Ontario

Ministry of the Environment, Conservation and Parks

Barrie District

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

District de Barrie

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May 29, 2019

Attention: Jennifer Connor, Acting Chief Administrative Officer

Re: 2019 Drinking Water Inspection Report
Bayshore Village Subdivision Drinking Water System

Please find enclosed the Ministry of the Environment, Conservation and Parks Inspection Report for Bayshore Village Subdivision Drinking Water System (Water Works # 220012724). The physical inspection process took place on April 18, 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 was identified in the inspection. 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) 739-6431.

Sincerely,

Laura Greidanus

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

Ontario

Ministry of the Environment, Conservation and Parks

BAYSHORE VILLAGE SUBDIVISION DRINKING WATER SYSTEM

Inspection Report

Site Number:	220012724
Inspection Number:	1-KYBTH
Date of Inspection:	Apr 18, 2019
Inspected By:	Laura Mary Greidanus

OWNER INFORMATION:

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

CONTACT INFORMATION

INSPECTION DETAILS:

Site Name:	BAYSHORE VILLAGE SUBDIVISION DRINKING WATER SYSTEM
Site Address:	143 BAYSHORE Drive RAMARA ON L0K 1W0
County/District:	RAMARA
MECP District/Area Office:	Barrie District
Health Unit:	SIMCOE MUSKOKA DISTRICT HEALTH UNIT
Conservation Authority:	
MNR Office:	
Category:	Large Municipal Residential
Site Number:	220012724
Inspection Type:	Unannounced
Inspection Number:	1-KYBTH
Date of Inspection:	Apr 18, 2019
Date of Previous Inspection:	May 04, 2018

COMPONENTS DESCRIPTION

Site (Name):	MOE DWS Mapping		
Type:	DWS Mapping Point	**Sub Type:**	

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

Comments:
Well 3 is located on the same property as the Bayshore Village pumphouse, adjacent to a "pitch'n'putt" golf course which is surrounded by a residential subdivision on the shores of Lake Simcoe. The well was constructed in September 1975 by Boadway Enterprises and has Well ID No. 4606334. The well is a 200 mm diameter casing sleeved with a 205 millimetre diameter casing. The well is a 17.1 metre deep drilled groundwater well, located 2 metres north of the pumphouse on Lot 24, Concession 6 Bayshore Drive. The well is equipped with a 7.5 HP submersible deep well pump rated at 408 litres/minute at a depth of 11.9 metres, a pitless adaptor and a 76 millimetre diameter discharge line to the pumphouse. The well casing extends approximately 50 centimetres above ground level and the grade in the immediate vicinity of the well provides effective drainage away from the well casing.
In December 2015, Well 3 was equipped with a level sensor. Level measurements are recorded by the SCADA system.

Site (Name): WELL 4 RAW
Type: Source **Sub Type:** Ground
Comments:
Well 4 is located on a municipal easement within the boundaries of a "pitch'n'putt" golf course surrounded by a residential subdivision situated on the shores of Lake Simcoe. The well was constructed in August 1975 by Boadway Enterprises and has Well ID No. 4606332. The well casing is 200 mm in diameter and is sleeved with a 203 millimetre diameter casing. The drilled groundwater well is 13.1 metre deep and located 60 metres north of the pumphouse on Lot 24, Concession 6 Bayshore Drive. The well is equipped with a 7.5 HP submersible deep well pump rated at 1,680 litres/minute is installed at a depth of 11 metres, a pitless adaptor, and a 150 millimetre diameter discharge line to the pumphouse. The casing extends approximately 47 centimetres above ground level and the grade in the immediate vicinity of the well provides effective drainage away from the well casing.
In December 2015, Well 4 was equipped with a level sensor. Level measurements are recorded by the SCADA system.

Site (Name): WELL 5 RAW
Type: Source **Sub Type:** Ground
Comments:
Well 5 is located on a municipal easement within the boundaries of a "pitch'n'putt" golf course surrounded by a residential subdivision situated on the shores of Lake Simcoe. The well was constructed in September 1975 by Boadway Enterprises and has Well ID No. 4606333. The well casing is 200 mm and is sleeved by a 203 millimetre diameter casing. The drilled groundwater well is 13.1 metre deep and located 144 metres north east of the pumphouse on Lot 23, Concession 6 Bayshore Drive. The well is equipped with a 7.5 HP submersible deep well pump rated at 498 litres/min at a depth of 13.1 metres, a pitless adaptor and a 100 millimetre diameter discharge line to the pumphouse. The casing extends approximately 53 centimetres above ground level and the grade in the immediate vicinity of the well provides effective drainage away from the well casing. The well is located approximately 35 metres from a pond.
In December 2015, Well 5 was equipped with a level sensor. Level measurements are recorded by the SCADA system.

