



## **2011 SUMMARY REPORT**

**for the**

**TOWN OF MINTO  
MINTO PINES DRINKING WATER SYSTEM**

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for  
Town of Minto  
MINTO PINES 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 Certificate of Approval (C. of A.) imposes system specific rules and conditions applicable to the standards set out in O. Reg. 170/03.

## 1.2 Objective

This Summary Report for the Minto Pines Drinking Water System is being prepared in fulfillment of Schedule 22 of O. Reg. 170/03, and will be given to members of the Municipal Council. It covers the period from January 1, 2011 to December 31, 2011.

This Summary Report lists any requirements of the Act, the regulations, the C. of A. 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 Town of Minto to assess the water work's capability to meet existing and future planned uses of the system.

## 1.3 Description of Drinking Water System

Minto Pines is a subdivision located within the Town of Minto at the northwest corner of Wellington County. The subdivision consists of 35 single-family estate residence lots. It was a private subdivision until December 2003, when the Town of Minto took it over.

Minto Pines subdivision is serviced by a single primary production well that is located within a wellhouse. The well is equipped with a submersible well pump, which is capable of supplying water at a rate of 3.78 L/s at a total dynamic head of 90 m. The well has a 200 mm diameter casing that extends to a depth of 23.9 m. The total depth of the well is 41.5 m.

Raw ground water is discharged into the wellhouse for flow measurement and treatment. In the wellhouse, the raw water supply is injected with 12% sodium hypochlorite for disinfection.

The wellhouse is equipped with alarms for chlorination system failure (*and corresponding lockout of well pumps*), low distribution water pressure and intrusion. The wellhouse has continuous monitoring analyzers for both chlorine and turbidity, but the turbidity analyzer is not alarmed. In the event of a power outage, the wellhouse is equipped with an automatic back-up power supply.

The treated water leaves the wellhouse and enters an underground contact pipe and is discharged into the distribution system after adequate contact time is achieved.

A SCADA System provides monitoring and data capabilities. The SCADA System continuously monitors pre and post contact pipe free chlorine residuals and flows. The data is transmitted to the Harriston Shop where "off site" information is available for monitoring purposes.

The Minto Pines Drinking Water System operates under C. of A. #5912-6LEM7L and PTTW #0664-63AL94.

## **2.0 SUMMARY OF UPGRADES**

### **2.1 Upgrades Completed in 2011**

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

Typically, maintaining the system includes repairs and/or replacement of individual components as necessary. In 2011, \$1,400.00 was spent on a portable generator, \$850.00 on a metal detector and \$6,500.00 on computer equipment and upgrades between all 4 water systems.

In Minto Pines, approximately \$2,000.00 on a replacement metering pump and \$14,000.00 to install the pump and complete the video logging of the water system.

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

### **2.2 Upgrades Scheduled to be Completed in 2012**

There are no upgrades scheduled for the Minto Pines Drinking Water System in 2012.

## **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 the Minto Pines Well must be included in the Summary Report. Table 3.1 provides a summary of quantities and flow rates supplied during 2011, on a monthly basis.

**Table 3.1**  
**Minto Pines Drinking Water System**  
**Treated Water Flow, Turbidity, and Disinfectant Residual**  
**January 1, 2011 - December 31, 2011**

Month	Treated Water Flow (Max Flow Rate = 3.8 L/s)			Chlorine Monthly Total (L)	Monthly Averages				Distribution System Disinfectant	
	Instantaneous Peak Flow (L/s)	Maximum Day Flow (m <sup>3</sup> /day)	Monthly Total (m <sup>3</sup> )		Treated Water Turbidity	Treated Water Disinfectant		No. of Dis. Samples Collected	No. of Samples with Detectable Residual	
					No. of Samples Collected	Daily Average Turbidity	No. of Treated Samples Collected	Average Residual (mg/L)		
January	3.4	20	602	7	9	0.40	31	1.26	21	21
February	3.4	26	511	8.25	1	0.51	29	1.17	19	19
March	3.4	20	567	7	6	0.63	31	1.21	23	23
April	3.4	25	564	7.5	2	0.39	30	1.40	19	19
May	3.5	37	662	23.25	4	0.63	31	1.34	22	22
June	3.4	33	623	6.5	3	0.60	30	1.39	22	22
July	3.4	42	907	15	3	0.27	31	1.24	22	22
August	3.4	25	614	5	4	0.34	31	1.28	22	22
September	3.4	34	540	7	3	0.55	30	1.27	22	22
October	3.4	20	554	15.75	2	0.83	31	1.29	21	21
November	3.7	23	519	0	5	0.49	30	1.32	21	21
December	3.3	35	580	7	5	0.33	31	1.42	21	21
<b>Total</b>			<b>7,243</b>	<b>109.5</b>	<b>47</b>		<b>366</b>		<b>255</b>	<b>255</b>
<b>Average</b>	<b>3.4</b>		<b>604</b>			<b>0.50</b>		<b>1.30</b>		
<b>Maximum</b>		<b>42</b>								

