

# **Collingwood Drinking Water System**

## 2019 Annual Compliance Report



# Town of Collingwood 2019 Water Compliance Report

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## Town of Collingwood 2019 Water Compliance Report

# Town of Collingwood

Environmental Services

## Quality Management Policy

The Corporation of the Town of Collingwood owns and operates the Collingwood Drinking Water System and is committed to:

- ◆ Maintaining and continually improving our Quality Management System;
- ◆ Providing a safe, reliable supply of potable drinking water to our customers;
- ◆ Meeting or exceeding all applicable legislation, regulations and other requirements;
- ◆ Communicating openly and effectively with employees, Council and the public;
- ◆ Providing services in an environmentally responsible manner.

**Issue Date:** Sept 4, 2018

**Revision:** 3

MSF-P-01



## Town of Collingwood 2019 Water Compliance Report

### 1. Notification and Availability of Reports

This report has been prepared in accordance with the reporting requirements of the Safe Drinking Water Act 2002 O. Reg. 170/03, s 11 (1), (3), (6 – 10) and Schedule 22

This report is presented to Council on or before February 28<sup>th</sup> 2020.

A notice is placed in local newspapers notifying the public and any interested authority that the Collingwood Drinking Water System's 2019 Water Compliance Report (the Report) is complete and lists the locations where the report is available.

A printed copy will be provided free of charge when requested.

The Town of Collingwood website has a copy of the Report that can be viewed or downloaded in PDF format at: <http://www.collingwood.ca/water/docs>

### 2. Drinking Water System Description

Drinking Water System Number	220001165
Drinking Water System Permit Number	100-201 Issued May 16 <sup>th</sup> 2016
Drinking Water System License Number	100-101 Issued May 13 <sup>th</sup> 2016
Permit to Take Water Number	3451-8CZMJC issued Jan 28 <sup>th</sup> 2011
Drinking Water System Name	Collingwood Drinking Water System
Drinking Water System Owner	Town of Collingwood
Drinking Water System Category	Large Municipal Residential
Water Treatment Subsystem Class	Class 2 Certificate No. 3009 issued November 15, 2005
Water Distribution Subsystem Class	Class 3 Certificate No. 277 issued May 22, 2019
Rated Capacity	31,140 m <sup>3</sup> /d
Period being Reported	January 1, 2019 to December 31, 2019



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Other Drinking Water Systems that receive drinking water from Raymond A. Barker Ultrafiltration Plant:

Drinking Water System Owner	Drinking Water System Number
Town of New Tecumseth	220001174
Town of The Blue Mountains	220001762
Township of Essa (Baxter)	260086866
Township of Essa (Angus)	260001026
Clearview Township (New Lowell)	220003706

The Collingwood Drinking Water System (CDWS) consists of the Raymond A Barker Ultrafiltration Plant (RAB) and the Collingwood Distribution System. The raw water source is surface water from Georgian Bay, Lake Huron.

**The Raymond A Barker Ultrafiltration Plant (RAB)** is a direct filtration membrane surface water treatment plant.

Surface water is taken from Nottawasaga Bay through a submerged inlet structure, approximately 765m off shore. Chlorine can be applied at the intake for zebra mussel control. Raw water flows by gravity through a 1067mm diameter intake pipe and surge chamber into the raw water well. The raw water then flows to the membrane distribution channel in the main building.

The raw water is then distributed to six (6) filter basins or treatment trains. Five (5) trains are fed by gravity. These house the 500 series ZeeWeed ultra-filtration membrane modules. One (1) train is fed with a low lift vertical turbine pump and a 5 micron strainer with automatic cleaner. This tank houses the 1000 series ZeeWeed ultra-filtration membrane (Mobile Package Plant).

Each treatment train of the membrane filtration system has membrane modules and a permeate/backpulse pump. The permeate pump creates a slight vacuum which sucks clean (permeate) water through the membrane leaving any particulate matter greater than 0.035 microns in the process tank.

The permeate water is then disinfected with the addition of chlorine. The chlorinated



## Town of Collingwood 2019 Water Compliance Report

permeate water then flows into the two (2) 413 m<sup>3</sup> chlorine contact chambers (total volume 826 m<sup>3</sup>) prior to flowing by gravity into the clearwell. The finished water is then pumped into two (2) separate systems, the Collingwood Distribution System and the Regional Pipeline, each with its own dedicated set of high lift pumps.

The membranes undergo a regular cleaning cycle that consists of reversing the flow of clean water stored in the backpulse tank back through the membranes under positive pressure. This process cleans the particles from the outer surface of the membranes and removes them to waste. This waste water can be discharged to the sewer or returned to the lake. Air is also used to keep the membranes clear. Air is injected at the bottom of the tank and scours the membranes with air bubbles as they rise to the surface. This air scouring process also assists in keeping the concentrated solids in suspension, prior to reject.

The R. A. Barker Water Treatment Plant is continually monitored 24 hours a day 365 days a year through the SCADA (Supervisory Control And Data Acquisition) system. The SCADA will send an alarm to an on-call operator if any part of the process requires attention.

**The Collingwood Distribution System** is comprised of approximately 162.6 km of ductile and cast iron watermains, ranging in size from 50 mm to 600 mm in diameter, 1138 fire hydrants and 1795 isolation valves in two pressure zones. There are also 82.6 km of private watermains.

