

Ministry of the Environment,
Conservation and Parks

Ministère de l'Environnement, de
la Protection de la nature et des Parcs

Barrie District

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November 8, 2019

Attention: John Pinsent Chief Administrative Officer

**Re: 2019 Drinking Water Inspection Report
Val Harbour Subdivision Drinking Water System**

Please find enclosed the Ministry of the Environment, Conservation and Parks Inspection Report for Val Harbour Subdivision Drinking Water System (Water Works # 220010690). The physical inspection process took place on October 8, 2019.

The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks legislation and authorizing documents, as well as evaluating conformance with Ministry drinking water-related policies and guidelines during the inspection review period.

No issues of non-compliance were identified. One recommendation is discussed on page 15 of the Report. No Provincial Officer's Orders were issued in conjunction with this inspection.

In order to measure individual inspection results, the Ministry has established an inspection compliance risk framework based on the principles of the Inspection, Investigation and Enforcement Secretariat and advice of internal/external risk experts. The Inspection Summary Rating Record (IRR), included as Appendix A of this inspection report, provides the Ministry, the system owner and the local Public Health Units with a summarized quantitative measure of the drinking water system's annual inspection and regulated water quality testing performance. If you have any questions or concerns regarding the rating, please contact Sheri Broeckel, Drinking Water Supervisor at (705) 739-6386.

If you have any questions regarding the inspection report please feel free to contact the undersigned at (705) 716-5655.

Sincerely,



Laura Greidanus
Provincial Officer
Drinking Water Inspection Program, Safe Drinking Water Branch
Barrie District Office, Ministry of the Environment Conservation and Parks

CC Medical Officer of Health, Simcoe Muskoka District Health Unit
Manager of Environmental Services, Township of Ramara
Barrie District Office File, Ministry of the Environment, Conservation and Parks



Ministry of the Environment, Conservation and Parks

**VAL HARBOUR SUBDIVISION DRINKING WATER SYSTEM
Inspection Report**

Site Number:	220010690
Inspection Number:	1-KYC2Z
Date of Inspection:	Oct 08, 2019
Inspected By:	Laura Mary Greidanus

OWNER INFORMATION:

Company Name:	RAMARA, THE CORPORATION OF THE TOWNSHIP OF	Unit Identifier:	
Street Number:	2297		
Street Name:	HIGHWAY 12 Hwy		
City:	BRECHIN		
Province:	ON	Postal Code:	L0K 1B0

CONTACT INFORMATION

INSPECTION DETAILS:

Site Name:	VAL HARBOUR SUBDIVISION DRINKING WATER SYSTEM
Site Address:	3885 EDGEHILL Road BRECHIN ON L3V 0L1
County/District:	RAMARA
MECP District/Area Office:	Barrie District
Health Unit:	SIMCOE MUSKOKA DISTRICT HEALTH UNIT
Conservation Authority:	
MNR Office:	
Category:	Small Municipal Residential
Site Number:	220010690
Inspection Type:	Unannounced
Inspection Number:	1-KYC2Z
Date of Inspection:	Oct 08, 2019
Date of Previous Inspection:	Oct 01, 2018

COMPONENTS DESCRIPTION

Site (Name):	MOE DWS Mapping	Sub Type:	
Type:	DWS Mapping Point		
Site (Name):	WELL 1 RAW	Sub Type:	Ground Water
Type:	Source		

Comments:

Well #1 is located within the boundary of a park situated in an estate subdivision on the shores of Lake Simcoe. The well is situated approximately 200 metres west of the Val Harbour pumphouse and approximately 225 metres from the Lake Simcoe shoreline.

According to the Groundwater Under Direct Influence (GUDI) Evaluation Report prepared by Dixon Hydrogeology in June 2002, Well #1 was constructed in 1972 by Baldwin Well Drilling using an air percussion drilling rig to a depth of 18.9 metres. Although the well record did not contain any details regarding plugging and sealing of the annulus of the well, it is reported that it was common practice for Baldwin Well Drilling to install an annular seal of bentonite in all wells they drilled in overburden.

As a result of concerns identified in the 2005 inspection relating to potential microbiological contamination of Well #1, a Provincial Officer Order was issued to undertake an evaluation of the well. Based on the results of the evaluation, the owner undertook remedial action on the well in December, 2005 which involved overdrilling the existing 6 inch well and installing an appropriate bentonite grout seal around the casing.

According to the facility Drinking Water Works Permit #147-205, the well is equipped with a submersible deep well

pump and a flow control valve rated at 47 litres/minute, with a 50 millimetre diameter discharge line connected to the well pump header in the pumphouse. The flow is monitored using a magnetic flow meter for tracking the total daily flow and the peak instantaneous flow from the well.