Site (Name): PUMPHOUSE TREATED
Type: Treated Water POE **Sub Type:** Pumphouse
Comments:
Raw water from Wells 3, 4, and 5 enter the pumphouse through three separate polyvinyl chloride (PVC) raw water headers, each varying in diameter as follows: Well 3 – 38 millimetres; Well 4 – 100 millimetres; and, Well 5 – 50 millimetres. 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 is dosed with sodium hypochlorite.
The current liquid sodium hypochlorite disinfection system consists of three chemical feed pump panels, each one designed with a maximum capacity of 7.5 L/hr for production wells 3, 4, and 5 respectively. Each panel is set up with a duty and standby chemical feed pump with automatic switchover and well pump lock out should both feed pumps fail. There are three sodium hypochlorite solution tanks (one serving each panel) equipped with secondary containment.
After chemical dosing, the water is directed through a dispersion header into a 112 m3 concrete in-ground reservoir situated under the pumphouse and contained completely within the footprint of the structure. The dispersion header provides additional mixing of the water to improve the chlorine contact capabilities of the reservoir. Three vertical turbine high lift pumps in the pumphouse direct water to the distribution system from the storage reservoir, each rated at 9.1 litres/second. The three pumps act in a lead/lag/standby arrangement with the lead high lift pump operating

continuously. The lag and standby pumps are controlled by pressure switches, starting when pressures reach 50 and 40 psi respectively.
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 wired with a 24 hour alarm system which continuously monitors illegal entry, power interruptions, low temperature, low pressure as well as treated water quality for turbidity and free available chlorine residuals, high and low reservoir levels, high lift pump lockout, chlorine duty pump failure and fire.
An 80 kW diesel generator is installed in the pumphouse and is capable of supplying power to all treatment equipment in the event of a power outage. The generate can operator for 24 hours at maximum capacity on a full tank of fuel. The generator is periodically tested under full load conditions.

Site (Name): DISTRIBUTION
Type: Other **Sub Type:** Other
Comments:
The Bayshore Village distribution system is designed to service 408 residential lots when fully developed. In 2017 328 lots were connected to the Drinking Water System serving an estimated population of 853 people. The distribution system is comprised of four designated sample stations, 28 fire hydrants, complete with isolation valves, 35 150 millimetre main valves, and approximately 7200 metres of 150 millimetre diameter Poly-Vinyl Chloride (PVC) piping. There are no designated facilities connected to the System.
The Bayshore Village water supply system was originally constructed in 1977 and is categorized as a Large Municipal Residential system as defined by Ontario Regulation 170/03.

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 Bayshore Village Subdivision Drinking Water System serves an estimated population of 853 people. A total of 328 lots were connected to the drinking water system in 2017. The drinking water system is owned and operated by the Corporation of the Township of Ramara. The Bayshore Village Subdivision is categorized as a large municipal residential drinking water system, as defined by Ontario Regulation 170/03 and operates under drinking water system number 220012724.
  The Bayshore Village Subdivision Drinking Water System consists of 3 wells and one pumphouse. Treatment is provided by chlorination for primary and secondary disinfection. There are no storage structures within the distribution system. The distribution system consists of approximately 7,200 m of 150 mm diameter PVC watermain. There are four sample stations installed throughout the distribution system and 28 fire hydrants.
  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 and conformance with Ministry best management practices. The drinking water inspection included: physical inspections of the treatment equipment and facility; interview with Township of Ramara staff; and a review of relevant documents and data from the period of May 4, 2018 to April 18, 2019 (hereafter referred to as the "inspection review period"). The previous inspection of the Bayshore Village Subdivision Drinking Water System was conducted on May 4, 2018.

Source

- **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 147-104 Issue Number 2 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 147-104 Issue Number 2 requires well inspection and maintenance procedures for the entire well structure of each well including all above and below grade well components.