\* monitored continuously

Disinfectant Compound Used: 12% Sodium Hypochlorite  
 Form of Residual Displayed: Free  
 Quantity of Disinfectant Used During 2011: 109.5 L  
 Distribution System Target Residual: 0.2 mg/L

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

O. Reg. 170/03 stipulates that a summary of the quantities and flow rates of the water supplied from the Minto Pines well be included in the Summary Report and compared against the rated capacity and flow rate for the system.

An ABB data-recorder was installed in February 2009 thus providing the capability of recording the instantaneous peak flow of the Minto Pines well. As such, a comparison of the instantaneous peak flow to the C. of A's rated capacity is included and a comparison of the maximum daily flow to the PTTW's rated capacity is included in Table 3.2.

**Table 3.2**  
**Comparison of Flow Rates and Flow Capacities**  
**To**  
**Rated Flow Rate (C. of A.) and Rated Capacity (PTTW)**

Well Supply	C. of A. Max. Flow Rate	Maximum Instantaneous Peak Flow	Percent of Maximum Allowable	PTTW Maximum Daily Quantity	Maximum Daily Flow	Percent of Maximum Allowable
	L/s	L/s	%	m <sup>3</sup> /day	m <sup>3</sup> /day	%
<b>Well #1</b>	3.8	3.7	98	326.8	42	13

The C. of A. stipulates, "*The drinking-water system shall not be operated to exceed the rated capacity for the maximum flow rates into the treatment system*". The well has a fixed speed pump that typically discharges at constant rate equal to the average rate identified in the PTTW.