Site (Name): WELL 2 RAW
Type: Source **Sub Type:** Ground Water

Comments:

Well #2 is within an estate subdivision situated on the shores of Lake Simcoe. The well is situated 3 metres east of the Val Harbour pumphouse and approximately 205 metres from the Lake Simcoe shoreline. According to the Groundwater Under Direct Influence (GUDI) Evaluation Report prepared by Dixon Hydrogeology in June 2002, Well #2 was constructed in 1972 by Baldwin Well Drilling using a cable tool drilling rig to a depth of 15.6 metres. Although the well record did not contain any details regarding plugging and sealing of the annulus of the well, it is reported that it was common practice for Baldwin Well Drilling to install an annular seal of bentonite in all wells they drilled in overburden. According to the facility Drinking Water Works Permit #147-205, the well is equipped with a submersible deep well pump and a flow control valve rated at 97 litres/minute, with a 50 millimetre diameter discharge line connected to the well pump header in the pumphouse. The flow is monitored using a magnetic flow meter for tracking the total daily flow and the peak instantaneous flow from the well. Well 2 is equipped with a sensor that continuously records the water level in the well. This complies with Condition 4.2 of PTTW 7653-87TS7U.

Site (Name): WELL 3
Type: Other **Sub Type:** Ground Water

Comments:

Well #3 is located within the boundary of a park situated in an estate subdivision on the shores of Lake Simcoe. The well is situated approximately 180 metres east of the Val Harbour pumphouse and approximately 225 metres from the Lake Simcoe shoreline. According to the well record for Well Tag A111794, Well #3 construction was completed on December 22, 2011 by Allan Wright Water Wells using a rotary (conventional) drilling rig to a depth of 18.9 metres. From grade level to a depth of 9 metres bentonite grout was used for the plugging and sealing of the annulus of the well. From grade to 14 metres a bentonite hole plug was used to seal the inner annulus between the inner PVC casing and the outer steel casing. This well was converted to a static monitoring well in December of 2011. During this time, previous monitoring wells were properly decommissioned. Well 3 was not equipped with a sensor as the establishment of a communication line would prove more difficult than installing the sensor in Well 2 which is adjacent to the pumphouse. The sensor was installed in Well 2 to comply with Condition 4.2 of PTTW 7653-87TS7U. There is no plan to use Well 3 as a supply well.

Site (Name): WELL 3R
Type: Source **Sub Type:** Ground Water

Comments:

Well #3R is located within the boundary of a park situated in an estate subdivision on the shores of Lake Simcoe. The well is situated approximately 180 metres east of the Val Harbour pumphouse and approximately 225 metres from the Lake Simcoe shoreline. According to the Well Record for Well Tag A0949294, Well #3R construction was completed on December 22, 2011 by Allan Wright Water Wells using a rotary (conventional) drilling rig to a depth of 18.9 metres. From grade level to a depth of 9 metres bentonite grout was used for the plugging and sealing of the annulus of the well. From grade to 14 metres a bentonite hole plug was used to seal the inner annulus between the inner PVC casing and the outer steel casing. According to the facility Drinking Water Works Permit #147-205, the well is equipped with a submersible deep well pump and a flow control valve rated at 144 litres/minute, with a 75 millimetre diameter discharge line connected to the

well pump header in the pumphouse. The flow is monitored using a magnetic flow meter for tracking the total daily flow and the peak instantaneous flow from the well.

Site (Name): PUMPHOUSE TREATED
Type: Treated Water POE **Sub Type:** Pumphouse

Comments:
Raw water from Wells 1, 2, and 3R enter the pumphouse through three separate polyvinyl chloride (PVC) raw water headers (50 millimetres (mm), 50 mm, and 75 mm in diameter, respectively). As the raw water enters the pumphouse, it can either be directed through the treatment train or wasted through the wall by operating in-line valves. In addition, each header is equipped with an ABB magnetic flow meter used for measuring raw water flows and a smooth-bore raw water sample tap. In each instance, the raw water waste lines are prior to the flow meters. After passing through the flow meters, the raw water passes through a flow control valve on each raw water header, rated at 45.4 litres per minute (lpm), 94.6 lpm and 144 lpm for Well 1, Well 2 and Well 3R respectively. The water then combines into a single header where it is dosed with sodium hypochlorite.
The sodium hypochlorite disinfection system consists of a pre and post-chlorination system, with the post chlorination system currently being offline. The pre-chlorination system is comprised of one chemical storage tank with secondary containment and two chemical metering pumps, each rated at 7.5 litres per hour. The chemical metering pumps are equipped with alarm, shut down and automatic switch over.
The dosed water then passes through another ABB magnetic flow meter used for measuring combined flows prior to entering the reservoirs.
After chemical dosing, the water is directed to two 43,800 litre pre-cast concrete reservoirs equipped with water level indicators, designed to provide chlorine contact volume and equalization storage. Three vertical multistage high lift pumps are installed to direct water to the distribution system. Each pump is capable of pumping 2.7 L/s at 28.1 TDH, complete with a pressure relief valve and recirculation line to the water reservoirs. Two of the high lift pumps are connected and automatically operated by the pump control panel, with the third high lift pump only being manually operated in the event of a duty pump failure.
Before discharging to the distribution system, the treated water passes through an ABB magnetic flow meter. In addition, the pumphouse is equipped with continuous chlorine residual and turbidity analysers powered by an uninterruptible power supply, as well as a smooth bore treated water sampling tap which are fed water from a point after the contact time and prior to leaving the pumphouse. The pumphouse is also wired with a 24 hour alarm system which continuously monitors illegal entry, power interruptions, low temperature and low pressure as well as treated water quality for turbidity and free available chlorine residuals.

