

Carman Water System Annual Report - 2023



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A copy of this report is available to the public via the Town Of Carman website:
www.carmanmanitoba.ca or, a free paper copy may be obtained at our Town Office at the address above.

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1. Introduction

The Town of Carman Manitoba strives to provide high quality drinking water in sufficient quantities to meet public needs. It is our goal to do so in a safe and cost-effective manner, while remaining in compliance with the regulatory requirements governing the provision of safe drinking water. It is our belief that the public has a right to access the information related to the drinking water they consume. To that end, the following report has been prepared for the Community of Carman public water system.

2. Sources

On June 23rd, 2021, The Town of Carman began supplying water from our newly constructed storage reservoir and pump house, and began decommissioning the water treatment plant. The Town of Carman is now supplied drinking water solely from the Water Treatment Plant at Stephenfield with the option of also bringing water from the Morris WTP. We added another pump in fall 2023 that will allow us to feed back into the RM of Dufferin for emergency situations. For more info on the Stephenfield Plant, please visit their website, <https://pvwc.ca/>

Why and how do we disinfect our water?

Our pump house contains a means to provide additional chlorination with 2 pumps available in case of emergency, or if additional disinfectant is required. However, upgrades to the SWTP membrane plant have provided much more stable chlorine residuals in the Carman distribution system and re-chlorination at the Carman pump house is currently not required. Chlorine residuals are continually monitored with online monitors and manual daily tests.

3. Water storage and distribution

The storage reservoir and pump house has a capacity of 3600 cubic meters or 800,000 IMP. gallons. There is roughly 3.5 - 4 days of storage in summer or peak demand periods, and 4 - 5 days in winter or lower demand periods.

What is the “Distribution System”?

The water distribution system is the network of underground pipes used to carry the treated water from the water treatment facility to the homes and businesses in Carman. We have 25km of cast iron, AC and PVC piping. The piping is interconnected to ensure that fresh safe water is continuously supplied. Regular maintenance is performed in the distribution system including the seasonal fire hydrant flushing program in September/October.. Seasonal flushing of the distribution allows for the removal of sediment in water mains that may have accumulated over time.

4. Water testing the why, where, and how

Is our water tested? What for? When?

Bacteriological testing: We test the treated water (leaving the Storage Reservoir) and the water in the distribution system (within the Town of Carman) every two weeks for the presence of Total Coliforms (non-harmful bacteria). If these bacteria are present in the water, it is an indication that disease-causing bacteria may also be present. Tests for the presence of E-Coli (most common harmful bacteria) are also conducted at the same time.

Disinfectant testing: We test the level of chlorine in the treated water every day to ensure that the water leaving the Reservoir has enough chlorine to ensure proper disinfections

The pump house is equipped with 2 online CL2 monitors (1 on incoming line, 1 on discharge), so it is continuously monitored. Daily manual tests are done for free CL2 and once a week for Total CL2.

Trihalomethanes (THMs): Trihalomethanes are formed when chlorine reacts with naturally occurring organic matter in the water. Studies have shown a link between high levels of THMs and cancer. For that reason, the province has set a health-based standard for THMs of 100 micrograms per liter of water or 0.100 ppm. The THM standard is based on an average of four samples per year. We test THM levels in one location in the distribution system on a seasonal basis. Due to the type of water that Carman uses for its drinking water (Boyne River) the levels for THMs is above the provincial standard of 0.100 ppm.

Haloacetic Acids (HAAs): Haloacetic acids (HAAs) are a common undesirable by-product of using Chlorine to disinfect drinking water. Exposure to such by-products in drinking water, at high levels over many years, has been associated with a number of health outcomes by epidemiological studies; due to this the provincial and federal governments have set a limit of 80 micrograms per liter of water or 0.08 mg/L. HAAs can be formed by chlorination, ozonation or chloramination of water with formation promoted by slightly acidic water, high organic matter content and elevated temperature. Chlorine from the water disinfection process can react with organic matter and small amounts of bromide present in water to produce various HAAs.

THMs and HAAs are submitted every other year in even numbered years. THM and HAA sampling was done in 2022.

Lead Sampling:

The lead sampling program that was to start in 2020/21 had been postponed due to Covid-19 pandemic. We started our sampling program in 2023 with us taking from 20 residential units around town focusing on houses built prior to 1980. Results are posted at the end of this report. If you believe you have lead pipes in your house, you can call us and we will add you to the sampling list for 2024.

Other Important Information:

The Office of Drinking Water participates in the Federal-Provincial-Territorial Committee on Drinking Water that approves the Guidelines for Canadian Drinking Water Quality. Drinking water quality standards applied in Manitoba regulations are consistent with current Health Canada guidelines, and the Office of Drinking Water monitors the potential impact of proposed changes to Manitoba water systems. Health Canada recently published new technical guidelines on cyanobacteria (algae), manganese, and lead.