The Tower is an elevated storage tank with a capacity of 2250 m<sup>3</sup> supplying pressure zone 1. The Tower has chlorine boosting capability and on-line monitoring.

The Carmichael Reservoir is an in-ground reservoir and booster pumping station with a capacity of 6800 m<sup>3</sup> supplying pressure zone 1. The Carmichael reservoir has chlorine boosting capability, on-line monitoring and standby generator back up.

The Davey Reservoir is an in-ground reservoir and booster pumping station with a capacity of 2500 m<sup>3</sup> supplying pressure zone 2. The Davey reservoir has chlorine boosting capability, on-line monitoring and standby generator back up.

The Osler Bluff Road booster station helps to increase the pressure in zone 2. This station has standby generator back up.



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The Georgian Meadows booster station is owned by the developer but operated and maintained by the Town of Collingwood. This station is temporary and will be decommissioned when a planned reservoir and booster station is built on Stewart Road. This station helps to regulate the pressure in the Georgian Meadows subdivision.

### 3. Water treatment chemicals used in this reporting period:

Chlorine Gas  
Sodium Hypochlorite (12%)

### 4. Significant expenses were incurred to:

- a.  Install required equipment
- b.  Repair required equipment
- c.  Replace required equipment
- d.  Studies / Engineering

### 5. Description and breakdown of monetary expenses incurred:

Description – Water Treatment	Amount
<b>Ceiling / Roof repairs</b>	\$2,100.00
<b>Chlorine line replacement</b>	\$1,700.00
<b>Filter Basin cleaning</b>	\$5,900.00
<b>Health and Safety Improvements</b>	\$3,400.00
<b>Variable Frequency Drives (2)</b>	\$28,700.00
<b>Electrical Repairs</b>	\$3,000.00
<b>Actuators</b>	\$1400.00
<b>Chlorine Rotameter and V-Notch</b>	\$12,900.00
<b>Total:</b>	<b>\$68,100.00</b>



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Description – Water Distribution	Amount
<b>Pump refurbishment Davey Reservoir</b>	\$4,800.00
<b>Building Maintenance Davey Reservoir</b>	\$1,600.00
<b>Building Maintenance Carmichael Reservoir</b>	\$3,700.00
<b>Small Tools</b>	\$3,400.00
<b>Valve Trailer Parts</b>	\$2,200.00
<b>Locator</b>	\$3,200.00
<b>Valve Nut RX Kit</b>	\$13,800.00
<b>Waterworks Parts and Supplies</b>	\$74,700.00
<b>Total:</b>	<b>\$107,400.00</b>

Description – Engineering Studies	Amount
<b>Water Modeling</b>	\$23,000.00
<b>Water Survey</b>	\$1,700.00
<b>Chlorine Contact Options</b>	\$28,000.00
<b>Water Treatment Plant Roof</b>	\$25,000.00
<b>Master Servicing Plan</b>	\$15,000.00
<b>Rate Study</b>	\$5,000.00
<b>Class EA for Water Treatment Plant</b>	\$8,700.00
<b>Osler Booster Station Upgrades</b>	\$8,600.00
<b>Total:</b>	<b>\$115,000.00</b>

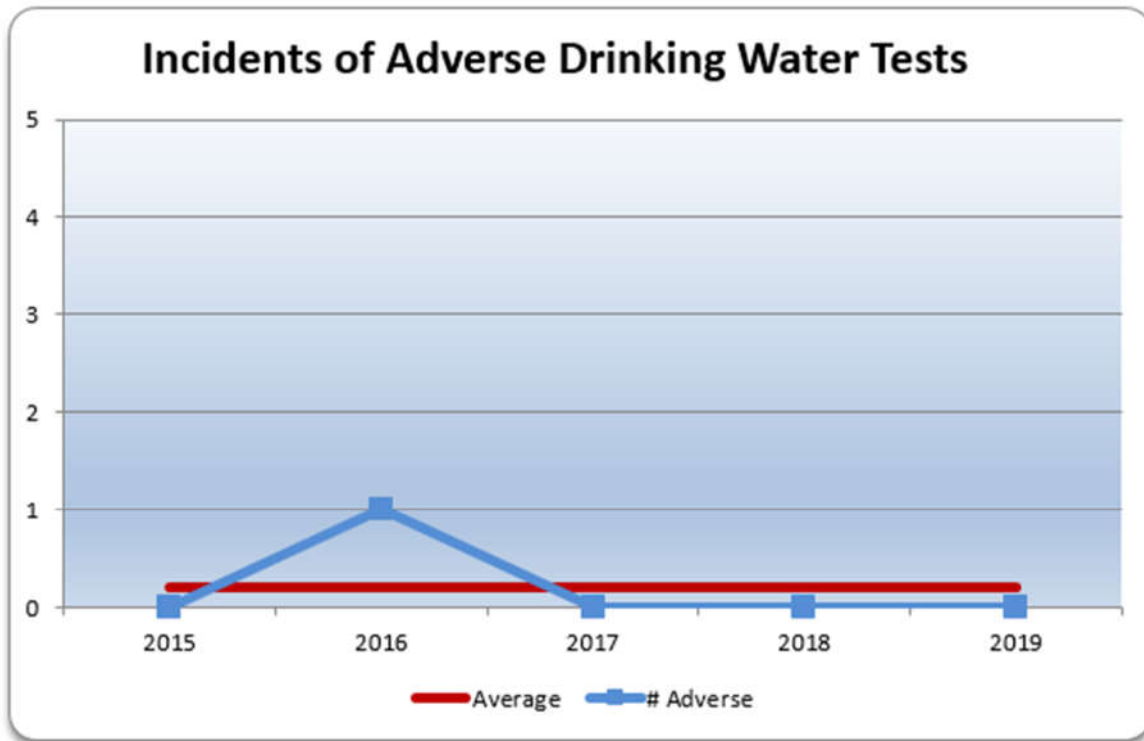




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**6. Details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking- Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre:**