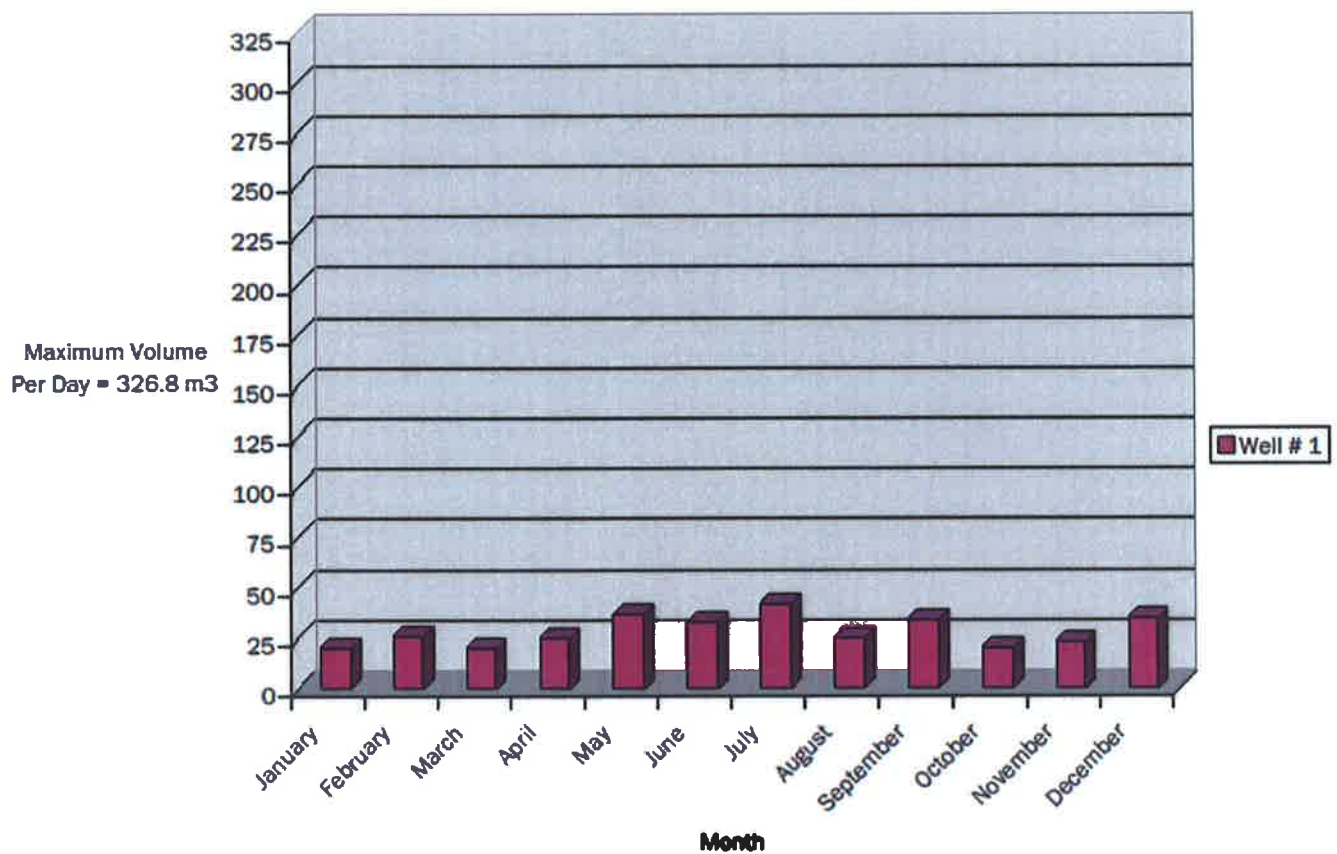
**Table 3.3**  
**Comparison of Flow Rates To Rated Flow Rate (PTTW)**

Well Supply	PTTW Max. Flow Rate	Maximum Instantaneous Peak Flow	Percent of Maximum Allowable
	L/s	L/s	%
<b>Well #1</b>	3.8	3.7	98

**Table 3.4**  
**Comparison of Flow Capacities To Rated Capacity (MDWL)**

Well Supply	PTTW Maximum	Maximum Daily Flow	Percent of Maximum Allowable
	m <sup>3</sup> /day	m <sup>3</sup> /day	%
Well #1	326.8	42	13

**Table 3.5**  
**Maximum Water Usage Per Day by Month**



The C of A is valid until July 31, 2011. As of August 1, 2011 the Municipal Drinking Water Licence does not list a flow rate, therefore the flow rate is based on the PTTW.

Short-term peaks, in excess of permitted values, may occur at pump start up, while doing specific maintenance procedures or during emergency demand situations. An occurrence of this nature is not considered an exceedance.

The time and duration of any flow exceedance is recorded for each event along with the reason for the occurrence. There were no exceedances of the allowable flow rates in the Minto Pines Drinking Water System.



### 3.3 Raw Water Quality and Required Treatment

The Minto Pines Drinking Water System has no naturally occurring chemical parameters that exceed MAC or IMAC limits.

The Minto Pines wellhouse utilizes continuous monitoring analyzers for both free chlorine residual and turbidity. The chlorine analyzer is equipped with an alarm to a call centre who contacts the Town of Minto. The average monthly turbidity and free chlorine residual measurement for treated water are presented in Table 3.1.

There were no high turbidity readings (>1.0 NTU) experienced in 2011. Turbidity readings for raw water ranged from a minimum monthly value of 0.0 NTU to a maximum monthly value of 0.96 NTU. The average turbidity reading for the year was 0.37 NTU.

12% Sodium Hypochlorite is the disinfectant used. The monthly average free chlorine residual in water leaving the wellhouse, ranged between 0.74 mg/L and 1.74 mg/L. The annual average free chlorine residual leaving the wellhouse was 1.22 mg/L. The free chlorine residual in the distribution system ranged between 0.60 mg/L and 1.42 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 with the distribution system, a free chlorine residual of 0.2 mg/L ...". The Minto Pines Drinking Water System meets both of these requirements.

