



## Wingham Drinking Water System- 2021 Compliance Summary

This document is a compliance summary for the Wingham water supply for the year 2021 as per Reg 170/03 Schedule 22. A full summary of the water systems test results, flows and significant activities were submitted on February 11, 2022.

### System Description

The Wingham Drinking Water System (DWS # **220001502**), is characterized as a “secure ground water” system and is classified as a large municipal residential system. The system consists of two wells – Well 3 with a rated capacity of 6537 m<sup>3</sup>/day and Well 4 with a rated capacity of 5270 m<sup>3</sup>/d. Treatment at both sites consists of chlorination (sodium hypochlorite) and iron sequestration (sodium silicate) treatment. The Well 3 system is located at 200 Water St. Well #4 is located at 23 Albert St. The distribution system serves the community of Wingham with a population of approximately 2950 residents, 1150 customer services and 29 km of various size and material water main.

The system is owned by the Corporation of the Township of North Huron and operated by Veolia Water Canada, the Operating Authority.

The Well 3 supply system consists of a 323 mm drilled to a depth of 102.1m fitted with a variable speed pump capable of pumping the volume specified in the MOE Permit to Take Water. The raw water consistently has substantial naturally occurring hardness and relatively high iron content that requires sequestering to prevent discoloration in the distribution system which is typical of all drilled wells in the area. Chlorine, (a critical process) and an iron sequestering agent are added to the raw water prior to entry into a baffled contact tank that satisfies the chlorine contact time required with adequate chlorine residual to disinfect.

From the contact tank/reservoir the water flows to the distribution/standpipe that maintains adequate system pressure. The well is cycled by a level controller that starts and stops the well 3/high lift pumps. Emergency power is supplied by a portable diesel generator that allows operation of the equipment during extended power interruptions. The treated drinking water is monitored for chlorine residual and turbidity by on-line equipment connected to SCADA/auto dialer. The monitoring system will alert the on-call operator to respond if the set points are breached. The chlorine and turbidity analysis data levels are stored on a data logger.

The distribution system has elevated storage to maintain pressure. Critical processes to ensure safe water are adequate chlorination and maintenance of system pressure. The monitors activate an alarm through the auto-dialer if the set points are breached.

Well #4 is a 356 mm drilled well, 98.65 m deep, complete with a stainless-steel liner and equipped with a submersible vertical turbine pump, well level sensor to measure static level and provide well level monitoring. The system has been designed to operate to alternate the duty wells between well 3 and 4.



The #4 well house is equipped with a back-up diesel generator, sodium hypochlorite(2) and sodium silicate pump, a baffled chlorine contact tank equipped with 3 high lift pumps, on-line monitoring, alarm generation and auto-dialer.

Back-up power is supplied by one diesel standby generator with automatic transfer switch and double wall fuel tank.

The water quality is monitored and data-logged by a SCADA system with breaches of set-points going to an alarm dialer.

Disinfection is achieved on the Wingham well supply through the use of 12% sodium hypochlorite. In the well houses this chemical is added prior to the water entering the chlorine contact facilities at dosages high enough to achieve both primary and secondary disinfection objectives.

The distribution system is constructed with a combination of ductile iron, cast iron, PVC and high density polyethylene piping with polyethylene, copper and galvanized steel services. There are known lead services, of which have been sampled at the initial plumbing sampling program, where no elevated levels were found due to the service material. The iron sequestering also has the dual purpose of corrosion control, coupled with very stable pH and substantial alkalinity and hardness that inhibits corrosion that controls lead corrosion. These services will be replaced when street reconstruction takes place.

The system has approximately 135 fire hydrants.

The chlorine dosages range varies with the chlorine demand of the raw water.

The free chlorine residual is monitored at the point of entry to the distribution system, by an on-line chlorine analyzer, with a target residual of > 1.00 mg/l and < 1.30 mg/l.

The Wingham well supply Operated on PTTW (Permit to Take Water) #1450-B38HKS which expires on August 1, 2028 which allows 11,807 cubic meters per day to be pumped from the combined wells.

The Wingham Drinking Water System (treatment Subsystem) has maximum flows as specified in the Municipal Drinking Water License (MDWL) 090-102, Issue 4 and Drinking Water Works Permit (DWWP) 090-202), Issue 4. The maximum total daily flow is 11,807 cubic meters per day.

