



# 2024 Summary Report

for the

Town of Minto

**HARRISTON DRINKING WATER SYSTEM**

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Date: March 5, 2025

## **2024 Summary Report for the Town of Minto HARRISTON DRINKING WATER SYSTEM**

### **1.0 INTRODUCTION**

#### **1.1 Background**

In December 2002, the Safe Drinking Water Act (SDWA) was enacted. Subsequently, on June 1, 2003, under the SDWA, a new '*Drinking-Water Systems Regulation*', Ontario Regulation 170/03 (O. Reg. 170/03), was enacted. In addition, several supporting regulations and procedures were also enacted to assist with the administration of O. Reg 170/03. The list of relevant drinking-water legislation is presented in Appendix A.

The SDWA identifies the responsibilities of owners and operating authorities of municipal drinking water systems (SDWA, Sections 11 and 19). Their duties include ensuring that:

- All water provided by the drinking-water system meets prescribed drinking-water quality standards;
- The drinking-water system is operated in accordance with the Act and regulations and is kept in a good state of repair;
- All facilities are appropriately staffed and supervised;
- All sampling, testing and monitoring requirements are complied with;
- All reporting requirements are complied with; and
- Only persons holding valid operator's certificates operate the drinking-water-system.

O. Reg. 170/03 establishes the standard for protection of drinking water. It includes sets of Schedules, specific to municipal residential systems, that define requirements for:

- Minimum treatment levels;
- Operational checks;
- Chemical and microbiological sampling and testing;
- Adverse results reporting;
- Corrective procedures; and
- Report documentation and retention.

The system's Municipal Drinking Water Licence (MDWL), Drinking Water Works Permit (DWWP) and Permit To Take Water (PTTW) imposes system specific rules and conditions applicable to the standards set out in O. Reg. 170/03.

## 1.2 Objective

This Harriston Drinking Water System Summary Report is being prepared in fulfillment of Schedule 22 of O. Reg. 170/03 and will be given to Members of the Municipal Council. This report covers the period from January 1, 2024 to December 31, 2024.

This Summary Report lists any requirements of the Act, the regulations, the PTTW, the MDWL, the DWWP and any order that the system failed to meet, during the period of this report. For any such failure, the measures that were taken to correct the failure are detailed. The report also includes relevant information that will assist the members of the Municipal Council for the Town, to assess the water work's capability to meet existing and future planned uses of the system.

## 1.3 Description of Drinking Water System

Harriston is a community with a population of approximately 2,300 people and approximately 850 residential properties, located within the Town of Minto within the northwest corner of Wellington County, at the intersection of Provincial Hwy. No. 9 and Hwy. No. 89.

Harriston is serviced by a waterworks that consists of: three drilled bedrock wells, three pumphouses, an elevated 1,915 m<sup>3</sup> steel storage tank and a distribution network of watermain, ranging in diameter from 100 mm to 300 mm. In the event of a power outage, pump #1 & #3 is equipped with automatic back-up power supply. Well #2 has the capacity of connecting to a portable generator.

The bedrock wells are equipped with submersible pumps. Water from Wells #1 and #3 discharge into pumphouse #3, and water from Well #2 discharges into pumphouse #2, respectively, for flow measurement and treatment. In the pumphouse, the raw water supply is injected with 12% sodium hypochlorite for disinfection and the chemical PW1680, for iron sequestering. The treated water leaves the pumphouse and enters an underground contact pipe and is discharged into the distribution system after adequate contact time is achieved.

The wells are controlled (*start/stop*) automatically based on elevated storage tank liquid levels and pressures in the distribution system. Each pumphouse is equipped with alarms for high & low free chlorine residuals (*and corresponding lockout of well pumps*), low water level and intrusion. Each wellhouse has a continuous monitoring analyzer for POE free chlorine with lockouts and alarms.

SCADA provides continuous monitoring to the Harriston Drinking Water System.

The Harriston Drinking Water System operates under the MDWL 106-102 Issue 3 and DWWP 106-202 Issue 5 and PTTW #3012-A8QRPF.

