Southview Estates Drinking Water System

Waterworks # 220012260
System Category –Large Municipal Residential

Annual Water Report

Prepared For: The City of Kawartha Lakes

Reporting Period of January 1st to December 31st, 2019

Issued: February 20, 2020

Revision: 0

Operating Authorities:

This report has been prepared to satisfy the annual reporting requirement in O.Reg.170/03 Section 11 and Schedule 22

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Report Availability

This system does not serve more than 10,000 residents. The annual reports are available to residents free of charge at the City of Kawartha Lakes – Public Works Administration Office located at 12 Peel Street in Lindsay, Ontario. The reports are also available online at the City of Kawartha Lakes website. (www.kawarthalakes.ca)

Compliance Report Card

Drinking Water System Number: 220012260
Drinking Water System Name: Southview Estates WTP
Drinking Water System Owner: City of Kawartha Lakes
Drinking Water System Category: Large Municipal Residential
Period Being Reported: January 1, 2019 - December 31, 2019

	# of Events	Date	Details
Health & Safety			
Number of Incidents	0		
Drinking Water			
MECP Inspections	1	January 21, 2019	The 2018/2019 Announced-Detailed Drinking Water Inspection was held in the first quarter of 2019. The 2019/2020 Unannounced-Focused Drinking Water Inspection is being held in the first quarter of 2020.
AWQI's	2	August 21, 2019	Loss of system pressure, chlorine analyzer not recording as there was no flow to analyzer. Suspected lightning strike. Restore system pressure, flush distribution system and collect bacteriological samples.
		October 4, 2019	The four quarter Rolling Annual Average (RAA) was 113 ug/L. The RAA limit is 100 ug/L.
Number of Non-Compliances	1	2nd Quarter, 2019	The treated sample collected on January 8,

	# of Events	Date	Details
		3rd Quarter, 2019	2019 exceeded half the Maximum Acceptable Concentration (1/2 MAC) level for Arsenic. Samples were required to be collected quarterly but samples were collected on February 7 and October 29, 2019.
Number of Boil Water Advisories	0		

System Process Description

Raw Source

The Southview Estates Drinking Water System draws water from Sturgeon Lake.

Treatment

The treatment system consists of the following:
- Dual train conventional filtration package plant
- Inline static mixer
- Coagulant feed system with addition of SternPAC
- Coagulant aid feed system with addition of polymer
- Two mono-media upflow clarifier units
- Two dual media rapid gravity filters
- Sodium hypochlorite feed system for primary disinfection
- Dual celled chlorine contact tanks (274 m3) located beneath the plant
- Two highlift pump chambers housing four pumps
- Sodium hypochlorite feed system for post chlorination
- Online analyzers to monitor both free treated chlorine and filter effluent turbidity
- Wastewater treatment system that consists of two backwash pumps and two settling tanks that receive backwash water and clarifier sludge
- SCADA computer control system
- Zebra mussel control system
- Standby power generator

Treatment Chemicals used during the reporting year:

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag
SternPAC	Coagulant	Kemira
Magnafloc	Coagulant Aid	BASF

Summary of Non-Compliance

Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
August 21, 2019	147434	Distribution pressure, treated chlorine	Loss of system pressure, chlorine analyzer not recording as there was no flow to analyzer.	Suspected lightning strike.	O. Reg. 170/03 Schedule 16 Section 4 O. Reg. 170/03 Schedule 6 Section 2	Restore system pressure, flush distribution system and collect bacteriological samples.
October 4, 2019	149394	Distribution	The four quarter Rolling Annual Average (RAA) was 113 ug/L.	The RAA limit is 100 ug/L.	O. Reg. 170/03 Schedule 16 Section 10	Reduced chlorine residual. Lowered clearwell level to reduce detention time. Change rotation of highlifts to promote better mixing

Non-Compliance

Legislation	requirement(s) system failed to meet	duration of the failure (i.e. date(s))	Corrective Action	Status
O.Reg.170/03 Schedule 13-5	Samples to be collected every three months until four consecutive three-month periods are below half of the standard	2nd Quarter, 2019 3rd Quarter, 2019	Sample Calendars are printed each month to ensure the current calendar is being referenced. Arsenic bottles are pre-ordered from the lab to be delivered each quarter.	Complete

Non-Compliance Identified in a Ministry Inspection

There were no non-compliances identified in a Ministry Inspection during the reporting period.

Flows

The Southview Estates Drinking Water System is operating under half the rated capacity.

