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## Water and Waste Department

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# 2022 Winnipeg distribution system water quality test results

The Winnipeg distribution system is the last location where we add chlorine to the water - at the outlet from each of the three pumping stations. The other locations are at the Shoal Lake intake on a periodic basis and at the [Water Treatment Plant](#).

Our [Operating Licence](#) requires that we maintain a minimum free chlorine residual of 0.1 milligrams per litre throughout the distribution system.



### Testing

Winnipeg water is intensively monitored on a routine basis at [Shoal Lake](#), before it enters the Water Treatment Plant and after the water has passed through the treatment processes to ensure that the water is safe and that regulatory requirements are met. Because water quality is so important, our level of monitoring and sampling exceeds Provincial regulatory requirements.

- Equipment is used to continuously monitor chlorine levels at the pumping stations and we test the chlorine levels at 60 locations throughout the distribution system on a weekly basis.
- Microbiological samples are taken weekly at 60 locations throughout the distribution system. [Tests are conducted](#) for Escherichia coli and total coliform bacteria according to Provincial regulations, and we also test for Heterotrophic plate count which is not required under Provincial regulations, but can be useful to identify potential problem areas within the distribution system.

We also test Winnipeg distribution system water for:

- routine water chemistry
- metals
- disinfection by-products

We use these test results to monitor water quality changes within the distribution system and the quality of water delivered to customers. We also respond to customer inquiries and complaints about water quality. [Contact us](#) for more information.

### Test results are from January 1 to December 31, 2022

What is being measured	How it's measured	Guideline or regulation	Winnipeg average	Winnipeg range
<b>Miscellaneous</b>				
Carbon, Dissolved Organic	parts per million	no guideline	6.6	2.7 to 13.7
Carbon, Total Organic	parts per million	no guideline	4.7	2.3 to 13.5
Chlorine, Free	parts per million	no guideline	0.94	<0.02 to 2.04
Chlorine, Total	parts per million	no guideline	1.16	0.02 to 2.90
Colour, Apparent	TCU	no guideline	2.6	0.0 to 5.0
Colour, True	TCU	no more than 15	0.8	0.0 to <5.0
Conductivity	microsiemens per centimetre	no guideline	313	271 to 365
Langelier Index (4 C)	units	no guideline	-0.67	-0.75 to -0.57
Langelier Index (60 C)	units	no guideline	0.10	0.02 to 0.20
Odour	units	inoffensive	11	5 to 15
ORP	millivolts	no guideline	520.5	315.4 to 672.9
Oxygen, Dissolved	parts per million	no guideline	11.8	8.7 to 15.7
pH	units	between 7.0 and 10.5	7.53	<b>6.84</b> to 7.92
Solids, Total Dissolved	parts per million	no more than 500	167	112 to 216
Temperature	degrees Celcius	no more than 15	10.6	1.7 to <b>25.6</b>
Turbidity (clearness)	NTU	no guideline	0.18	<0.10 to 3.9
UV Transmittance, Filtered	percent transmissivity	no guideline	94.0	92.0 to 96.0
<b>Anions and Nutrients</b>				
Alkalinity, Total	parts per million as calcium carbonate	no guideline	68.0	53.9 to 84.4
Alkalinity, Bicarbonate	parts per million	no guideline	82.8	73.2 to 99.6
Alkalinity, Carbonate	parts per million	no guideline	<0.6	<0.6 to <0.6
Alkalinity, Hydroxide	parts per million	no guideline	<0.34	<0.34 to <0.34
Hardness, Total	parts per million as calcium carbonate	no guideline	83.1	71.5 to 98.8
Ammonia	parts per million	no guideline	<0.01	<0.01 to 0.02
Bromate	parts per million	no more than 0.01	<0.30	<0.30 to <0.30
Bromide	parts per million	no guideline	<0.01	<0.01 to 0.01
Chloride	parts per million	no more than 250	5.2	4.0 to 7.8
Fluoride	parts per million	no more than 1.5	0.65	0.08 to 0.76
Nitrate Nitrogen	parts per million	no more than 10	0.028	0.007 to 0.059
Nitrite	parts per million	no more than 3	<0.001	<0.001 to <0.001
Perchlorate	parts per billion	no guideline	<0.2	<0.2 to <0.2
Phosphate, Soluble	parts per million as phosphate	no guideline	1.93	0.05 to 2.93
Phosphorus, Total	parts per million	no guideline	0.690	0.681 to 0.701
Sulphate	parts per million	no more than 500	70.1	53.3 to 93.5
<b>Bacteria</b>				
Escherichia Coli	MPN per 100 mL	none detectable per 100 mL	0	0 to 0
Total Coliforms	MPN per 100 mL	none detectable per 100 mL	0	0 to <b>130</b>
Heterotrophic Plate Count	CFU per mL	no guideline	1	<1 to 231
<b>Disinfection By-Products</b>				
Haloacetic acids	parts per billion	no more than 80	28.9	8.3 to 54.0
Trihalomethanes	parts per billion	no more than 100	43.0	15.4 to 69.0
<b>Total Metals</b>				
Aluminum	parts per million	no guideline	0.00636	<0.00300 to 0.04603
Antimony	parts per million	no more than 0.006	0.000039	<0.000025 to 0.000687
Arsenic	parts per million	no more than 0.010	0.000362	0.000275 to 0.000790
Barium	parts per million	no more than 2	0.0155	0.0143 to 0.0176
Beryllium	parts per million	no guideline	<0.00010	<0.00010 to <0.00010
Bismuth	parts per million	no guideline	<0.000050	<0.000050 to <0.000050
Boron	parts per million	no more than 5	0.00606	<0.00208 to 0.01800
Cadmium	parts per million	no more than 0.007	<0.000005	<0.000005 to 0.000021
Calcium	parts per million	no guideline	21.210	16.996 to 27.131
Cesium	parts per million	no guideline	<0.000010	<0.000010 to <0.000010
Chromium	parts per million	no more than 0.05	0.00006	<0.00004 to 0.00031
Chromium VI	parts per million	no guideline	<0.00050	<0.00050 to 0.00057
Cobalt	parts per million	no guideline	0.00130	0.00111 to 0.00156
Copper	parts per million	no more than 2.0	0.037486	<0.000022 to 0.206520
Iron	parts per million	no more than 0.3	0.05653	0.01026 to 0.19811
Lead	parts per million	no more than 0.005	0.000063	<0.000050 to 0.000850
Lithium	parts per million	no guideline	0.0025	0.0023 to 0.0026
Magnesium	parts per million	no guideline	6.220	5.153 to 8.130
Manganese	parts per million	no more than 0.12	0.00825	0.00301 to 0.02192
Mercury	parts per billion	no more than 1	<0.0050	<0.0050 to 0.0289
Molybdenum	parts per million	no guideline	<0.000050	<0.000050 to <0.000050
Nickel	parts per million	no guideline	0.002395	0.001679 to 0.005745
Potassium	parts per million	no guideline	1.269	0.950 to 1.653
Rubidium	parts per million	no guideline	0.0017	0.0015 to 0.0019
Selenium	parts per million	no more than 0.05	<0.000050	<0.000050 to 0.00006
Silicon	parts per million	no guideline	2.28	0.78 to 3.53
Silver	parts per million	no guideline	<0.000010	<0.000010 to <0.000010
Sodium	parts per million	no more than 200	31.108	23.962 to 40.435
Strontium	parts per million	no more than 7	0.0404	0.0367 to 0.0478
Tellurium	parts per million	no guideline	<0.00020	<0.00020 to <0.00020
Thallium	parts per million	no guideline	<0.000010	<0.000010 to <0.000010
Thorium	parts per million	no guideline	<0.00010	<0.00010 to <0.00010
Tin	parts per million	no guideline	0.00010	<0.00010 to 0.00016
Titanium	parts per million	no guideline	<0.00030	<0.00030 to <0.00030
Tungsten	parts per million	no guideline	<0.00010	<0.00010 to <0.00010
Uranium	parts per million	no more than 0.02	0.000021	<0.000010 to 0.000113
Vanadium	parts per million	no guideline	<0.00050	<0.00050 to <0.00050
Zinc	parts per million	no more than 5.0	0.00369	0.00012 to 0.03219
Zirconium	parts per million	no guideline	<0.00020	<0.00020 to <0.00020