Source

Condition 16.2.10 of Schedule B of Municipal Drinking Water Licence 147-104 Issue Number 2 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 Bayshore Village Water Works Operations and Maintenance Manual was updated in January 2019. The Manual includes what Operators are to assess each week, month and year for the wells. Every five years the unexposed well structure is to be inspected. A list of items that may indicate inadequacy of the well casing is listed. Continuous water level monitors are used.
A schedule has been developed for all of the wells owned by the Township of Ramara, including well rehabilitation and full inspection, as well as pump replacement. Flow meters are calibrated annually. During the inspection review period the flow meters were calibrated in January 2019. The test showed a sensor integrity and transmitter span fail for the Well 3 flow meter. In March 2019 there was an issue with the sensor for the treated water flow meter. The flow meter was put back online ten days later. The number of pump hours for each well pump are also recorded.

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 Bayshore Village Subdivision Drinking Water System. Each of the wells has a secure cap and screened vent. At the time of inspection, there was no pooling of water observed at the base of the wells. The raw water results during the inspection review period support that the wells are being maintained to prevent the entry of surface water. All raw results were clear of microbiological contamination. The weekly check list for Bayshore Village includes Operators performing a visual inspection of the exposed well components, drainage and annular space.

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 147-104 Issue Number 2 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 raw water lines, 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 daily flows from the raw water wells and the flow entering the distribution system.
  During the inspection review period the flow meters were calibrated in January 2019. The test showed a sensor integrity and transmitter span fail for the Well 3 flow meter. In March 2019 there was an issue with the sensor for the treated water flow meter. The issue was resolved and the flow meter was put back online ten days later.

- **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 147-104 Issue Number 2 states that the rated capacity for Bayshore Village Subdivision Drinking Water System is 1,243.8 m3/day.
  During the inspection review period the rated capacity was not exceeded for actual flows. The treated water flow meter malfunctioned on March 16, 2019 and was put back on line on March 26, 2019. The flow meter was

Capacity Assessment

recording values above the rated capacity from March 16th to March 21st, and recorded negative values from the 21st to the 26th. These values were not indicative of the flow of water leaving the Bayshore Village Subdivision pumphouse. Operators made note of the issue and its resolution.
There are no maximum flow rates prescribed in Table 2 of Schedule C of the Municipal Drinking Water Licence for Bayshore Village Subdivision Drinking Water System.

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 Water Works Permit 147-204 Issue Number 2. There is not a Schedule C associated with the Permit.

- **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 Bayshore Village 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 reservoir located under the pumphouse, 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 alarm set point being at a level which affords sufficient time for an Operator to respond, prior to the chlorine residual dropping below 0.4 mg/L, which is the concentration required under normal operating conditions to ensure a CT of 6, and low reservoir level alarms. In addition, each of the three wells supplying the drinking water system have a separate chlorine injection point with a duty and standby chemical metering pump. Operators perform CT calculations in the event of a low chlorine alarm to confirm that primary disinfection has been achieved.
  In order to determine if primary disinfection was achieved at the Bayshore Village Subdivision Drinking Water System during the inspection review period flow rates, free chlorine residuals and reservoir levels were reviewed as well as logbook entries and spreadsheets and daily printouts. These records indicated that during the inspection review period on the occasions where free chlorine residuals measured at the treatment facility fell below the minimum chlorine alarm set point, maintenance activities were being undertaken, such as testing the low chlorine alarm, calibration and changing the chlorine probe and tip, or an operator responded to an alarm and verified that disinfection had been achieved by performing a CT calculation.
  While there has been great improvement with Operators recording the time that maintenance activities, tests and checks are undertaken there were still instances when times were not recorded. Times being recorded allows for concise correlation between an activity and an analyser reading outside of the normal operation 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 below 0.05 mg/L. The minimum free chlorine residual measured in the Bayshore Village Subdivision distribution system recorded on the monthly

Treatment Processes

sheets and associated with microbiological samples during the inspection review period was 0.36 mg/L.
On July 11, 2018 the minimum and maximum free chlorine residual recorded by the continuous analyser installed at the Hayloft began being recorded on the daily sheets. The continuous free chlorine analyser installed in the Bayshore Village distribution system is not set to alarm.
At the time of inspection the inspector measured a free chlorine residual of 0.72 mg/L from Sample Station #66.