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
<i>None</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>	<i>n/a</i>





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### 7. Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period:

Type	Number of Samples	Range of E. Coli Results		Range of Total Coliform Results		Number of HPC Samples	Range of HPC Results	
		Min	Max	Min	Max		Min	Max
<b>Raw</b>	53	0	29	0	317	n/a	n/a	n/a
<b>Treated</b>	53	0	0	0	0	53	0	480
<b>Distribution</b>	478	0	0	0	0	478	0	30

### 8. Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report:

Parameter	Units	Number of Samples	Range of Results		Avg
			Min	Max	
<b>Turbidity - Raw</b>	NTU	Continuous Monitoring	0.10	90.83	0.37
<b>Turbidity - Treated</b>	NTU	Continuous Monitoring	0.03	0.78	0.03
<b>Free Chlorine - Treated</b>	mg/L	Continuous Monitoring	1.29	2.03	1.67
<b>Free Chlorine – Distribution Davey Reservoir</b>	mg/L	Continuous Monitoring	1.34	2.35	1.49
<b>Free Chlorine – Distribution The Tower</b>	mg/L	Continuous Monitoring	0.35	5.03	1.24
<b>Free Chlorine – Distribution Carmichael Reservoir</b>	mg/L	Continuous Monitoring	0.67	2.16	1.15
<b>Free Chlorine – Distribution Grab Samples</b>	mg/L	477	0.17	1.99	1.08



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**9. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument:**

Date of Legal Instrument Issued	Parameter	Date Sampled	Result	Unit of Measure
<p style="text-align: center;"><b>Municipal Drinking Water License June 12, 2016 Schedule C Residue Management Table 3</b></p>	<p><b>Suspended Solids</b></p>	Jan	7.4	mg/L
		Feb	10.1	mg/L
		Mar	2.6	mg/L
		April	4.4	mg/L
		May	3.3	mg/L
		June	5.3	mg/L
		July	20	mg/L
		Aug	12	mg/L
		Sept	8	mg/L
		Oct	6	mg/L
		Nov	5	mg/L
		Dec	5	mg/L
<p><b>Max annual average limit = 25 mg/L</b></p>		<p><b>Annual Average:</b></p>	<p><b>8</b></p>	<p><b>mg/L</b></p>



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### 10. Summary of inorganic parameters tested during this reporting period or the most recent sample results:

*Note: ND = not detected*

Parameter	Sample Date	Results	Units	Max Limit	Exceedence
<b>Antimony</b>	07-Aug-19	ND	µg/L	<b>6</b>	<b>No</b>
<b>Arsenic</b>	07-Aug-19	0.4	µg/L	<b>10</b>	<b>No</b>
<b>Barium</b>	07-Aug-19	12	µg/L	<b>1000</b>	<b>No</b>
<b>Boron</b>	07-Aug-19	12	µg/L	<b>5000</b>	<b>No</b>
<b>Cadmium</b>	07-Aug-19	ND	µg/L	<b>5</b>	<b>No</b>
<b>Chromium</b>	07-Aug-19	ND	µg/L	<b>50</b>	<b>No</b>
<b>Mercury</b>	07-Aug-19	ND	µg/L	<b>1</b>	<b>No</b>
<b>Selenium</b>	07-Aug-19	ND	µg/L	<b>50</b>	<b>No</b>
<b>Uranium</b>	07-Aug-19	0.18	µg/L	<b>20</b>	<b>No</b>
<b>Nitrite</b>	2019	ND	mg/L	<b>1.0</b>	<b>No</b>
<b>Nitrate</b>	2019	ND - 0.32	mg/L	<b>10.0</b>	<b>No</b>
<b>Flouride</b>	09 Aug 2018	ND	mg/L	<b>1.5</b>	<b>No</b>
<b>Sodium</b>	09 Aug 2018	5.80	mg/L	<b>20</b>	<b>No</b>
<b>*Lead</b>	2018	0.02 – 0.43	µg/L	<b>10</b>	<b>No</b>
<b>*Alkalinity</b>	2019	64 - 91	mg/L	<b>30 - 500</b>	<b>No</b>
<b>*pH</b>	2019	7.84 – 7.96	n/a	<b>6.5 – 8.5</b>	<b>No</b>

*\*Distribution sample*



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### 11. Summary of organic parameters tested during this reporting period or the most recent sample results:

