 0.22-1.27mg/l | 0.45-1.60mg/l | 55 | 0 | 55(100%) |

Water Disinfection - Free Chlorine Residual for Water Entering Distribution System from Waterworks Records- From Water Treatment Plant Records

| Parameter | Minimum Limit (mg/L) | Test Level Range | # Tests Performed | # Tests Not Meeting Requirements |
|------------------------|----------------------|-------------------|-------------------|----------------------------------|
| Free Chlorine Residual | at least 0.1 | 0.29 to 1.47 mg/l | 365 | 0 |

A minimum of 0.1 milligrams per litre (mg/L) free chlorine residual is required for water entering the distribution system. Tests are normally performed on a daily basis by the waterworks operator and are recorded in operation records. This data includes the number of free chlorine residual tests performed, the overall range of free chlorine residual (highest and lowest recorded values) and the number of tests and percentage of results not meeting the minimum requirement of 0.1 mg/L free chlorine residual.

Turbidity – From Water Treatment Plant Records and Distribution System

| Parameter | Limit (NTU) | Test Level Range | # Tests Not Meeting Requirements | Maximum Turbidity (NTU) | # Tests Required | # Tests Performed |
|--------------|-------------|------------------|----------------------------------|-------------------------|------------------|-------------------|
| At Plant | 1.0 | 0.022 to .165 | 0 | 0.165 | 365 | 365 |
| Dist. System | 1.0 | 0.12 to 1.05 | 0 | 1.05 | 52 | 365 |

Turbidity is a measure of water treatment efficiency . Turbidity measures the clarity of the drinking water and is generally Reported in nephelometric units (NTU) . All waterworks are required to monitor turbidity at the water treatment plant. The Frequency of measurement varies from daily for small systems to continuous for larger waterworks.

Chemical – Health Category

All waterworks serving fewer than 5000 persons are required to submit water samples for SE's Chemical Health category once every 2 years. The Chemical Health category includes analysis for arsenic, barium, boron, cadmium, chromium, fluoride, lead, nitrate, selenium and uranium.

The last sample for Chemical Health analysis was submitted on May 31 2007. Sample results indicated that the Town of Lumsden water quality was within the provincial drinking water quality standards for the Chemical Health analysis. .

Chemical – Health Category (continued)

| Parameter | Limit MAC(mg/L) | Limit IMAC (mg/L) | Sample Result(s) | # Samples Exceeding Limit | |
|-----------------|--------------------|----------------------|---------------------|------------------------------|--|
| Arsenic | 25 ug/L | | 1.1 ug/L | 0 | * Results expressed as average values for communities or waterworks that fluoridate drinking water supplies or those with elevated concentrations of fluoride or nitrates. |
| Barium | 1.0 | | 0.0046 | 0 | |
| Boron | | 5.0 | 0.12 | 0 | |
| Cadmium | 0.005 | | < 0.0001 | 0 | |
| Chromium | 0.05 | | < 0.0005 | 0 | |
| Fluoride (avg*) | 1.5 | | 0.28 | 0 | |
| Lead | 0.01 | | 0.0004 | 0 | |
| Nitrate (avg.*) | 45.0 | | 2.1 | 0 | |
| Selenium | 0.01 | | 0.0001 | 0 | |
| Uranium | 20 ug/L | | 2.8 ug/L | 0 | |

Chemical – Trihalomethanes (THMs)

| Parameter | THMs Limit (mg/L) | Sample Result (average) | # Samples Required | # Samples Submitted |
|-----------------|----------------------|----------------------------|-------------------------|-------------------------|
| Trihalomethanes | 0.1 | Not required (see note) | Not required (see note) | Not required (see note) |

Note: Only water supplies derived from surface water or groundwater under the influence of surface water are required to monitor for THMs. Waterworks using groundwater sources beyond the influence of surface water do not need to report THMs since sampling/analysis will not likely have been performed.

General Chemical

| Parameter | Aesthetic Objectives * (mg/L) | Sample Results (average) | # Samples Required | # Samples Submitted |
|---------------------------|----------------------------------|-----------------------------|-----------------------|------------------------|
| Alkalinity | 500 | 398 | 1 | 1 |
| Bicarbonate | No Objective | 486 | 1 | 1 |
| Calcium | No Objective | 131 | 1 | |
| Carbonate | No Objective | <1 | | |
| Chloride | 250 | 25 | 1 | 1 |
| Conductivity | No Objective | 1470 | 1 | 1 |
| Hardness | 800 | 701 | 1 | 1 |
| Magnesium | 200 | 91 | 1 | 1 |
| PH | No Objective | 8.09 | | |
| Sodium | 300 | 93 | 1 | 1 |
| Sulphate | 500 | 430 | 1 | 1 |
| Total dissolved Solids | 1500 | 1060 | 1 | 1 |

All waterworks serving fewer than 5000 persons are required to submit water samples for SE's General Chemical category once every two years if a ground water source and once per three months every second year if a surface water or blended surface/groundwater source. The General Chemical category includes analysis for alkalinity, bicarbonate, calcium, carbonate, chloride, conductivity, hardness (as CaCO₃), magnesium, sodium, sulphate and total dissolved solids.

The last sample for General Chemical analysis was required in 2007 and submitted in May 2007. This sample did exceed provincial aesthetic objectives for the General Chemical category.

*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 hazard. The aesthetic objectives for several parameters (including hardness as CaCO₃, magnesium, sodium and total dissolved solids) consider regional differences in drinking water sources and quality.

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

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