Treatment Processes

- **Where an activity has occured 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 147-204 Issue Number 2 requires that all parts of the drinking water system in contact with drinking water which are added, modified, replaced, extended or 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 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 Faciliities;
  c) AWWA C653 – Standard for Disinfection of Water Treatment Plants; and
  d) AWWA C654 – Standard for Disinfection of Wells.
  The Bayshore Village Water Works Contingency and Emergency Plan was updated in January 2019 by the Operating Authority. The Plan includes procedures for watermain leak repairs. The procedures are detailed and meet the requirements. The Ministry's Watermain Disinfection Procedure (effective for the system on January 29, 2017) as well as the most recent version of AWWA C651 are appended in the Plan. The Operations Manual includes direction for disinfecting wells and the AWWA Standard for Disinfection of Water-Storage Facilities.

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 the point after the reservoir and the intended CT, prior to the water entering the Bayshore Village Subdivision drinking water distribution system.

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

  Subsection 7-2 (3) of Schedule 7 of Ontario Regulation 170/03 requires that the owner of a large-municipal residential system that provides secondary disinfection and the operating authority for the system shall ensure that at least seven distribution samples are taken each week in accordance with subsection (4) and are tested immediately for free chlorine residual, if the system provides chlorination and does not provide chloramination.
  Subsection (4) states that the following rules apply to the distribution samples referred to in subsection (3) unless at least one sample is taken on each day of the week:
  1. At least four of the samples must be taken on one day of the week, at least 48 hours after the last sample was taken in the previous week.
  2. At least three of the samples must be taken on a second day of the week, at least 48 hours after the last sample was taken on the day referred to in paragraph 1.
  3. When more than one sample is taken on the same day of the week under paragraph 1 or 2, each sample must be taken from a different location.
  There is a continuous chlorine analyser installed in the Hayloft building that continuously measures the free chlorine residual in the Bayshore Village Subdivision distribution system. The trend lines from this analyser are part of the review performed by Operators at least every 72 hours. Beginning on July 11, 2018 the daily log print outs included the minimum and maximum free chlorine residual. Operators recorded a distribution chlorine residual daily on the

Treatment Process Monitoring

Distribution Residual Record monthly sheets.

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

  Condition 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 large municipal residential system.
  During the inspection review period data review was performed at a greater frequency than every 72 hours by a Certified Operator. As a best practice Operators should record the beginning and end time of the data reviewed to ensure that all trend lines have been viewed.

- **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.**

  In the event that the continuous chlorine analyser records a value below or above the set points, an audible alarm is initiated. The set points exceed the requirements of the Table in Schedule 6 of Ontario Regulation 170/03. The alarm is sent to the phone of the on call Operator and the auxiliary chlorine pump is activated.
  The Operating Authority also has alarms set up to notify the on-call Operator for door entry, low pressure, low temperature, low and high levels in the reservoir, high lift pump lockout, power failure, high turbidity, chlorine duty pump fail and fire. The continuous analyser installed in the distribution system is not equipped with an alarm. Operators record a free chlorine residual from the distribution system daily.

- **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.**

  On the majority of days that Operators attend the pumphouse a comparison is done of the free chlorine residual measured by the hand held colorimeter and the continuous analyser. The Operations and Maintenance Manual indicates the comparison is to be done at least weekly. The hand held colorimeter units undergo a verification with secondary standards periodically, and are serviced by the manufacturer if the secondary verification is not within the required range. In the event that the discrepancy between the hand held unit and the continuous analyser is greater than approximately 0.2 mg/L, the span of the continuous analyser is changed. The continuous analyser probe is changed at least annually and calibrated as required. Metcon calibrated the continuous turbidity and chlorine analysers installed in the Bayshore pumphouse in January 2019. Operators flush and clean the analyser as needed as well as add electrolyte. The low chlorine alarm is typically tested on a weekly basis.

Operations Manuals

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

- **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 147-104 Issue Number 2 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

Operations Manuals

system, including where applicable:
a) A copy of the CT calculations that were used as the basis for primary disinfection under worst case operation conditions; and
b) The validated operation 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 Bayshore Village Operations and Maintenance manual meets the requirements of the Municipal Drinking Water Licence. The Operating Authority updated the Manual 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 three wells and the sample stations are locked as well as the pumphouse. Access to the reservoir is located within the pumphouse. There are no other storage structures within the distribution system. There is a continuous chlorine analyser installed in the Hayloft community building which operators have access to at all times.