Note: ND = not detected

Parameter	Result	Units	Max Limit	Exceedence
<b>Sample Date: August 7, 2019</b>				
<b>Alachlor</b>	ND	µg/L	<b>5</b>	<b>No</b>
<b>Atrazine + N-dealkylated metabodies</b>	ND	µg/L	<b>5</b>	<b>No</b>
<b>Azinphos-methyl</b>	ND	µg/L	<b>20</b>	<b>No</b>
<b>Benzene</b>	ND	µg/L	<b>1</b>	<b>No</b>
<b>Benzo(a)pyrene</b>	ND	µg/L	<b>0.01</b>	<b>No</b>
<b>Bromoxynil</b>	ND	µg/L	<b>5</b>	<b>No</b>
<b>Carbaryl</b>	ND	µg/L	<b>90</b>	<b>No</b>
<b>Carbofuran</b>	ND	µg/L	<b>90</b>	<b>No</b>
<b>Carbon Tetrachloride</b>	ND	µg/L	<b>2</b>	<b>No</b>
<b>Chlorpyrifos</b>	ND	µg/L	<b>90</b>	<b>No</b>
<b>Diazinon</b>	ND	µg/L	<b>20</b>	<b>No</b>
<b>Dicamba</b>	ND	µg/L	<b>120</b>	<b>No</b>
<b>1,2-Dichlorobenzene</b>	ND	µg/L	<b>200</b>	<b>No</b>
<b>1,4-Dichlorobenzene</b>	ND	µg/L	<b>5</b>	<b>No</b>
<b>1,2-Dichloroethane</b>	ND	µg/L	<b>5</b>	<b>No</b>
<b>1,1-Dichloroethylene</b>	ND	µg/L	<b>14</b>	<b>No</b>
<b>Dichloromethane</b>	ND	µg/L	<b>50</b>	<b>No</b>
<b>2,4-Dichlorophenol</b>	ND	µg/L	<b>900</b>	<b>No</b>
<b>2,4-D</b>	ND	µg/L	<b>100</b>	<b>No</b>
<b>Diclofop-methyl</b>	ND	µg/L	<b>9</b>	<b>No</b>
<b>Dimethoate</b>	ND	µg/L	<b>20</b>	<b>No</b>
<b>Diquat</b>	ND	µg/L	<b>70</b>	<b>No</b>
<b>Diuron</b>	ND	µg/L	<b>150</b>	<b>No</b>
<b>Glyphosate</b>	ND	µg/L	<b>280</b>	<b>No</b>
<b>Malathion</b>	ND	µg/L	<b>190</b>	<b>No</b>
<b>2-Methyl-4-chlorophenoxyacetic acid (MCPA)</b>	ND	µg/L	<b>100</b>	<b>No</b>



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Organics (cont'd)	May	Units	Max Limits	No
Metolachlor	ND	µg/L	50	No
Metribuzin	ND	µg/L	80	No
Monochlorobenzene	ND	µg/L	80	No
Paraquat	ND	µg/L	10	No
Pentachlorophenol	ND	µg/L	60	No
Phorate	ND	µg/L	2	No
Picloram	ND	µg/L	190	No
PCB	ND	µg/L	3	No
Prometryne	ND	µg/L	1	No
Simazine	ND	µg/L	10	No
Terbufos	ND	µg/L	1	No
Tetrachloroethylene (perchloroethylene)	ND	µg/L	10	No
2,3,4,6- Tetrachlorophenol	ND	µg/L	100	No
Triallate	ND	µg/L	230	No
Trichloroethylene	ND	µg/L	5	No
2,4,6,-Trichlorophenol	ND	µg/L	5	No
Trifluralin	ND	µg/L	45	No
Vinyl Chloride	ND	µg/L	1	No

	Date of Samples				Max Limit
	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter	
Haloacetic Acids	21.7	19.8	20.8	18	n/a
Haloacetic Acids Average	20.8	21.6	22.1	20.1	80
Trihalomethanes	28	32	50	37	n/a
Trihalomethanes Average	37.5	37.5	37.0	36.8	100

**Note: All samples are well within allowable limits, no exceedences to report**



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**12. The following inorganic or organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards:**

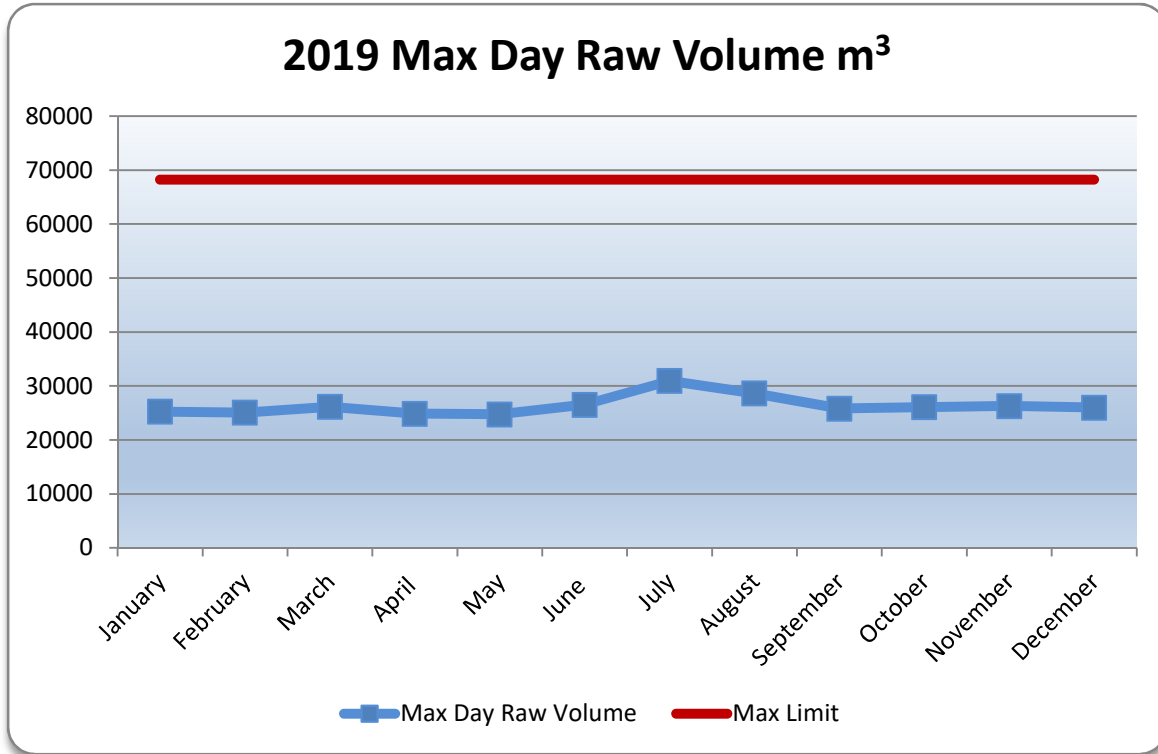
Parameter	Result Value	Unit of Measure	Date of Sample
<b>None</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>