Canadian Drinking Water guidelines can be found at <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/water-quality/drinking-water/canadian-drinking-water-guidelines.html>

Owners and operators are encouraged to review this information and to determine what impact they may have on the water supply.

What were the results of water testing in 2023?

The following table summarizes treated water testing results for 2023:

Testing Parameter	Standard	Carman WTP Performance	Standard Met
Bacteriological	0/100 mL Coliforms 0/100 mL E. Coli	100 %	Yes
Chlorine Leaving Reservoir	0.5 mg/L	100 %	Yes

Chlorine in distribution system	0.1 mg/L	100 %	Yes
Total Trihalomethanes (THMs) - Samples collected every other year, beginning in 2020	<0.08 mg/L	2022 average – 0.03525 mg/L	2022 – Yes
Total Haloacetic Acids (HAAs) – Samples collected every other year, beginning in 2020	80	2022 average - 30 ug/L	2022 – Yes

2023 Bacteriological Testing Results

ALS			E. Coli	Total Coliforms
Sample ID	ALS ID	Date Sampled	MPN/100M L	MPN/100ML
TOC - Distribution @ Elementary School	L2744580-1	1/9/2023	0	0
TOC - Distribution @ Res Outgoing	L2744580-2	1/9/2023	0	0
TOC - Distribution @ Ed's Tire	L2744580-3	1/9/2023	0	0
TOC - Distribution @ Carman Golf Course	L2745531-1	1/23/2023	0	0
TOC - Distribution @ Res Outgoing	L2745531-2	1/23/2023	0	0
TOC - Distribution @ High School	L2745531-3	1/23/2023	0	0
TOC - Distribution @ LCL Construction	L2746414-1	2/6/2023	0	0
TOC - Distribution @ Res Outgoing	L2746414-2	2/6/2023	0	0
TOC - Distribution @ Memorial Hall	L2746414-3	2/6/2023	0	0
TOC - Distribution @ Darcy's House	L2747465-1	2/21/2023	0	0
TOC - Distribution @ Res Outgoing	L2747465-2	2/21/2023	0	0
TOC - Distribution @ Carman Arena	L2747465-3	2/21/2023	0	0
TOC - Distribution @ Public Works Shop	L2748399-1	3/6/2023	0	0
TOC - Distribution @ Res Outgoing	L2748399-2	3/6/2023	0	0
TOC - Distribution @ Carman Hospital	L2748399-3	3/6/2023	0	0
TOC - Distribution @ Ed's Tire	L2749173-1	3/20/2023	0	0
TOC - Distribution @ Res Outgoing	L2749173-2	3/20/2023	0	0
TOC - Distribution @ Carman Golf Course	L2749173-3	3/20/2023	0	0
TOC - Distribution @ Carman Arena	WP2304036-001	4/3/2023	0	0
TOC - Distribution @ Res Outgoing	WP2304036-002	4/3/2023	0	0
TOC - Distribution @ LCL Construction	WP2304036-003	4/3/2023	0	0
TOC - Distribution @ Darcy's House	WP2305113-001	4/17/2023	0	0
TOC - Distribution @ Res Outgoing	WP2305113-002	4/17/2023	0	0
TOC - Distribution @ High School	WP2305113-003	4/17/2023	0	0
TOC - Distribution @ Elementary School	WP2306348-001	5/1/2023	0	0
TOC - Distribution @ Res Outgoing	WP2306348-002	5/1/2023	0	0
TOC - Distribution @ Carman Hospital	WP2306348-003	5/1/2023	0	0