## **2.0 SUMMARY OF UPGRADES**

### **2.1 Upgrades Completed in 2024**

The disinfection treatment system in the Harriston Drinking Water System meets all of the standards imposed by O. Reg. 170/03 and the MECP's "*Procedures for Disinfection of Drinking Water in Ontario*".

Typically, maintaining the system includes repairs and/or replacement of individual components as necessary. In 2024 \$10,525 on upgrading the VFD in Well #3, \$18,340 was spent on watermain upgrades on King Street North, \$41,180 was spent on Well Exploration and Drilling, \$4,205 to replace the underground hydro cable and \$1,925 for a new chlorine pump.

The following purchases were made to be shared between all of Minto's water systems. \$12,735 on water meters, \$1,050 on shared equipment and \$3,005 on computer replacements.

Preventative maintenance measures are being followed to ensure proper operation of the Drinking Water System.

All routine maintenance throughout the year and planned maintenance during the monthly scheduled maintenance programs was completed by Minto Operations Staff.

### **2.2 Upgrades Scheduled to be Completed in 2025**

In 2025, the Town of Minto is planning to spend \$18,400 on the King Street North watermain upgrades, \$35,000 for the water tower inspection and repairs, \$35,000 for water tower interior touch ups, \$107,500 on well exploration, \$4,000 to replace the chlorine board and \$50,000 for Webb Street preconstruction engineering.

The following will also be purchased to be shared within the water department. \$20,000 for the Water Rate Study and Financial Plan. \$10,000 on the SCADA monitoring system, \$20,000 for water meters and \$15,000 on pumps and or valves.

## **3.0 OPERATION OF THE DRINKING WATER SYSTEM**

### **3.1 Summary of the Quantities and Flow Rates of Water Supplied**

O. Reg. 170/03 stipulates that a summary of the quantities and flow rates of the water supplied from each of Harriston's wells be included in the Summary Report. Tables 3.1, 3.2 and 3.3 provide a summary of quantities and flow rates supplied during 2024 for Wells #1, #2 and #3 respectively, on a monthly basis. Wells #1 & #3 are treated in the King Street wellhouse, and Well #2 is treated in the John Street wellhouse.

**Table 3.1**  
**Harriston Drinking Water System – Well #1**  
**Treated Water Flow, Turbidity, and Disinfectant Residual**  
**January 1, 2024 – December 31, 2024**

	Raw Water Flow (Max Flow Rate = 11.3 L/s)			Chlorine	Monthly Averages				Distribution System Disinfectant
					Treated Water Turbidity		Treated Water Disinfectant Point of Entry		
Month	Operator Observed Peak Flow (L/s)	Maximum Day Flow (m³/day)	Monthly Total (m³)	Monthly Total (L)	No. of Samples Collected	Monthly Average Turbidity (NTU)	No. of Treated Samples Collected	Monthly Average Residual (mg/L)	No. of Samples Collected
January	9.5	239	1,822	45	5	0.15	31	1.33	See Harriston Well #3 Data
February	9.5	97	1,453	29	5	0.19	29	1.17	
March	9.5	94	1,528	36	5	0.17	31	1.22	
April	9.5	89	1,550	39	5	0.28	30	1.22	
May	9.5	397	2,751	83	3	0.23	31	1.32	
June	9.5	65	1,247	22	5	0.43	30	1.21	
July	9.5	76	1,412	36	7	0.38	31	1.18	
August	9.6	76	1,372	42	6	0.61	31	1.30	
September	9.7	85	1,337	32	6	0.44	30	1.37	
October	9.6	81	1,359	42	4	0.45	31	1.38	
November	9.3	102	1,419	28	4	0.40	30	1.48	
December	9.7	532	6,359	191	4	0.30	31	1.42	
Total			23,609	625	59		366		
Average			1,967			0.34		1.30	
Maximum	9.7	532							

Disinfectant Compound Used: **12% Sodium Hypochlorite**  
Form of Residual Displayed: **Free**  
Quantity of Disinfectant Used During 2024: **625 L**  
Distribution System Minimum Target Residual: **0.2 mg/L**

**Table 3.2**  
**Harriston Drinking Water System – Well #2**  
**Treated Water Flow, Turbidity, and Disinfectant Residual**  
**January 1, 2024 – December 31, 2024**