**13. Raw water taking vs capacity per Permit to Take Water:**

Raw Water Taking					
Month	Monthly Total m <sup>3</sup>	Daily Ave m <sup>3</sup>	Min Day m <sup>3</sup>	Max Day m <sup>3</sup>	Max Day Capacity
January	699,454	22,563	20,608	25,266	37%
February	651,536	23,269	20,953	25,094	37%
March	731,774	23,606	18,998	26,135	38%
April	665,228	22,174	18,572	24,871	36%
May	719,882	23,222	20,887	24,770	36%
June	728,961	24,299	21,097	26,535	39%
July	851,423	27,465	24,081	30,964	45%
August	802,684	25,893	20,421	28,654	42%
September	719,046	23,968	20,606	25,837	38%
October	702,960	22,676	19,444	26,078	38%
November	701,809	23,394	19,881	26,283	39%
December	700,434	22,595	17,831	26,003	38%
<b>Total</b>	<b>8,675,191</b>				
<b>Max</b>	<b>851,423</b>			<b>30,964</b>	<b>45%</b>
<b>Note: Maximum allowable taking is 68,250 m<sup>3</sup> per day</b>					



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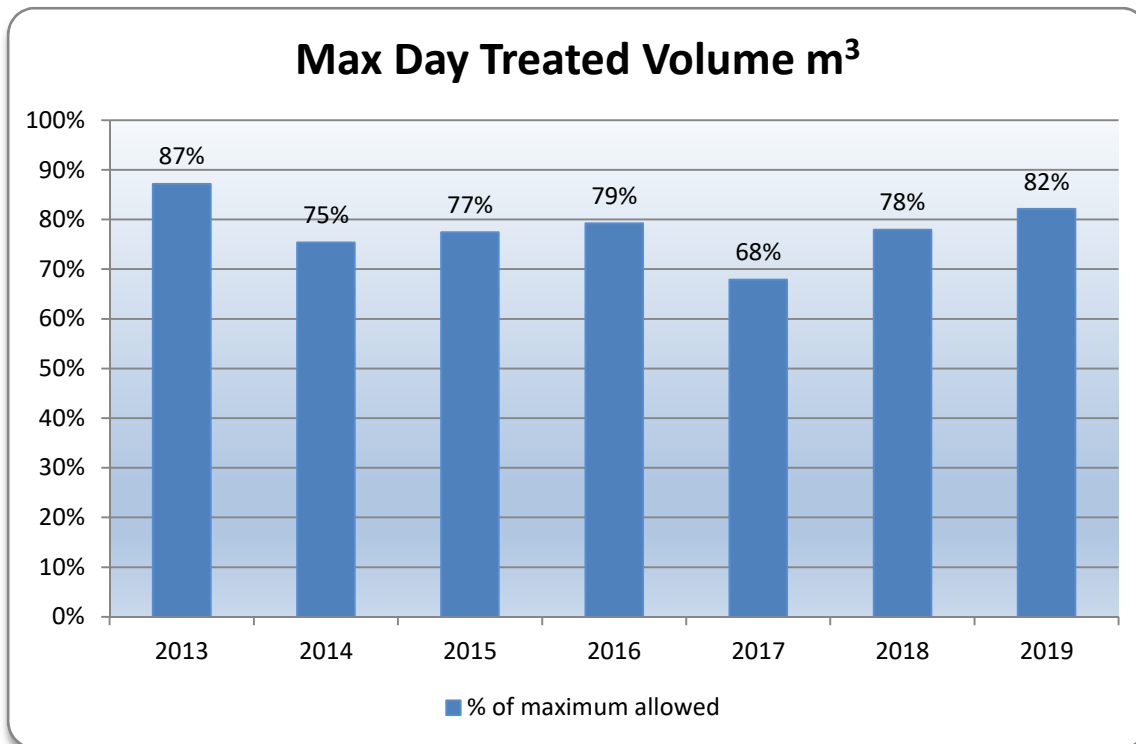
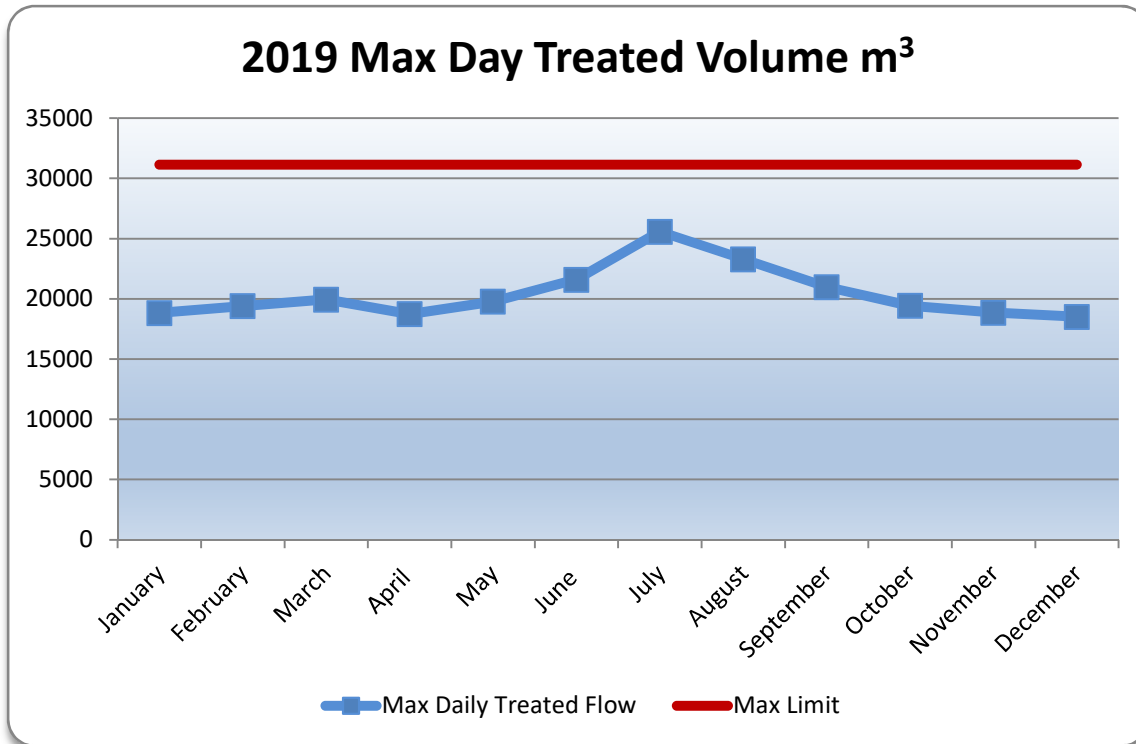
## Town of Collingwood 2019 Water Compliance Report