The treated water is monitored by an on-line chlorine analyzer.

Typical system pressure ranges from 40 psi to 85 psi.



**Flows**

The Wingham well supply has 1 PTTW (Permit to Take Water) #1450-B38HKS which expires on August 1, 2028, which allows 11,807 cubic meters per day to be pumped from the combined wells.

Well #3 being permitted to take up to 6537 cubic meters a day and well #4 being able to take up to 5270 cubic meters a day. In 2021 the peak flow for Well #3 was 1389 Cubic meters or 21.3% capacity, for well #4 the peak flow was 955 cubic meters or 18.1% capacity.

Below is a summary of the Monthly total flows combined Well 3 and Well 4 as well as the Max daily flow for each month.

Permit to Take Water 7003-7GUHVA Compliance Report - 2021					
3.2 -Maximum Amount of Taking Permitted					
	Max/Day on Permit		Peak Flow	%of Limit	
Well #3 (in m3)	6537	m3	1389	21.2	%
Well #4 (in m3)	5270	m3	955	18.1	%
3.2 - Average Annual Amount of Taking Permitted					
Well #3 (in m3)	6537	m3	702	10.7	%
Well #4 (in m3)	5270	m3	391	7.4	%
Municipal Drinking Water License 090-102 Issue 1 - Capacity Report					
		Total Peak Flow			
	Maximum		Actual	%of Cap	
Capacity (m3/d)	11808	m3	2029	17.2	%
Total Average Flow					
Capacity (m3/d)	4309774	m3	398755	9.3	%
Average Daily flow (m3/Day)	11808	m3	1092	9.3	%



Month	Total Flow m3	Max Daily Flow
January	29787	1277
February	30569	1449
March	32703	1306
April	31396	1384
May	38922	2029
June	39393	1830
July	39914	1868
August	39211	1747
September	34334	1647
October	24278	1412
November	29536	1289
December	28712	1168
Total	398755	18406
Min	24278	1168
Max	39914	2029
Avg	33230	1092

### **Annual Ontario Ministry of Environment Conservation and Parks Inspection**

The most recent Ministry of Environment inspection was completed by Rhonda Shannon on November 17, 2020. The report was issued on January 25, 2021.

There was one non-compliance noted due to operations and maintenance manuals not meeting the requirements of the Drinking Water Works Permit. The action that is required is that the operating authority reviews, updates and ensures all the requirements are included in this draft procedure. The finalized SOP was to be submitted by February 15, 2021 and added to the existing Operations Manual. No further actions were required. The Inspection Report got a 97.78% rating.

### **Boil Water Advisory**

There were no Boil Water Advisories Issued for the Wingham Drinking water system in 2021.

### **Precautionary Boil Water Notices**

There were no Precautionary Boil Water Advisories Issued for the Wingham Drinking water system in 2021.



### **Adverse Water Quality indicators**

There were no AWQI's during this reporting period.

### **Exceedances**

There were no exceedances to report during 2021 for the Wingham drinking water system.

### **Infrastructure Assessment**

Regular contact is maintained with the Township of North Huron Representatives. The JobsPlus program is continually updated with preventative and corrective maintenance issues. A complete summary can be forwarded to the client upon their request. Through regular communication between the operating authority and the client, capital items are discussed. A list of the capital items and suggestions were forwarded to North Huron' representatives on July 1, 2021 for the Operating year 2022.

### **DWQMS**

The annual Management Review was conducted by the operating authority on July 1, 2021 as per the DWQMS requirement in Element 14, The Management Review Report and Action Items were forwarded to the Owner on July 7, 2021. A follow up meeting was held with the system Owner to discuss any questions or concerns. These regular discussions between the client and the operating authority for this water system are continued throughout the year by emails, phone calls, and meetings as per the requirements of Element 15 of the DWQMS.

The Internal Audit was completed on July 28/30, 2021 and the Annual Risk Assessment Review was completed in the month of May in 2021 by each individual due to covid-19.

Due to COVID-19 Restrictions and safety precautions, we are now performing monthly meetings via online meeting platforms Monthly.



*Report Completed by: Veolia Water*

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