**Aesthetic objective:** These guidelines have an objective and not a maximum acceptable concentration. These parameters should not impact the safety of the water to drink and there is no anticipated health risk for short-term exposures.

Guidelines from 'Summary of Guidelines for Canadian Drinking Water Quality' by Health Canada, September 2020

**Results in red do not meet the guideline.**

Data reported was collected from a combination of MacLean, Hurst, and McPhillips Pumping Station Discharges, 57 distribution system locations (39 distribution system locations January-March), and/or Branch I at McPhillips and Branch II at Hurst.

Note: Where value is expressed as less than (<), the value is halved and used in the calculations, where value is expressed as greater than (>), the value is used in the calculations

### Bacterial testing

What is being measured	Requirement	Our test results	Comments
Number of total coliform bacteria tests in year	2028 samples/year	2,989	
Number of times that total coliform bacteria show up in a test	none detectable per 100 mL	0.10% (3 positive tests)	All resamples were negative and met the operating licence requirements.
Number of Escherichia coli bacteria tests in year	2028 samples/year	2,989	
Number of times that Escherichia coli bacteria show up in a test	none detectable per 100 mL	0.00% (0 positive test)	
Number of heterotrophic (HPCR) plate count (HPC) tests done	no requirement	2,197	Heterotrophic plate count testing is not required under the operating licence

Requirements from City of Winnipeg Operating Licence PWS-09-412-02

Data reported was collected from 57 distribution system locations (39 distribution system locations January-March) and MacLean, Hurst, and McPhillips Pumping Station Discharges

Last updated: May 2, 2023 [Top of page](#)

Was this information helpful?

Yes No