	Raw Water Flow (Max Flow Rate = 23.9 L/s)			Chlorine	Monthly Averages				Distribution System Disinfectant
					Treated Water Turbidity		Treated Water Disinfectant Point of Entry		
Month	Operator Observed Peak Flow (L/s)	Maximum Day Flow (m <sup>3</sup> /day)	Monthly Total (m <sup>3</sup> )	Monthly Total (L)	No. of Samples Collected	Monthly Average Turbidity (NTU)	No. of Treated Samples Collected	Monthly Average Residual (mg/L)	No. of Samples Collected
January	16.7	410	8,021	261	5	0.84	31	1.32	See Harriston Well #3 Data
February	16.7	428	6,863	178	4	0.72	29	1.29	
March	16.8	522	7,121	237	5	0.62	31	1.19	
April	16.7	573	7,492	196	5	0.86	30	1.28	
May	16.6	327	6,452	238	3	0.51	31	1.40	
June	16.6	322	5,839	196	5	0.75	30	1.35	
July	16.6	482	6,768	202	7	0.78	31	1.30	
August	16.6	339	6,228	224	4	0.90	31	1.37	
September	16.5	513	7,240	220	6	0.70	30	1.36	
October	16.4	323	6,212	184	4	0.58	31	1.31	
November	16.4	385	6,499	204	4	0.85	30	1.44	
December	16.4	515	7,510	227	5	0.55	31	1.35	
Total			82,243	2,567	57		366		
Average			6,854			0.72		1.33	
Maximum	16.8	573							

Disinfectant Compound Used: **12% Sodium Hypochlorite**  
Form of Residual Displayed: **Free**  
Quantity of Disinfectant Used During 2024: **2,567 L**  
Distribution System Minimum Target Residual: **0.2 mg/L**

**Table 3.3**  
**Harriston Drinking Water System – Well #3**  
**Treated Water Flow, Turbidity, and Disinfectant Residual**  
**January 1, 2024 – December 31, 2024**

	Raw Water Flow (Max Flow Rate = 18.9 L/s)			Chlorine	Monthly Averages				Distribution System Disinfectant
					Treated Water Turbidity		Treated Water Disinfectant Point of Entry		
Month	Operator Observed Peak Flow  (L/s)	Maximum Day Flow  (m³/day)	Monthly Total  (m³)	Monthly Total  (L)	No. of Samples Collected	Monthly Average Turbidity (NTU)	No. of Treated Samples Collected	Monthly Average Residual (mg/L)	No. of Samples Collected
January	16.6	650	12,170	301	5	0.15	31	1.24	49
February	16.2	668	13,150	328	5	0.29	29	1.35	44
March	16.1	680	12,637	312	5	0.19	31	1.34	47
April	16.5	635	13,282	317	4	0.27	30	1.28	48
May	16.6	764	13,914	377	3	0.20	31	1.33	49
June	16.5	828	14,685	352	5	0.39	30	1.30	44
July	16.5	813	15,412	358	7	0.59	31	1.22	49
August	16.4	711	14,583	419	5	0.70	31	1.36	48
September	16.3	838	14,749	343	6	0.33	30	1.37	44
October	16.3	646	14,952	379	4	0.41	31	1.41	49
November	16.2	688	13,050	331	4	0.51	30	1.26	47
December	16.1	734	7,284	171	4	0.31	21	1.28	47
Total			159,869	3,988	57		356		565
Average			13,322			0.36		1.31	
Maximum	16.6	838							

Disinfectant Compound Used: **12% Sodium Hypochlorite**  
Form of Residual Displayed: **Free**  
Quantity of Disinfectant Used During 2024: **3,988 L**  
Distribution System Minimum Target Residual: **0.2 mg/L**



**Table 3.4**  
**Harriston Drinking Water System – Well #1 & 3 Combined**  
**Treated Water Flow**  
**January 1, 2024 – December 31, 2024**