### 14. Treated water taking vs capacity per Municipal Drinking Water License:

Treated Water Flows					
Month	Monthly Total m <sup>3</sup>	Daily Ave m <sup>3</sup>	Min Day m <sup>3</sup>	Max Day m <sup>3</sup>	Max Day Capacity
January	541,958	17,483	15,636	18,837	60%
February	513,818	18,351	16,643	19,405	62%
March	552,194	17,813	14,890	19,947	64%
April	520,746	17,358	14,554	18,743	60%
May	566,837	18,285	16,445	19,776	64%
June	574,146	19,138	16,412	21,595	69%
July	694,942	22,417	19,386	25,576	82%
August	654,894	21,126	16,376	23,289	75%
September	581,508	19,384	16,475	20,984	67%
October	558,390	18,013	15,539	19,424	62%
November	518,800	17,293	14,853	18,862	61%
December	512,837	16,543	13,717	18,518	60%
<b>Total:</b>	<b>6,791,070</b>				
<b>Max:</b>	<b>694,942</b>			<b>25,576</b>	<b>82%</b>
<b>Note: Maximum allowable taking is 31,140 m<sup>3</sup> per day</b>					



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### 15. Quality Management System (QMS) – Management Review:

A QMS Management Review was conducted on January 16, 2020. Data from 2019 was considered and action items were identified as appropriate to improve the operation and efficiency of the system. A summary of some key items can be found below.

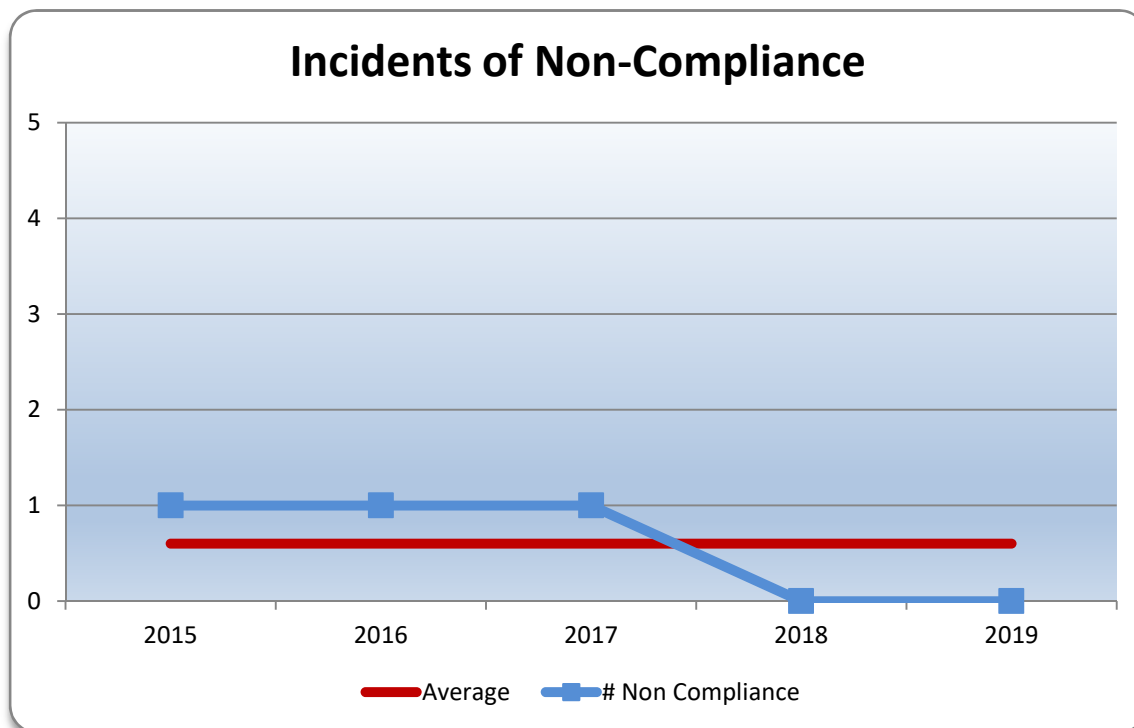
#### a) Incidents of Regulatory Non-Compliance