Certification and Training

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

  The Bayshore Village Subdivision Drinking Water System is classified as a Water Distribution and Supply Subsystem Class 2. The classification certificate was issued October 27, 2005. The Overall Responsible Operator is designated for the subsystem.

- **Only certified operators made adjustments to the treatment equipment.**

Certification and Training

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

  The Bayshore Village Subdivision Drinking Water System is classified as a Water Distribution and Supply Subsystem Class 2. The classification certificate was issued October 27, 2005. An Operator in Charge is designated for the system at all times.

- **All operators possessed the required certification.**

Certification and Training

Water Quality Monitoring

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

  Subsection 10-2 of Schedule 10 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that if the system serves 100,000 people or less, at least eight distribution samples, plus one additional distribution sample for every 1,000 people served by the system, are taken every month, with at least one of the samples taken in each week. 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 and total coliforms and at least 25 per cent of the samples required to be taken are to be tested for general bacteria population expressed as colony counts on a heterotrophic plate count (HPC).
  The estimated population of the Bayshore Village Subdivision is approximately 853 people. As such, 8 distribution samples are required to be collected each month. During the inspection review period, two distribution samples were taken each week and tested for the required parameters. All distribution microbiological samples collected during the inspection review period were tested for HPC. Six additional distribution microbiological samples were collected over two days (three samples each day) after a watermain break. The additional samples were tested for Escherichia coli and total coliforms.

- **All microbiological water quality monitoring requirements for treated samples were being met.**

  Subsection 10-3 of Schedule 10 of Ontario Regulation 170/03 requires that the owner of a drinking water system and the operating authority for the system shall ensure that a water sample is taken at least once every week and tested for, Escherichia coli, total coliforms, and general bacteria population expressed as colony counts on a heterotrophic plate count.
  During the inspection review period a treated water sample was collected each week and tested for the required microbiological parameters.

- **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 large municipal residential system and the operating authority for the system shall ensure that, at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water, or at least one water sample is taken every 36 months, if the system obtains water from a raw water supply that is ground water. The owner of a large municipal residential system and the operating authority for the system shall ensure that each of the samples are tested for every parameter set out in Schedule 23.
  Section 6-1.1 (6) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 36 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 36-month period for the purpose of being tested for that parameter is taken not more than 60 days before or after the third anniversary of the day a sample was taken for that purpose in the previous 36-month period.
  The three source water wells for Bayshore Village Subdivision Drinking Water System are groundwater. On August 16, 2016 treated water samples were collected and tested for all parameters listed in Schedule 23 of Ontario Regulation 170/03. Prior to that set of samples, treated water samples tested for all parameters listed in Schedule 23 of Ontario Regulation 170/03 were collected on August 21, 2013.

- **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 large municipal residential system and the operating authority for the system shall ensure that, at least one water sample is taken every 12 months, if the system obtains water from a raw water supply that is surface water, or at least one water

Water Quality Monitoring

sample is taken every 36 months, if the system obtains water from a raw water supply that is ground water. The owner of a large municipal residential system and the operating authority for the system shall ensure that each of the samples is tested for every parameter set out in Schedule 24.
Section 6-1.1 (6) of Schedule 6 of Ontario Regulation 170/03 states that if this Regulation requires at least one water sample to be taken every 36 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 36-month period for the purpose of being tested for that parameter is taken not more than 60 days before or after the third anniversary of the day a sample was taken for that purpose in the previous 36-month period.
The three source water wells for Bayshore Village Subdivision Drinking Water System are groundwater. On August 16, 2016 treated water samples were collected and tested for all parameters listed in Schedule 24 of Ontario Regulation 170/03. Prior to that set of samples, treated water samples tested for all parameters listed in Schedule 24 of Ontario Regulation 170/03 were collected on August 21, 2013.

- **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 Bayshore Village Subdivision distribution system in May 2018, August 2018, November 2018 and February 2019 and tested for HAA as required. The average for HAA during the inspection review period was 8.9 ug/L.
  It is recommended that the location of HAA sample collection continue to be rotated throughout all sample stations to determine the location with the highest concentration of HAA.