Site (Name): DISTRIBUTION (WATER INSPECTIONS)
Type: Other **Sub Type:** Other

Comments:
The Val Harbour water supply system is designed to service 74 lots on Lot 24, Concession 7 in the Township of Ramara. The Val Harbour Subdivision Well Supply is categorized as a Small Municipal Residential system as defined by Ontario Regulation 170/03.
The distribution system consists of approximately 1,700 metres of 100 millimetre diameter poly-vinyl chloride (PVC) water mains, isolation valving and three dedicated sample stations. Although there are no hydrants within the system, six blow-offs are installed, one at the end of each street, for maintenance purposes.

INSPECTION SUMMARY:

Introduction

- **The primary focus of this inspection is to confirm compliance with Ministry of the Environment, Conservation and Parks (MECP) legislation as well as evaluating conformance with ministry drinking water related policies and guidelines during the inspection period. The ministry utilizes a comprehensive, multi-barrier approach in the inspection of water systems that focuses on the source, treatment and distribution components as well as management practices.**

This drinking water system is subject to the legislative requirements of the Safe Drinking Water Act, 2002 (SDWA) and regulations made therein, including Ontario Regulation 170/03, "Drinking Water Systems" (O.Reg. 170/03). This inspection has been conducted pursuant to Section 81 of the SDWA.

This report is based on a "focused" inspection of the system. Although the inspection involved fewer activities than those normally undertaken in a detailed inspection, it contained critical elements required to assess key compliance issues. This system was chosen for a focused inspection because the system's performance met the ministry's criteria, most importantly that there were no deficiencies as identified in O.Reg. 172/03 over the past 3 years. The undertaking of a focused inspection at this drinking water system does not ensure that a similar type of inspection will be conducted at any point in the future.

This inspection report does not suggest that all applicable legislation and regulations were evaluated. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

The Val Harbour Subdivision Drinking Water System is comprised of 74 residential lots, not all of which have been built on and connected to the drinking water system. The drinking water system is owned and operated by the Corporation of the Township of Ramara. The Val Harbour Subdivision Drinking Water System is categorized as a small municipal residential drinking water system, as defined by Ontario Regulation 170/03 and operates under DWS number 220010690.

The Val Harbour Subdivision Drinking Water System consists of three source wells, one monitoring well, three distribution sample points and six blow offs for flushing and maintenance purposes. Treatment is provided by chlorination for primary and secondary disinfection. Two 43,800 L precast concrete treated water reservoirs are used to achieve the necessary contact time and to meet peak demand. There are no storage structures within the distribution system. The distribution system consists of approximately 1,700 m of 100 mm diameter polyethylene watermain.

This inspection was conducted pursuant to section 81 of the Safe Drinking Water Act in order to assess compliance with the requirements of Ontario Regulation 170/03 and Ministry control documents. The drinking water inspection included: physical inspection of the treatment equipment and facility; interview with Township of Ramara staff; and a review of relevant documents and data from the period of October 2, 2018 to October 8, 2019 (hereafter referred to as the "inspection review period"). The previous inspection of the Val Harbour Subdivision Drinking Water System was conducted on October 2, 2018.

Source

- **The owner was maintaining the production well(s) in a manner sufficient to prevent entry into the well of surface water and other foreign materials.**

Subsection 1-2. (1) 1. of Schedule 1 of Ontario Regulation 170/03 requires that the owner of a drinking water system shall ensure that any well that serves as an entry point of raw water supply is constructed and maintained to prevent surface water and other foreign materials from entering the well.

There are three supply wells for the Val Harbour Subdivision Drinking Water System. Each of the wells has a secure cap and screened vents. The grading around the base of the wells does not promote the pooling of water at

Source

the base of the well. During one week of the inspection review period Well 1 had a result of 1 CFU/100 ml for total coliforms and during another week the result for total coliform and Escherichia coli for Well 1 had no data as the samples were overgrown with non target bacteria. During one week of the inspection review period Well 2 had a result of 4 CFU/100 ml for total coliforms. All other raw water results were zero for microbiological parameters. Operators regularly inspect the integrity of the well casings and caps.