Month	Treated Water Flow (Well #1 Max Flow Rate = 11.3 L/s) (Well #3 Max Flow Rate = 18.9 L/s) (Max Daily Volume = 2,613 m³/d)				Chlorine
	Operator Observed Peak Flow Well #1	Operator Observed Peak Flow Well #3	Maximum Day Flow	Monthly Total	Monthly Total
	(L/s)	(L/s)	(m³/day)	(m³)	(L)
January	9.5	16.6	650	13,992	346
February	9.5	16.2	668	14,603	357
March	9.5	16.1	680	14,165	348
April	9.5	16.5	635	14,832	356
May	9.5	16.6	764	16,665	460
June	9.5	16.5	828	15,932	374
July	9.5	16.5	813	16,824	394
August	9.6	16.4	711	15,955	461
September	9.7	16.3	838	16,086	375
October	9.6	16.3	646	16,311	421
November	9.3	16.2	688	14,469	359
December	9.7	16.1	734	13,643	362
Total				183,478	4,613
Average				15,290	
Maximum	9.7	16.6	838		

### 3.2 Comparison of Actual Flow and Maximum Allowable Rates

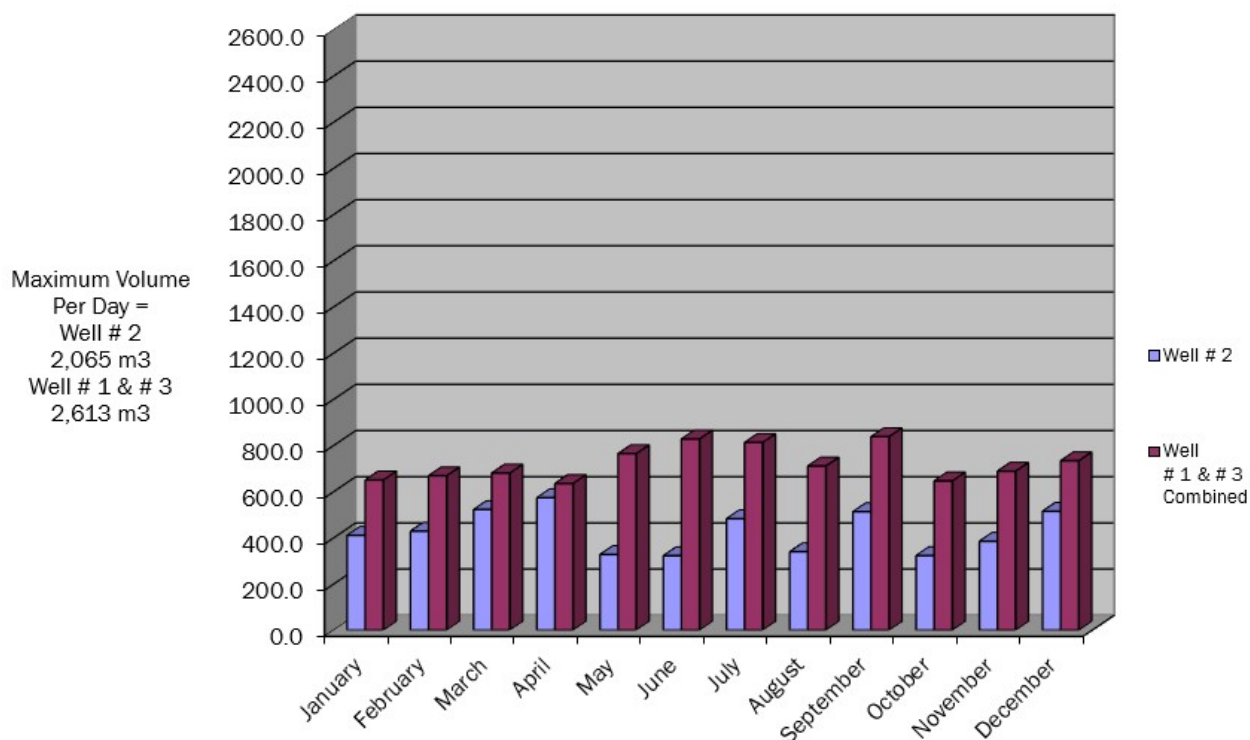
O. Reg. 170/03 stipulates that a summary of the quantities and flow rates of the water supplied from each of Harriston's wells be included in the Summary Report and compared against the rated capacity and flow rate for the system. As such, a comparison of the instantaneous peak flow to the PTTW's rated capacity is included and a comparison of the maximum daily flow to the MDWL's rated capacity is included in Table 3.5. Table 3.4 reflects the comparisons between the PTTW and MDWL.