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

  Subsection 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 trihalomethanes (THMs). The samples are to be tested for THMs.
  During the inspection review period, distribution samples were collected and tested for THMs in May 2018, August 2018, November 2018 and February 2019. The average for THMs during the inspection review period was 46.25 ug/L.

- **All nitrate/nitrite water quality monitoring requirements prescribed by legislation were conducted within the 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 Bayshore Village Subdivision Drinking Water System in May 2018, August 2018, November 2018 and February 2019 as required.

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

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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 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.
The most recent treated water sample tested for sodium for the purpose of Section 13-8 of Schedule 17 of Ontario Regulation 170/03 was collected on August 25, 2015. Prior to that a sample tested for sodium was collected on August 17, 2010. The result of the August 2015 sample was 27.4 mg/L. A resample was collected on September 3, 2015, and had a result of 27.8 mg/L sodium. Sodium levels above the reportable limit of 20 mg/L are an ongoing issue for the Bayshore Village Subdivision Drinking Water System.

- **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 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 and tested for fluoride on August 15, 2017. The previous treated water fluoride sample was collected on August 22, 2012 from the Bayshore Village Subdivision Drinking Water System.

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

  Section 6-3 of Schedule 6 of Ontario Regulation 170/03 requires 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 measured at the same time and from the same location that all distribution and treated water microbiological samples were collected as required and recorded.

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).**

  All samples collected during the inspection review period, as well as the most recent Schedule 23 and 24 parameters, met the Ontario Drinking Water Quality Standards.

Reporting & Corrective Actions

- **Corrective actions (as per Schedule 17) had been taken to address adverse conditions, including any other steps that were directed by the Medical Officer of Health.**

  During the inspection review period there was one adverse water quality incident that was the result of a watermain break resulting in loss of pressure. Notices to boil water were hand delivered to all affected residences and two

Reporting & Corrective Actions

sets of resamples collected after the repair and flushing were completed as per Schedule 17 and discussion with the Medical Officer of Health.

- **All required notifications of adverse water quality incidents were immediately provided as per O. Reg. 170/03 16-6.**

  During the inspection review period there was one adverse water quality incident that was the result of a watermain break resulting in loss of pressure. The Overall Responsible Operator called the Medical officer of Health, Inspector and the Spills Action Centre.

- **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 eight alarms for low chlorine. Operators responded in a timely manner and took appropriate actions, including calculations to ensure that primary disinfection was achieved where appropriate.
  The continuous chlorine analyser installed in the distribution system at the Hayloft building is not set up to alarm due to communication issues.

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.

Not Applicable

SIGNATURES

Inspected By:

Laura Mary Greidanus

Signature: (Provincial Officer)

Laura Greidanus

Reviewed & Approved By:

Sheri Broeckel

Signature: (Supervisor)

Sheri Broeckel

Review & Approval Date:

May 29, 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:	BAYSHORE VILLAGE SUBDIVISION DRINKING WATER SYSTEM
DWS Number:	220012724
DWS Owner:	Ramara, The Corporation Of The Township Of
Municipal Location:	Ramara
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	April 18, 2019
Ministry Office:	Barrie District

Maximum Question Rating: 495

Inspection Module	Non-Compliance Rating
Source	0 / 14
Capacity Assessment	0 / 30
Treatment Processes	0 / 77
Operations Manuals	0 / 28
Logbooks	0 / 14
Certification and Training	0 / 42
Water Quality Monitoring	0 / 112
Reporting & Corrective Actions	0 / 66
Treatment Process Monitoring	0 / 112
TOTAL	**0 / 495**

Inspection Risk Rating	**0.00%**

FINAL INSPECTION RATING:	**100.00%**

Inspection Rating Record Generated On 29-MAY-19 (Inspection ID: 1-KYBTH).

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

DWS Name:	BAYSHORE VILLAGE SUBDIVISION DRINKING WATER SYSTEM
DWS Number:	220012724
DWS Owner:	Ramara, The Corporation Of The Township Of
Municipal Location:	Ramara
Regulation:	O.REG 170/03
Category:	Large Municipal Residential System
Type Of Inspection:	Focused
Inspection Date:	April 18, 2019
Ministry Office:	Barrie District

Maximum Question Rating: 495

Inspection Risk Rating	**0.00%**

FINAL INSPECTION RATING:	**100.00%**

Inspection Rating Record Generated On 29-MAY-19 (Inspection ID: 1-KYBTH).