- **Measures were in place to protect the groundwater and/or GUDI source in accordance with any the Municipal Drinking Water Licence and Drinking Water Works Permit issued under Part V of the SDWA.**

Condition 16.2.8 of Schedule B of Municipal Drinking Water Licence 147-105 Issue Number 3 requires an inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells.

Condition 16.2.9 of Schedule B of Municipal Drinking Water Licence 147-105 Issue Number 3 requires well inspection and maintenance procedures for the entire well structure of each well including all above and below grade well components.

Condition 16.2.10 of Schedule B of Municipal Drinking Water Licence 147-105 Issue Number 3 requires remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

The Operating Authority has developed a Well Inspection, Maintenance and Monitoring Plan. The Plan outlines the schedule for inspection of the three production wells supplying water for the Val Harbour Drinking Water System. The inspection schedule includes both above and below grade well components, as well as comparison of well level monitoring data and calibration of the flow meters. The Plan includes a list of conditions that may indicate a problem with the well casing or structure.

Capacity Assessment

- **There was sufficient monitoring of flow as required by the Municipal Drinking Water Licence or Drinking Water Works Permit issued under Part V of the SDWA.**

Condition 2.1 of Schedule C of Municipal Drinking Water Licence 147-105 Issue Number 3 requires that for each treatment subsystem, continuous flow measurement and recording shall be undertaken for the flow rate and daily volume of treated water that flows from the treatment subsystem to the distribution system, and the flow rate and daily volume of water that flows into the treatment subsystem.

There is a magnetic flow meter installed on each of the three raw water lines, as well as on the combined raw water header, and a magnetic flow meter installed on the distribution header. Each of the flow meters provides a 4-20 mA signal. Raw and treated water flows are continuously recorded on the SCADA system. Daily log print outs include the 24 hour flows, min, max and average from each of the raw water wells, the total raw water flow and the volume entering the distribution system.

- **The owner was in compliance with the conditions associated with maximum flow rate or the rated capacity conditions in the Municipal Drinking Water Licence issued under Part V of the SDWA.**

Table 1 of Schedule C of Municipal Drinking Water Licence Number 147-105 Issue Number 3 states that the rated capacity for the Val Harbour Water Works is 207.36 m3/day.

The rated capacity was not exceeded during the inspection review period.

Table 2 of Schedule C of Municipal Drinking Water Licence Number 147-105 Issue Number 3 does not have a maximum flow rate for the Val Harbour Water Works. The Licence was amended to remove the maximum flow rate in June 2017.

Treatment Processes

- **The owner had ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.**

During the inspection, installed equipment appeared to meet the description contained in Schedule A of Drinking

Treatment Processes

Water Works Permit 147-205 Issue Number 2. In the system description overview it notes that the Val Harbour Subdivision Drinking Water System obtains its drinking water from Wells Nos. 1 and 2. The overview does not make mention of the third supply well. The Water Works description contained in Schedule A does include the third supply well, 3R, and notes that is connected to the well pump header in the pump house. There is not a Schedule C associated with the Permit.

- **The owner/operating authority was in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.**

During the inspection review period the Operating Authority completed three Form 2's. Two Forms were completed for the replacement of internal piping for Well 1 and Well 2 and to the raw water meters and blow offs for those wells. The other Form 2 was completed for the replacement of the pH and chlorine analyser and installation of a new pH probe. Both the pH and chlorine probes were calibrated and the low chlorine alarms tested as part of the replacement.

The Operating Authority has developed a process to ensure that Form 2's are completed as required.

- **Records indicated that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Drinking Water Works Permit and/or Municipal Drinking Water Licence issued under Part V of the SDWA at all times that water was being supplied to consumers.**

Primary disinfection for Val Harbour Subdivision Drinking Water System is achieved by chlorination and the use of the chlorine contact/concentration time (CT) concept to ensure the provision of effective pathogen inactivation. The effective disinfectant contact time required for the CT concept is attained within the two 43,800 L reservoirs, prior to the conveyance of the treated water to consumers. Following completion of the intended contact time, free chlorine residuals are maintained within the distribution system for secondary disinfection purposes.

In efforts to ensure minimum treatment is provided at all times, a series of fail safes have been incorporated into the SCADA system. Fail safes include, the low chlorine alarm and reservoir level set points being at a level which affords sufficient time for an Operator to respond prior to primary disinfection being compromised. Operators perform CT calculations where appropriate to confirm disinfection.

During the inspection review period, primary disinfection was achieved. Logsheet notes explained actions taken and reasons for readings outside of the normal operating range.