**Table 3.5**  
**Comparison of Flow Rates and Flow Capacities**  
**To**  
**Rated Flow Rate (PTTW) and Rated Capacity (MDWL)**

Well Supply	PTTW Max. Flow Rate	Operator Observed Peak Flow	Percent of Maximum Allowable	MDWL Schedule C Maximum Daily Quantity	Maximum Daily Flow	Percent of Maximum Allowable
	L/s	L/s	%	m <sup>3</sup> /day	m <sup>3</sup> /day	%
Well #1	11.3	9.7	85	979	532	54
Well #2	23.9	16.8	70	2,065	573	28
Well #3	18.9	16.6	88	1,634	838	51

The MDWL stipulates, “The maximum daily volume of treated water that flows from the treatment subsystem to the distribution system shall not exceed the value identified as the rated capacity in Schedule C Table 1.”

**Table 3.6**  
**Maximum Water Usage Per Day by Month**



Short-term peaks, in excess of permitted values, may occur at pump start up, while doing specific maintenance procedures or during emergency demand situations.

The time and duration of any flow exceedance is recorded for each event along with the reason for the occurrence. There were no extended exceedances or exceedances over the daily permitted rate in the Harriston Drinking Water System.

### 3.3 Raw Water Quality and Required Treatment

The Harriston Drinking Water System has no chemical parameters that exceed MAC (maximum acceptable concentration) or IMAC (interim maximum acceptable concentration). The Harriston Drinking Water System uses PW1680 to improve the water quality.

The Harriston Drinking Water System utilizes continuous monitoring analyzers for free chlorine residual. The chlorine analyzer is equipped with an alarm for high and low free chlorine. In the event of a high and/or low chlorine residual reading, a signal is sent to the SCADA system, which in turn, shuts down the respective well pump. The average monthly turbidity and free chlorine residual measurements for treated water are presented in Tables 3.1, 3.2 and 3.3 for Well #1, Well #2 and Well #3, respectively.

There were no turbidity readings exceeding 1.0 NTU during 2024. The minimum, maximum and average turbidity readings for raw water from each well are presented in Table 3.7.

12% sodium hypochlorite is the disinfectant used. Free chlorine residual is monitored continuously at the “*Point of Entry*” (POE) into the distribution system. Additional “*grab samples*” are taken daily (*excluding weekends and holidays*) within the distribution system and tested for the free chlorine residual. The minimum, maximum and average values of free chlorine residual at the POE are presented Table 3.7.

The free chlorine residual in the distribution system ranged between 0.55 mg/L and 1.80 mg/L. O. Reg. 170/03, Schedule 1-2 stipulates that the free chlorine residual can never be less than 0.05 mg/L. In addition, O. Reg. 170-03, Schedule 1-4 stipulates that the water treatment equipment must be “...*capable of achieving, at all locations within the distribution system, a free chlorine residual of 0.2 mg/L ...*”. The Harriston Drinking Water System meets both of these requirements.

**Table 3.7**  
**2024 Annual Summary of**  
**Raw Water Turbidity and Free Chlorine Residual**  
**for Harriston Drinking Water System**

Location	Range	Raw Water Turbidity	Free Chlorine Residual at POE
		NTU	mg/L
Well #1	Minimum	0.10	0.94
	Maximum	0.90	1.80
	Average	0.40	1.30
Well #2	Minimum	0.14	0.63
	Maximum	0.84	1.70
	Average	0.39	1.33
Well #3	Minimum	0.10	0.88
	Maximum	0.86	1.71
	Average	0.39	1.31

### 3.4 Summary of Treatment Chemicals Used

The disinfectant chemical used in the Harriston Drinking Water System is 12% Sodium Hypochlorite. Measurements of free chlorine are recorded on a continuous basis. In 2024, 7,130 L of 12% Sodium Hypochlorite was used. The average dosage rates are presented in Table 3.8.