### 3.4 Summary of Treatment Chemicals Used

The disinfectant chemical used in the Minto Pines Drinking Water System is 12% Sodium Hypochlorite. Measurements of free chlorine residuals are recorded on a continuous basis. In 2011, a total of 100 L of Sodium Hypochlorite was used; the average dosage rate was 1.45 mg/L.

**Table 3.6**  
**2011 Annual Summary of**  
**Treatment Chemical Used**  
**for Minto Pines Drinking Water System**

Treatment Chemical	Well	Volume Used	Mass Used	Annual Flow	Dosage Rate
		L	kg	m <sup>3</sup>	mg/L
12 % Sodium Hypochlorite	Well #1	109.5	13.1	7,243	1.81

## 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

C. of A. and any MOE order that the system failed to meet from January 1, 2011 to December 31, 2011, and the corresponding corrective measure(s) taken. Compliance was assessed as follows:

- There were no MOE Orders issued to the Minto Pines Drinking Water System in 2011.
- The C. of A. 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. A detailed 'checklist' was developed, based on the terms and conditions of C. of A. #5912-6LEM7L for the Minto Pines Drinking Water System. From this checklist, the terms and conditions of the C. of A. were summarized as either in compliance or not in compliance. A copy of both the summary and the checklist are included in Appendix B.
- 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. A detailed 'checklist' was developed for each of the relevant schedules for municipal residential systems. This checklist was then summarized into requirements that have been met, and those that have not been met, for each of the schedules. A copy of both the summary and the checklist are included in Appendix C.
- The SDWA clearly 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.

### 4.2 Summary of Compliance

To the best of our knowledge and ability we are in, or diligently working towards, compliance with all of the requirements of the SDWA, O. Reg. 170/03, as well as the Minto Pines Water Works C. of A. #5912-6LEM7L and PTTW #0664-63AL94. Every attempt has been made to ensure this document is an accurate representation of how the Drinking Water System are operated. On July 31, 2011 the C of A was replaced with the Municipal Drinking Water Licence 106-104 and Drinking Water Works Permit 106-204.

To the best of our knowledge, Table 4.1 identifies all of the requirements of the SDWA, the regulations, and the C. of A. in which the Minto Pines Drinking Water System failed to meet from January 1, 2011 to December 31, 2011.

**Table 4.1**  
**Minto Pines 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
<b>C. of A.</b> <b>#5912-6LEM7L</b> <b>Section 6.5 viii</b>	<i>Minto Pines Drinking Water System is in compliance with all of the requirements of the C. of A.</i>	
<b>MDWL # 106-104</b> As of July 29, 2011	<i>Minto Pines Drinking Water System is in compliance with all of the requirements of the MDWL</i>	
<b>DWWP # 106-204</b> As of July 29, 2011	<i>Minto Pines Drinking Water System is in compliance with all of the requirements of the DWWP</i>	
<b>O. Reg. 170/03</b>	<p>On December 19, 2011, Tulsar began planned equipment upgrades to the SCADA computer in the Harriston water office. During the process of installing the new computer and configuring the programs, 5 minute data was not being collected in the SCADA program. Daily logs were still recorded and collected. Max and min CL2 residuals and flows are available in report form. We were counting on the data logger in Minto Pines pumphouse to record the 5 minute continuous data. During water rounds, we noticed the memory card was getting full. Till we got a new memory card installed, we lost data on December 19, 2011 from 04:21:43 to 05:32:34 (a period of 1 hr and 11 mins). The PLC in the SCADA System started dropping 5 minute data after the 7 day storage period. During this process, the chlorine analyzers and lockouts were operating as they should. There were no low chlorine occurrences (see daily log records). Due to no 5 minute continuous data being logged in this time period, we are out of compliance.</p>	<p>In the future, when SCADA work is scheduled to be performed for Minto Pines, we will be diligent to check the data logger for sufficient memory prior to work being done to ensure back up information is being logged and reports can be made.</p>
<b>SDWA</b>	<i>Minto Pines Drinking Water System is in compliance with all of the requirements of the SDWA.</i>	

Dated this 20<sup>th</sup> day of March 2012.

A handwritten signature in black ink, appearing to read "Brian Hansen", written over a horizontal line.

Brian Hansen  
Public Works Director