- **Records confirmed that the water treatment equipment which provides chlorination or chloramination for secondary disinfection purposes was operated so that at all times and all locations in the distribution system the chlorine residual was never less than 0.05 mg/l free or 0.25 mg/l combined.**

Section 1-2. (2) 4. of Schedule 1 of Ontario Regulation 170/03 requires that if the drinking water system's water treatment equipment provides chlorination or chloramination for secondary disinfection, the equipment is operated so that, at all times and at all locations within the distribution system, the free chlorine residual is never less than 0.05 mg/L, if the drinking water system provides chlorination and does not provide chloramination.

During the inspection review period there were no free chlorine residual results in the Val Harbour distribution system below 0.05 mg/L. The lowest recorded distribution free chlorine reading during the inspection review period was 0.30 mg/L. At the time of inspection the inspector measured a free chlorine residual of 1.34 mg/L at the Leo Sample Station.

- **Where an activity has occurred that could introduce contamination, all parts of the drinking water system were disinfected in accordance with Schedule B, Condition 2.3 of the Drinking Water Works Permit.**

Condition 2.3 of Schedule B of Drinking Water Works Permit 147-205 Issue Number 2 states that all parts of the drinking water system in contact with drinking water which are:

2.3.1 Added, modified, replaced, extended; or

2.3.2 Taken out of service for inspection, repair or other activities that may lead to contamination,

shall be disinfected before being put into service in accordance with a procedure approved by the Director or in

Treatment Processes

accordance with the applicable provisions of the following documents:

- a) The ministry's Watermain Disinfection Procedure, effective January 29, 2017;
- b) AWWA C652 – Standard for Disinfection of Water Storage Facilities;
- c) AWWA C653 – Standard for Disinfection of Water Treatment Plans; and
- d) AWWA C654 - Standard for Disinfection of Wells.

The Val Harbour Water Works Contingency and Emergency Plan, which was updated in January 2019, references the most recent version of ANSI/AWWA C651 Standard for Disinfecting Water Mains where required. The ministry's Watermain Disinfection Procedure is appended in the Contingency Plan. The ministry Procedure references the ANSI/AWWA C651 document.

Treatment Process Monitoring

- **Primary disinfection chlorine monitoring was conducted at a location approved by Municipal Drinking Water Licence and/or Drinking Water Works Permit issued under Part V of the SDWA, or at/near a location where the intended CT has just been achieved.**

The continuous chlorine analyser is fed sample water from a point after the reservoirs and the intended CT, prior to water entering the distribution system.

- **The secondary disinfectant residual was measured as required for the distribution system.**

Subsection 7-2 (5) of Schedule 7 of Ontario Regulation 170/03 requires that the owner of a small municipal residential system that provides secondary disinfection and the operating authority for the system shall ensure that at least two distribution samples are taken each week in accordance with subsection (6) and are tested immediately for free chlorine residual, if the system provides chlorination and does not provide chloramination.

Subsection (6) states that at least one of the distribution samples referred to in subsection (5) must be taken at least 48 hours after, and during the same week as, one of the other distribution samples referred to in subsection (5).

During the inspection review period at least two distribution samples were tested each week for free chlorine residual as required. During weeks when only two residuals were tested in the distribution system the 48 hour requirement between samples was met.

- **Operators were examining continuous monitoring test results and they were examining the results within 72 hours of the test.**

Subsection 6-5. (1) 3. of Schedule 6 of Ontario Regulation 170/03 requires that test results recorded under paragraph 1 or 2 must be examined, within 72 hours after the tests are conducted by a certified operator, in the case of, a small municipal residential system, such as Val Harbour Subdivision Drinking Water System.

An Operator reviews the data recorded by the continuous monitoring equipment within 72 hours of the records being made. Operators review the daily sheets which contain minimum, maximum and average values of flows and all the continuous analysers. In January 2019 the sheets were altered to include the percentage of treated water turbidity readings below 1 NTU.

Operators are able to log in remotely to review the SCADA system and can log notes including when reviews of the data are completed.

- **All continuous monitoring equipment utilized for sampling and testing required by O. Reg.170/03, or Municipal Drinking Water Licence or Drinking Water Works Permit or order, were equipped with alarms or shut-off mechanisms that satisfy the standards described in Schedule 6.**

Subsection 6-5. (1.1) of Schedule 6 of Ontario Regulation 170/03 requires that the continuous monitoring equipment must cause an alarm to sound immediately at the following locations if the equipment malfunctions or loses power or a test result for a parameter is above the maximum alarm standard or below the minimum alarm standard specified in the Table to this section for the parameter:

- i. The location where the equipment conducts tests.

Treatment Process Monitoring

ii. A location where a person is present, if a person is not always present at the location where the equipment conducts tests.
 iii. Every designated facility served by the drinking water system, unless the system is a large municipal residential system or a small municipal residential system.
 In the event that the continuous chlorine analyser records a value below or above the set points, an audible alarm is initiated. The setpoints meet the requirements of the Table in Schedule 6 of Ontario Regulation 170/03. After two minutes the alarm is sent to the phone of the on call Operator and the auxiliary chlorine pump is activated. Operators regularly test the low chlorine alarm to ensure it is functioning properly.