In 2024, 1,314 L of PW1680 was used for the sequestering of iron. Wells #1 and #3 share a common tank of PW1680. The average dosage rates are presented in Table 3.8.

**Table 3.8**  
**2024 Annual Summary of**  
**Treatment Chemicals Used**  
**for Harriston Drinking Water System**

Treatment Chemical	Well	Volume Used	Mass Used	Annual Flow	Dosage Rate
		L	kg	m³	mg/L
12 % Sodium Hypochlorite (NaOCl)	Well #1	625	75.0	23,609	3.18
	Well # 2	2,567	308.0	82,243	3.75
	Well # 3	3,988	478.6	159,869	2.99
	Total	7,180	861.6	265,721	3.24

Treatment Chemical	Well	Volume Used	Mass Used	Annual Flow	Dosage Rate
		L	kg	m <sup>3</sup>	mg/L
PW1680	Well #1 & Well #3	275	385.0	183,478	2.10
	Well # 2	1,039	1,455	82,243	17.69
	Total	1,314	1,840	265,721	6.92

**Note:**

- 12% Sodium Hypochlorite = 120,000 mg/L = 120 kg/m<sup>3</sup>
- PW1680 has a specific gravity = 1.4

## 4.0 COMPLIANCE

### 4.1 Assessment of Compliance

The objective of the Summary Report is to list any requirements of the Act, the regulations, the PTTW, the MDWL, the DWWP and any MECP order that the system failed to meet from January 1, 2024 to December 31, 2024, and the corresponding corrective measure(s) taken. Compliance was assessed as follows:

- MECP Completed Inspection of the Harriston DWS was completed August 27, 2024. Final inspection rating 100%
- There were **No MECP Orders** issued to the Harriston Drinking Water System in 2024.
- The MDWL imposes the specific rules and conditions governing the standards set out in O. Reg. 170/03. It is an important instrument in defining the requirements of compliance of a Drinking Water System.
- O. Reg. 170/03 establishes the standard for protection of drinking water; specifically, through 12 schedules that municipal residential drinking systems must follow to meet the requirements of the regulation.
- The SDWA identifies the responsibilities of owners and operating authorities of municipal drinking water systems. It places a recommended statutory standard of care on those who have oversight of municipal drinking-water systems. In essence, the standard of care has two themes: be informed and exercise diligent oversight.
- Adverse Test Results reported under the Safe Drinking Water Act, 18(1) or O Reg.170/03, Schedule 16-4
  - a) Adverse Water Quality Incidents (AWQI) refer to any unusual test results that do not meet provincial water quality standard or situation where the disinfection of the drinking water may be compromised.

**Table 4.1**  
**Adverse Water Quality Incidents**

AWQI #	Date	Parameter	Result	Corrective Action
N/A				

## 4.2 Summary of Compliance

The Town of Minto works diligently to maintain compliance with all the requirements of the SDWA, O. Reg. 170/03, as well as the Harriston Water Work's MDWL 106-102 Issue 3, DWWP 106-202 Issue 5 and PTTW #3012-A8QRPF.

Table 4.2 identifies any non-compliances related to the following: SDWA, O. Reg. 170/03, the MDWL, the DWWP and the PTTW.

**Table 4.2**  
**HARRISTON DRINKING WATER SYSTEM**  
**Requirements the System Failed to Meet**

Compliance With	Description of Item the System Failed to Meet	Correction of This Situation How/When
MDWL # 106-102 Issue 3	<i>Harriston Drinking Water System is in compliance with all of the requirements of the MDWL</i>	
DWWP # 106-202 Issue 5	<i>Harriston Drinking Water System is in compliance with all of the requirements of the DWWP</i>	
O. Reg. 170/03	<i>Harriston Drinking Water System is in compliance with all of the requirements of O. Reg. 170/03</i>	
SDWA	<i>Harriston Drinking Water System is in compliance with all of the requirements of the SDWA</i>	
PTTW #3012-A8QRPF	<i>Harriston Drinking Water System is in compliance with all of the requirements of the PTTW</i>	

Dated this 5<sup>th</sup> day of March 2025



Todd Rogers  
Water Services Manager