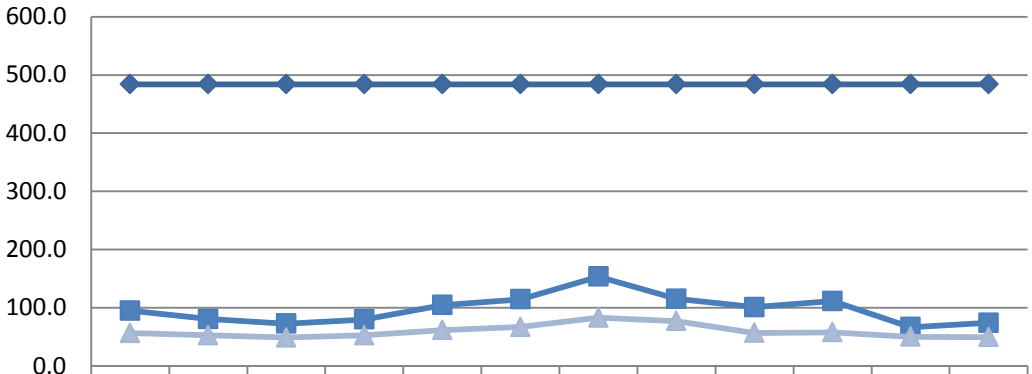
Raw Water Flows

The Raw Water flows are regulated under the Permit to Take Water. 2019 Raw Flow Data was submitted to the Ministry electronically under permit #8118-AW2NZT.

The confirmation and a copy of the data that was submitted are attached in Appendix A.

Total Monthly Flows (m³/d)

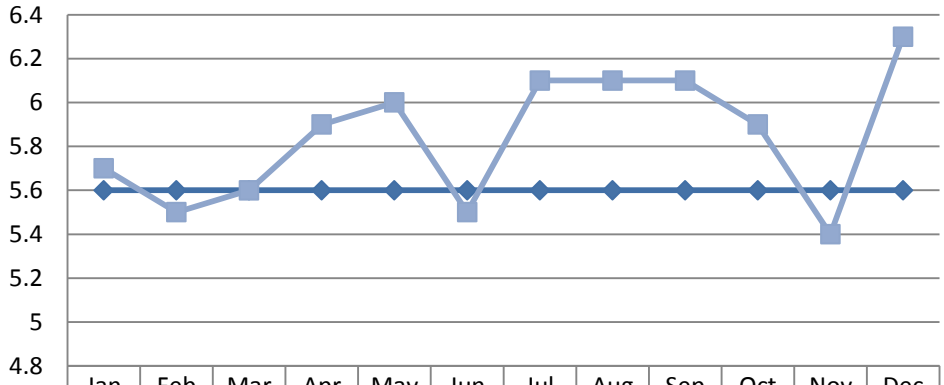
Max Allowable PTTW- Raw



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	483.8	483.8	483.8	483.8	483.8	483.8	483.8	483.8	483.8	483.8	483.8	483.8
Max Flow (m³/d)	95.3	81.0	72.9	80.1	104.9	114.7	153.6	115.5	101.1	111.7	67.0	74.2
Avg (m³/d)	56.7	52.9	49.0	52.8	62.0	67.3	83.1	77.4	57.0	58.0	50.2	49.8

Monthly Rated Flows (L/s)

Max allowable rate – PTTW- Raw



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable Rate (L/sec)	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Max Rate (L/s)	5.7	5.5	5.6	5.9	6.0	5.5	6.1	6.1	6.1	5.9	5.4	6.3

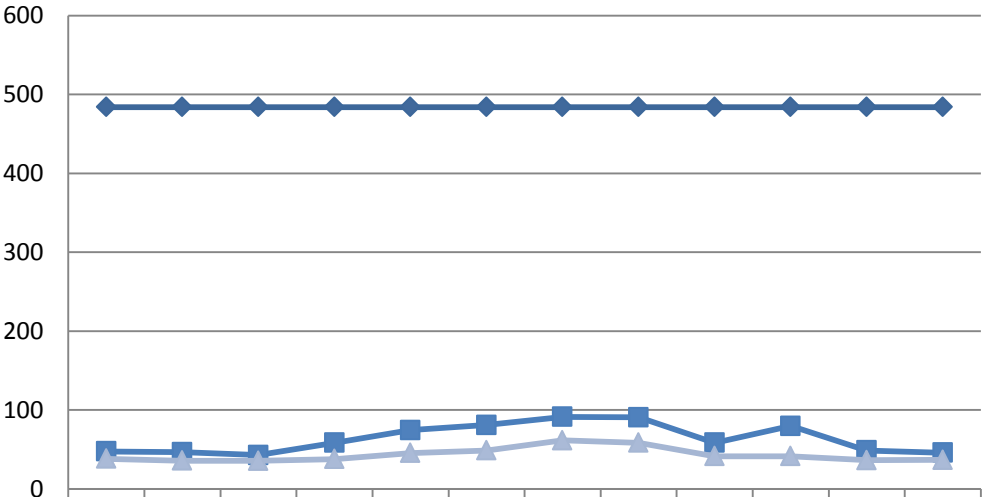
Note: The above table shows there were exceedances in instantaneous peak flow rate (L/s) and exceedances were short in duration. The scheduled Flow Meter calibration was in July.