- **Continuous monitoring equipment that was being utilized to fulfill O. Reg. 170/03 requirements was performing tests for the parameters with at least the minimum frequency specified in the Table in Schedule 6 of O. Reg. 170/03 and recording data with the prescribed format.**
- **All continuous analysers were calibrated, maintained, and operated, in accordance with the manufacturer's instructions or the regulation.**

During the inspection review period Operators compared the chlorine residual readings from the continuous analyser with the hand held colorimeter multiple times each week and made adjustments to the continuous analyser where appropriate.

The Val Harbour Operations Manual indicates that the chlorine analyser should be checked weekly against hand held test equipment to verify the accuracy. Operators are to recalibrate the analyser as needed as per the manufacturer's recommendations or when results obtained from hand held and analyser differ by more than 0.2 mg/L. The Manual also states that the probe should be replaced every year or as needed as per manufacturer's recommendations.

The chlorine and pH analyser were replaced on January 21, 2019. The analysers were calibrated by Metcon on January 22, 2019. The chlorine probe electrolyte was replaced on February 1, 2019 and June 13, 2019. The chlorine probe was replaced on June 17, 2019.

There were issues with the treated water turbidity analyser during the inspection review period. The analyser was replaced, and then switched out again for the old one to rectify the issues. Operators responded to alarms and performed maintenance on the turbidity analyser as appropriate.

Operations Manuals

- **The operations and maintenance manuals contained plans, drawings and process descriptions sufficient for the safe and efficient operation of the system.**

In January 2019 the Operating Authority undertook a review and performed revisions of the Operations and Maintenance Manuals for the Val Harbour Drinking Water System. The revisions were performed to ensure that the procedures and information contained in the Manuals accurately reflected the activities performed by operators and the installed equipment. Previously an engineering company authored the Operations Manuals.

The Manual indicates that all adjustments or works undertaken on the system are to be incorporated into the Manual prior to work being completed and that the Operating Authority and all Operators are to review the documents annually to ensure accuracy and familiarity with the content.

- **The operations and maintenance manuals met the requirements of the Drinking Water Works Permit and Municipal Drinking Water Licence Issued under Part V of the SDWA.**

Section 16.2 of Schedule B of Municipal Drinking Water Licence 147-105 Issue Number 3 requires that the operations and maintenance manual or manuals, shall include at a minimum:

- 16.2.1 The requirements of this licence and associated procedures;
- 16.2.2 The requirements of the drinking water works permit for the drinking water system;
- 16.2.3 A description of the processes used to achieve primary and secondary disinfection within the drinking water system, including where applicable:
 - a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operating

Operations Manuals

conditions; and

b) The validated operating conditions for UV disinfection equipment, including a copy of the validation certificate;

16.2.4 Procedures for monitoring and recording the in-process parameters necessary for the control of any treatment subsystem and for assessing the performance of the drinking water system;

16.2.5 Procedures for the operation and maintenance of monitoring equipment;

16.2.6 Contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset conditions and equipment breakdown;

16.2.7 Procedures for dealing with complaints related to the drinking water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;

16.2.8 An inspection schedule for all wells associated with the drinking water system, including all production wells, standby wells, test wells and monitoring wells;

16.2.9 Well inspection and maintenance procedures for the entire well structure of each well including all above and below grade well components; and

16.2.10 Remedial action plans for situations where an inspection indicates non-compliance with respect to regulatory requirements and/or risk to raw well water quality.

The Val Harbour Water Works Operations and Maintenance manual meets the requirements of the Municipal Drinking Water Licence. The Operating Authority updated the Val Harbour Operations Manuals in January 2019.

Logbooks

- **Records or other record keeping mechanisms confirmed that operational testing not performed by continuous monitoring equipment was being done by a certified operator, water quality analyst, or person who suffices the requirements of O. Reg. 170/03 7-5.**

Security

- **The owner had provided security measures to protect components of the drinking water system.**

The wells, sample stations, reservoir hatches and pumphouse are locked. The pumphouse is also alarmed for forced entry. There is a fence with a locked gate around the reservoir. There are no other storage structures within the distribution system.

Certification and Training

- **The overall responsible operator had been designated for each subsystem.**

The Val Harbour Subdivision Drinking Water System is comprised of a Water Distribution Class 1 and Water Treatment Class 1 subsystem. The Overall Responsible Operator is designated for both of the subsystems.

- **Operators-in-charge had been designated for all subsystems which comprised the drinking water system.**

The Val Harbour Subdivision Drinking Water System is comprised of a Water Distribution Class 1 and Water Treatment Class 1 subsystem. The Operators In Charge are designated for both of the subsystems.