TOC - Distribution @ Carman Golf Course	WP2308040-001	5/15/2023	0	0
TOC - Distribution @ Res Outgoing	WP2308040-002	5/15/2023	0	0
TOC - Distribution @ Ed's Tire	WP2308040-003	5/15/2023	0	0
TOC - Distribution @ Seasonal Campground	WP2308040-004	5/15/2023	0	0
TOC - Distribution @ Seasonal Campground	WP2308244-001	5/16/2023	0	0
TOC -Distribution @ Darcy's House	WP2309441-001	5/25/2023	0	0
TOC - Distribution @ 12-Grundy Bay	WP2309441-002	5/25/2023	0	0
TOC - Distribution @ 197-3rd Ave NW	WP2309441-003	5/25/2023	0	0
TOC - Distribution @ Darcy's House	WP2309622-001	5/26/2023	0	0
TOC - Distribution @ 12-Grundy Bay	WP2309622-002	5/26/2023	0	0
TOC - Distribution @ 197-3rd Ave NW	WP2309622-003	5/26/2023	0	0
TOC - Distribution @ Public Works Shop	WP2309736-001	5/29/2023	0	0
TOC - Distribution @ Res Outgoing	WP2309736-002	5/29/2023	0	0
TOC - Distribution @ Memorial Hall	WP2309736-003	5/29/2023	0	0
TOC - Distribution @ High School	WP2311544-001	6/12/2023	0	0
TOC - Distribution @ Res Outgoing	WP2311544-003	6/12/2023	0	0
TOC - Distribution @ Carman Golf Course	WP2311544-003	6/12/2023	0	0
TOC - Distribution @ Darcy's House	WP2313214-001	6/26/2023	0	0
TOC - Distribution @ Res Outgoing	WP2313214-002	6/26/2023	0	0
TOC - Distribution @ Public Works Shop	WP2313214-003	6/26/2023	0	0
TOC - Distribution @ Carman Hospital	WP2314807-001	7/10/2023	0	0
TOC - Distribution @ Res Outgoing	WP2314807-002	7/10/2023	0	0
TOC - Distribution @ Ed's Tire	WP2314807-003	7/10/2023	0	0
TOC - Distribution @ LCL Construction	WP2316537-001	7/24/2023	0	0
TOC - Distribution @ Res Outgoing	WP2316537-002	7/24/2023	0	0
TOC - Distribution @ Memorial Hall	WP2316537-003	7/24/2023	0	0
TOC - Distribution @ Carman Campground	WP2318385-001	8/8/2023	0	0
TOC - Distribution @ Res Outgoing	WP2318385-002	8/8/2023	0	0
TOC - Distribution @ Carman Golf Course	WP2318385-003	8/8/2023	0	0
TOC - Distribution @ Memorial Hall	WP2320134-001	8/21/2023	0	0
TOC - Distribution @ Res Outgoing	WP2320134-002	8/21/2023	0	0
TOC - Distribution @ Darcy's House	WP2320134-003	8/21/2023	0	0
TOC - Distribution @ Carman Arena	WP2321993-001	9/05/2023	0	0
TOC - Distribution @ Res Outgoing	WP2321993-002	9/05/2023	0	0
TOC - Distribution @ Carman Hospital	WP2321993-003	9/05/2023	0	0
TOC - Distribution @ Ed's Tire	WP2323473-001	09/18/2023	0	0
TOC - Distribution @ Res Outgoing	WP2323473-002	9/18/2023	0	0
TOC - Distribution @ Public Works Shop	WP2323473-003	9/18/2023	0	0
TOC - Distribution @ High School	WP2325199-001	10/3/2023	0	0
TOC - Distribution @ Res Outgoing	WP2325199-002	10/3/2023	0	0
TOC - Distribution @ Carman Golf Course	WP2325199-003	10/3/2023	0	0
TOC - Distribution @ Elementary School	WP2326507-001	10/16/2023	0	0
TOC - Distribution @ Res Outgoing	WP2326507-002	10/16/2023	0	0

TOC - Distribution @ LCL Construction	WP2326507-003	10/16/2023	0	0
TOC - Distribution @ Darcy's House	WP2328000-001	10/30/2023	0	0
TOC - Distribution @ Res Outgoing	WP2328000-002	10/30/2023	0	0
TOC - Distribution @ Carman Arena	WP2328000-003	10/30/2023	0	0
TOC - Distribution @ Carman Hospital	WP2329550-001	11/14/2023	0	0
TOC - Distribution @ Res Outgoing	WP2329550-002	11/14/2023	0	0
TOC - Distribution @ Public Works Shop	WP2329550-003	11/14/2023	0	0
TOC - Distribution @ Ed's Tire	WP2330853-001	11/27/2023	0	0
TOC - Distribution @ Res Outgoing	WP2330853-002	11/27/2023	0	0
TOC - Distribution @ Memorial Hall	WP2330853-003	11/27/2023	0	0
TOC - Distribution @ Darcy's House	WP2332194-001	12/11/2023	0	0
TOC - Distribution @ Res Outgoing	WP2332194-002	12/11/2023	0	0
TOC - Distribution @ Carman Arena	WP2332194-003	12/11/2023	0	0
TOC - Distribution @ 86-6th Ave SW	WP2333107-001	12/20/2023	0	0
TOC - Distribution @ 276-1st St. SW	WP2333107-002	12/20/2023	0	0
TOC - Distribution @ 260-3rd St. SW	WP2333107-003	12/20/2023	0	0
TOC - Distribution @ 86-6th Ave SW	WP2333207-001	12/21/2023	0	0
TOC - Distribution @ 276-1st St. SW	WP2333207-002	12/21/2023	0	0
TOC - Distribution @ 260-3rd St. SW	WP2333207-003	12/21/2023	0	0
TOC - Distribution @ Public Works Shop	WP2333415-001	12/27/2023	0	0
TOC - Distribution @ Res Outgoing	WP2333415-002	12/27/2023	0	0
TOC - Distribution @ Memorial Hall	WP2333415-003	12/27/2023	0	0