There were no incidents of regulatory non-compliance in 2019.

A Ministry of the Environment, Conservation and Parks (MECP) annual inspection was completed in November 2019.

**Findings:** No regulatory non-compliances were identified during the inspection.

Based on the Ministry established rating methodology the Collingwood Drinking Water System received a 100% rating.

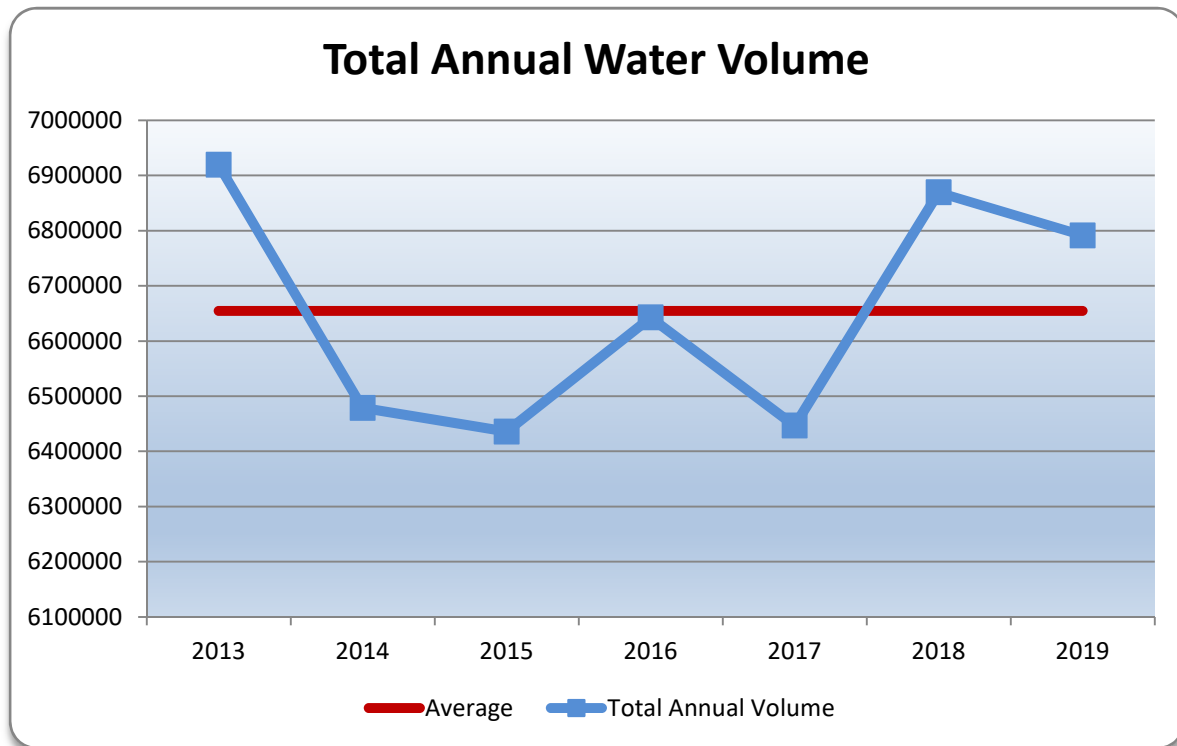




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### b) Total Treatment Plant Production

The water treatment plant supplied 6,791,070 m<sup>3</sup> of safe, potable water in 2019. That is a slight decrease of 1% from 6,869,923 m<sup>3</sup> in 2018. Production is based solely on demand. 2017 had an unusually cool and rainy summer creating a lower than normal demand.