- **All operators possessed the required certification.**
- **Only certified operators made adjustments to the treatment equipment.**

Water Quality Monitoring

- **All microbiological water quality monitoring requirements for distribution samples prescribed by legislation were being met.**

Subsection 11-2 of Schedule 11 of Ontario Regulation 170/03 requires that the owner of a drinking water system

Water Quality Monitoring

and the operating authority for the system shall ensure that at least one distribution sample is taken every two weeks, if the system provides treatment equipment in accordance with Schedule 1 or 2 and the equipment is operated in accordance with that Schedule. The owner of the drinking water system and the operating authority for the system shall ensure that each of the samples taken is tested for Escherichia coli, total coliforms and general bacteria population expressed as colony counts on a heterotrophic plate count (HPC) if secondary disinfection is provided.

During the inspection review period, two microbiological samples were collected in the Val Harbour Subdivision distribution system each week and tested for the required parameters, including HPC.

- **All inorganic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Subsection 13-2 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a small municipal residential system and the operating authority for the system shall ensure that, at least one water sample is taken every 60 months and tested for every parameter set out in Schedule 23.

During the inspection review period treated water samples were collected on August 21, 2019 and tested for all Schedule 23 parameters. Prior to that, treated water sampling for Schedule 23 parameters was done on August 16, 2016.

- **All organic water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Subsection 13-4 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a small municipal residential system and the operating authority for the system shall ensure that, at least one water sample is taken every 60 months and tested for every parameter set out in Schedule 24.

During the inspection review period samples were collected on August 21, 2019 and tested for all Schedule 24 parameters. Prior to that, treated water sampling for Schedule 24 parameters was done on August 16, 2016.

- **All haloacetic acid water quality monitoring requirements prescribed by legislation are being conducted within the required frequency and at the required location.**

Section 13-6.1 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken in each calendar quarter, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of haloacetic acids (HAA), and have the samples tested for haloacetic acids.

The requirement to sample for HAA came into effect on January 1, 2017. The standard for HAA as a reportable limit comes into effect on January 1, 2020.

During the inspection review period a sample was collected from the Val Harbour distribution system in November 2018, February 2019, May 2019 and August 2019 and tested for HAA as required. The average for HAA during the inspection review period was 5.3 ug/L.

- **All trihalomethane water quality monitoring requirements prescribed by legislation were conducted within the required frequency and at the required location.**

Section 13-6 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system that provides chlorination or chloramination and the operating authority for the system shall ensure that at least one distribution sample is taken every three months, from a point in the drinking water system's distribution system, or plumbing that is connected to the drinking water system, that is likely to have an elevated potential for the formation of trihalomethanes (THMs). The samples are to be tested for THMs.

During the inspection review period samples were collected from the Val Harbour distribution system and tested for THMs in November 2018, February 2019, May 2019 and August 2019 as required. The average for THMs during the inspection review period was 16.25 ug/L.

- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the**

Water Quality Monitoring

required frequency for the DWS.

Section 13-7 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every three months and tested for nitrate and nitrite.

During the inspection review period samples tested for nitrate and nitrite were collected from the treated water point of entry for Val Harbour Subdivision Drinking Water System in November 2018, February 2019, May 2019 and August 2019 as required.

- **All sodium water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Section 13-8 of Schedule 13 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that at least one water sample is taken every 60 months and tested for sodium.

Section 6-1.1 (7) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 60 months and tested for a parameter, the owner of the drinking water system and the operating authority for the system shall ensure that at least one sample that is taken during a 60-month period and for the purpose of being tested for that parameter is taken not more than 90 days before or after the fifth anniversary of the day a sample was taken for that purpose in the previous 60-month period.

A treated water sample was collected on August 25, 2015 and tested for sodium. A sodium resample was collected on September 3, 2015. Prior to the August 2015 sample, a treated water sample tested for sodium was collected on August 24, 2010.

- **All fluoride water quality monitoring requirements prescribed by legislation were conducted within the required frequency.**

Section 13-9 of Schedule 13 of Ontario Regulation 170/03 requires that if a drinking water system does not provide fluoridation, the owner of the system and the operating authority for the system shall ensure that a water sample is taken at least once every 60 months and tested for fluoride.

Section 6-1.1 (7) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 60 months and tested for a parameter, the owner of the drinking water system and the operating authority for the system shall ensure that at least one sample that is taken during a 60-month period and for the purpose of being tested for that parameter is taken not more than 90 days before or after the fifth anniversary of the day a sample was taken for that purpose in the previous 60-month period.

A sample was collected from the treated water sample point at Val Harbour Subdivision Drinking Water System on August 15, 2017 and tested for fluoride. Prior to that sample, a sample was collected and tested for fluoride on August 22, 2012.

- **Records confirmed that chlorine residual tests were being conducted at the same time and at the same location that microbiological samples were obtained.**

Subsection 6-3. (1) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires a water sample to be taken and tested for a microbiological parameter, the owner of the drinking water system and the operating authority for the system shall ensure that another sample is taken at the same time from the same location and is tested immediately for free chlorine residual, if the system provides chlorination and does not provide chloramination.