Town of Carman Residential Lead Results

	Sample			
	Sample Type Name	Sampling Date	ALS ID	Lead, total mg/L
WP2313582-001 (1)	Water	28-06-2023	WP2313582-001	0.00389
WP2313582-002 (1)	Water	28-06-2023	WP2313582-002	0.000835
WP2313582-003 (1)	Water	28-06-2023	WP2313582-003	0.00169
WP2313582-004 (1)	Water	28-06-2023	WP2313582-004	0.00125
WP2314784-001 (1)	Water	10-07-2023	WP2314784-001	0.0866
WP2314784-002 (1)	Water	10-07-2023	WP2314784-002	0.000163
WP2314784-003 (1)	Water	10-07-2023	WP2314784-003	0.00126
WP2314784-004 (1)	Water	10-07-2023	WP2314784-004	0.00441
WP2316708-001 (1)	Water	25-07-2023	WP2316708-001	0.00146
WP2316708-002 (1)	Water	25-07-2023	WP2316708-002	0.000628
WP2316708-003 (1)	Water	25-07-2023	WP2316708-003	0.00382
WP2316708-004 (1)	Water	25-07-2023	WP2316708-004	0.00227
WP2320127-001 (1)	Water	21-08-2023	WP2320127-001	0.000363
WP2320127-002 (1)	Water	21-08-2023	WP2320127-002	0.000406
WP2320127-003 (1)	Water	21-08-2023	WP2320127-003	0.00116
WP2320127-004 (1)	Water	21-08-2023	WP2320127-004	0.00109

WP2323672-001 (1)	Water\Drinking Water	19-09-2023	WP2323672-001	0.00196
WP2323672-002 (1)	Water\Drinking Water	19-09-2023	WP2323672-002	0.000180
WP2323672-003 (1)	Water\Drinking Water	19-09-2023	WP2323672-003	0.00158
WP2323672-004 (1)	Water\Drinking Water	19-09-2023	WP2323672-004	0.000406
WP2330989-001 (1)	Water	28-11-2023	WP2330989-001	0.00114

Town of Carman Total Metals Results

Aluminum, total µg/L	11.8
Antimony, total µg/L	0.26
Arsenic, total µg/L	0.26
Barium, total µg/L	22.2
Beryllium, total µg/L	<0.020
Bismuth, total µg/L	<0.050
Boron, total µg/L	93
Cadmium, total µg/L	<0.0050
Calcium, total µg/L	22100
Cesium, total µg/L	<0.010
Chromium, total µg/L	<0.50
Cobalt, total µg/L	<0.10
Copper, total µg/L	640
Iron, total µg/L	<10
Lead, total µg/L	0.333
Lithium, total µg/L	20.3
Magnesium, total µg/L	12400
Manganese, total µg/L	4.40
Molybdenum, total µg/L	0.106
Nickel, total µg/L	0.50
Phosphorus, total µg/L	<50
Potassium, total µg/L	5280
Rubidium, total µg/L	1.56
Selenium, total µg/L	0.193
Silicon, total µg/L	3420
Silver, total µg/L	<0.010
Sodium, total µg/L	18200
Strontium, total µg/L	107
Sulfur, total µg/L	730
Tellurium, total µg/L	<0.20
Thallium, total µg/L	<0.010
Thorium, total µg/L	<0.10
Tin, total µg/L	<0.10
Titanium, total µg/L	<0.30
Tungsten, total µg/L	<0.10
Uranium, total µg/L	<0.010
Vanadium, total µg/L	0.86
Zinc, total µg/L	55.6
Zirconium, total µg/L	<0.20

What do we have in place to alert water plant staff to water emergencies?

The Reservoir and Pumphouse is alarmed with all of these parameters, including, but not limited to: low/high pressure alarms, low/high flow alarms, low chlorine levels, and loss of normal power.

Were there any major expenses incurred in 2023?

| Our water meter replacement continued in 2023 with 5 residential houses and a 3 commercial meters remaining.

We also installed a pump (PVWC supplied) that allows us to feed back to the west to Stephenfield or to the east of the reservoir as well if an emergency shall occur with PVWC plants.

Did any non-compliance incidents occur in 2023?

There were no non-compliance incidents noted by the Office of Drinking Water in 2023.