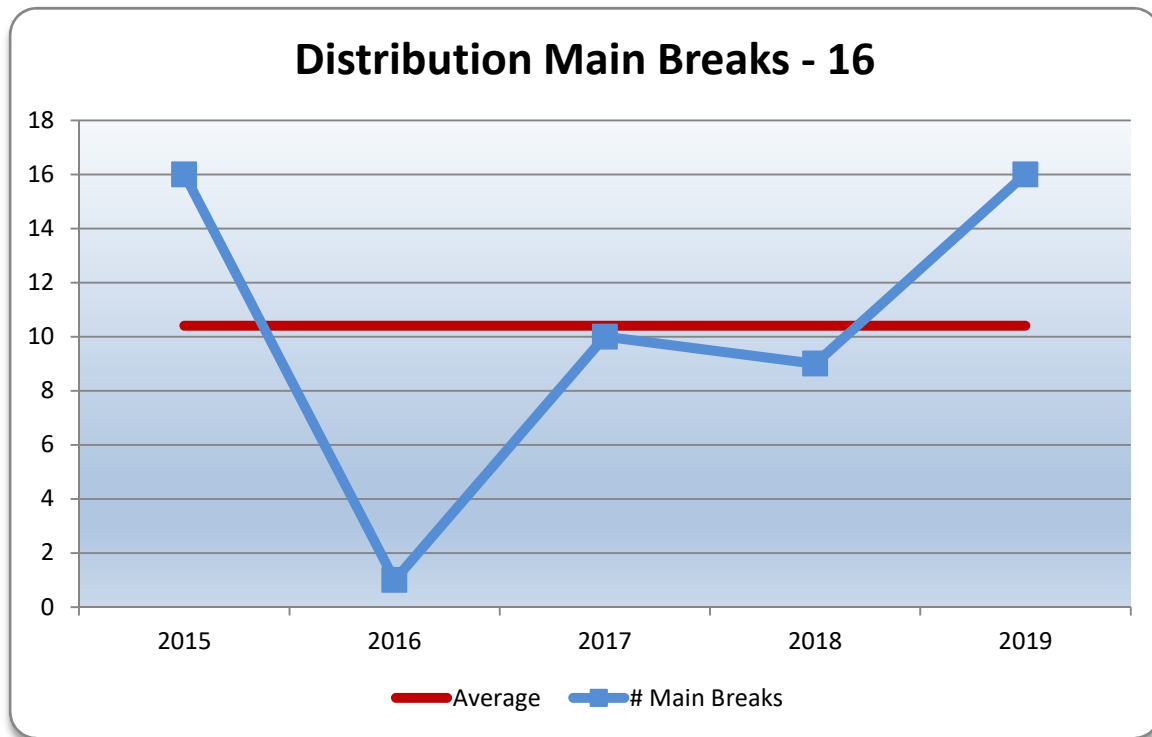




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### c) Watermain Breaks

There were sixteen watermain breaks in 2019. Repairs were completed with minimal service interruption to consumers.

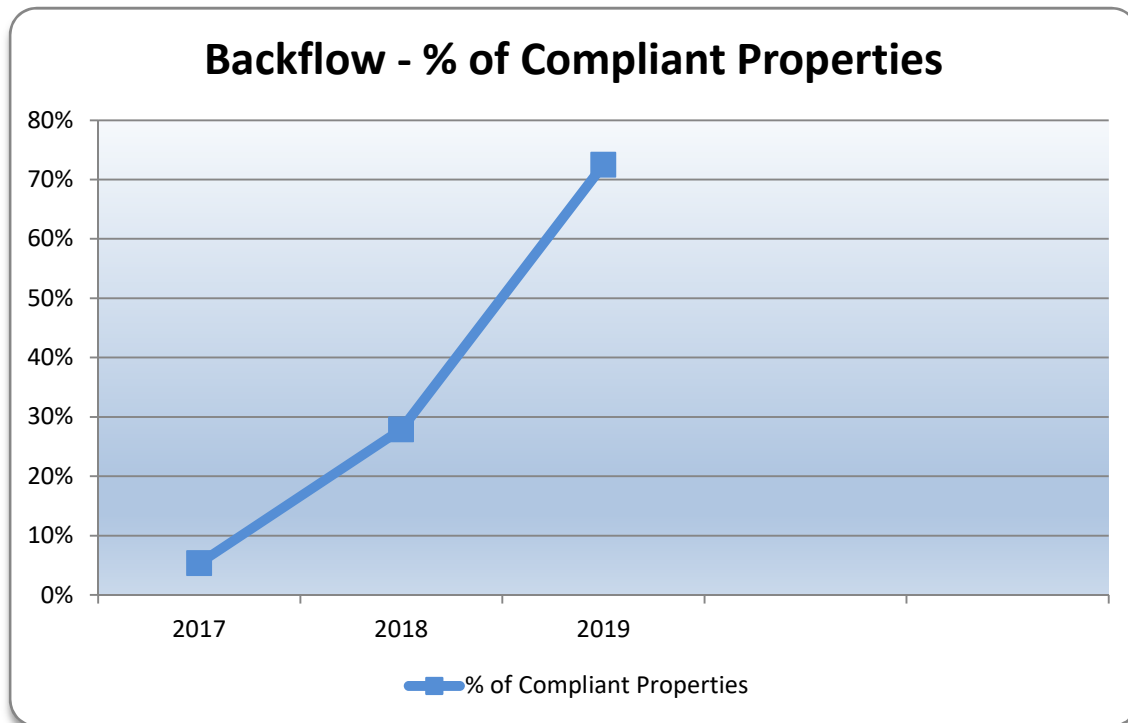




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### d) Backflow Prevention Program

The Backflow Prevention Program has completed the second full year of operation. There are currently 450 compliant premises (72%) and 509 premises that have completed an initial survey and are in the process of becoming compliant (82%). A total of 621 premises are included in the program.



### 16. Conclusion

The Town of Collingwood continues to provide a safe, reliable supply of potable drinking water to our customers, while meeting or exceeding all legislative requirements.

Report Prepared by:

Marie Richardson  
Water Compliance Officer