During the inspection review period, free chlorine residuals were tested at the same time and from the same location as treated water and distribution microbiological samples.

Water Quality Assessment

- **Records showed that all water sample results taken during the inspection review period did not exceed the values of tables 1, 2 and 3 of the Ontario Drinking Water Quality Standards (O.Reg. 169/03).**

Water Quality Assessment

All samples collected during the inspection review period including Schedule 23 and 24 parameters, and the most recent sample result for fluoride, met the Ontario Drinking Water Quality Standards.

Reporting & Corrective Actions

- **Where required continuous monitoring equipment used for the monitoring of chlorine residual and/or turbidity triggered an alarm or an automatic shut-off, a qualified person responded in a timely manner and took appropriate actions.**

During the inspection review period operators responded to six turbidity alarms, a low pressure alarm associated with a full load transfer when an Operator was on site, three chlorine alarms, created a low chlorine alarm to clear a SCADA alarm, and responded to chlorine pump #1 failing. Operators were able to respond and rectify the issues prior to primary disinfection being compromised. For many of the alarms, the data being recorded was not representative of the water quality, but the result of issues with the equipment, such as flow issues to the analysers or air bubbles skewing the readings.

Other Inspection Findings

- **The following issues were also noted during the inspection:**

Well 3 has no future plans as a source well and is not needed as a static monitoring well as there is a sensor installed in Well 2.

- **The following items are noted as being relevant to the Drinking Water System:**

The Operating Authority for the Val Harbour Subdivision Drinking Water System tests the raw water from the three supply wells quarterly for alkalinity, colour, fluoride, conductivity, chloride sulphate, nitrate, nitrite, hardness, calcium, iron, potassium, sodium, magnesium and manganese.

Raw water sodium results were all above the reportable sodium limit for treated water of 20 mg/L, except for two results from Well 3A, one of 19.8 mg/L and one of 12 mg/L.

NON-COMPLIANCE WITH REGULATORY REQUIREMENTS AND ACTIONS REQUIRED

This section provides a summary of all non-compliance with regulatory requirements identified during the inspection period, as well as actions required to address these issues. Further details pertaining to these items can be found in the body of the inspection report.

Not Applicable

SUMMARY OF RECOMMENDATIONS AND BEST PRACTICE ISSUES

This section provides a summary of all recommendations and best practice issues identified during the inspection period. Details pertaining to these items can be found in the body of the inspection report. In the interest of continuous improvement in the Interim, it is recommended that owners and operators develop an awareness of the following issues and consider measures to address them.

1. The following issues were also noted during the inspection:

Well 3 has no future plans as a source well and is not needed as a static monitoring well as there is a sensor installed in Well 2 to comply with Condition 4.2 of PTTW 7653-87TS7U.

Recommendation:

It is recommended that the Owner consider decommissioning Well 3 in the event that there are no future plans for it's use as a supply or monitoring well.

SIGNATURES

Inspected By:

Laura Mary Greidanus

Signature: (Provincial Officer)



Reviewed & Approved By:

Sheri Broeckel

Signature: (Supervisor)



Review & Approval Date:

NOV 6, 2019

Note: This inspection does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they apply or may apply to this facility. It is, and remains, the responsibility of the owner and/or operating authority to ensure compliance with all applicable legislative and regulatory requirements.



Inspection Summary Rating Record

Ministry of the Environment - Inspection Summary Rating Record (Reporting Year - 2019-2020)

DWS Name:	VAL HARBOUR SUBDIVISION DRINKING WATER SYSTEM
DWS Number:	220010690
DWS Owner:	Ramara, The Corporation Of The Township Of
Municipal Location:	Ramara

Regulation: O.REG 170/03

Category: Small Municipal Residential System

Type Of Inspection: Focused

Inspection Date: October 8, 2019

Ministry Office: Barrie District

Maximum Question Rating: 433

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 81
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	0 / 91
Reporting & Corrective Actions	0 / 21
Treatment Process Monitoring	0 / 112
TOTAL	0 / 433

Inspection Risk Rating	0.00%
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FINAL INSPECTION RATING:	100.00%
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Ministry of the Environment - Detailed Inspection Rating Record (Reporting Year - 2019-2020)

DWS Name: VAL HARBOUR SUBDIVISION DRINKING WATER SYSTEM
DWS Number: 220010690
DWS Owner: Ramara, The Corporation Of The Township Of
Municipal Location: Ramara

Regulation: O.REG 170/03
Category: Small Municipal Residential System
Type Of Inspection: Focused
Inspection Date: October 8, 2019
Ministry Office: Barrie District

Maximum Question Rating: 433

Inspection Risk Rating | 0.00%

FINAL INSPECTION RATING: | 100.00%