Treated Water Flows

The Treated Water flows are regulated under the Municipal Licence.

Monthly Rated Flows

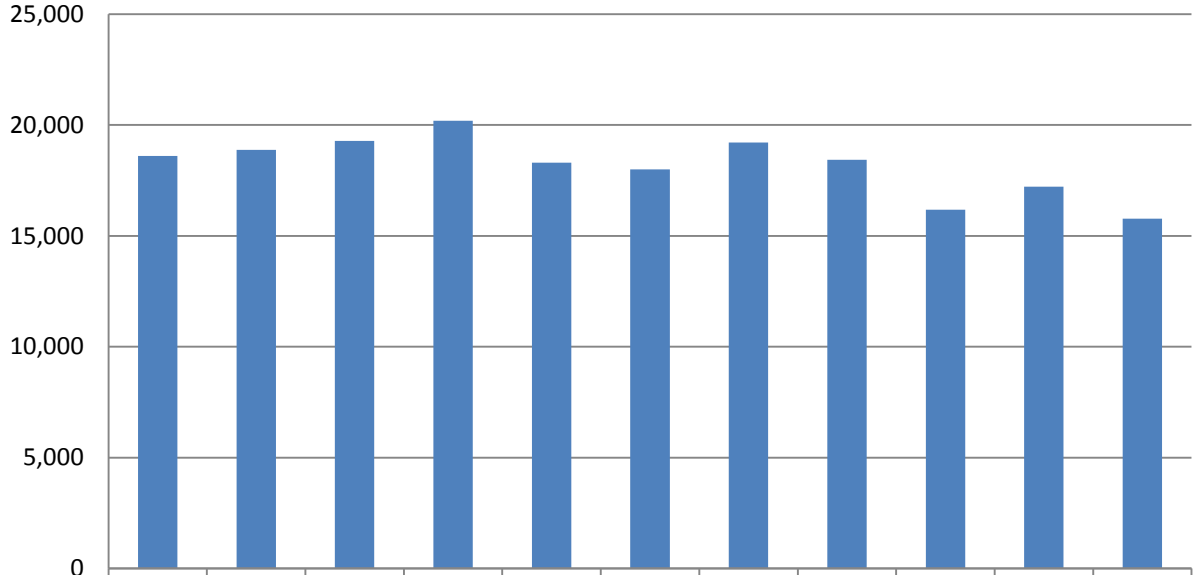
Rated Capacity - MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m^3/d)	484	484	484	484	484	484	484	484	484	484	484	484
Max Daily Flow (m^3/d)	47.5	46.5	42.9	58.4	74.5	81.0	91.3	90.8	58.4	79.8	48.8	45.9
Avg (m^3/d)	38.2	35.7	35.5	37.7	45.4	48.8	61.6	58.4	41.4	41.5	36.4	36.8

Annual Total Flow Comparison

Total Annual m^3



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
WTP (m^3)	18,605	18,882	19,283	20,193	18,295	17,990	19,204	18,430	16,177	17,212	15,772

Regulatory Sample Results Summary

Microbiological Testing

Location	No.of Samples	Range of E.coli Results MIN	Range of E.coli Results MAX	Range of Total Coliform Results MIN	Range of Total Coliform Results MAX	Range of HPC Results MIN	Range of HPC Results MAX
Raw	53	0	10	0	320		
Treated	53	0	0	0	0	0	
Distribution	162	0	0	0	0	0	3

Operational Testing

Parameters	No. of Samples Collected	Range of Results MIN	Range of Results MAX
Turbidity Raw (NTU)	46	0.27	2.17
Turbidity Filter 1 (NTU)	8760	0	4.45
Turbidity Filter 2 (NTU)	8760	0	4.09
Chlorine	8760	0	5.25
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

Note: Record the unit of measure if it is **not** milligrams per litre.
Note: For continuous monitors 8760 is used as the number of samples**.** Spikes recorded by on-line instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03.

Inorganic Parameters

These parameters are tested as a requirement under O.Reg.170/03. Sodium and Fluoride are required to be tested every 5 years. Nitrate and Nitrite are tested quarterly and the metals are tested annually as required under O.Reg.170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

- MAC = Maximum Allowable Concentration as per O. Reg.169/03
- MDL = Method Detection Limit

Parameters (Treated Water)	Sample Date	Sample Results	MAC	No. of Exceedances MAC	No. of Exceedances ½ MAC
Antimony: Sb (ug/L)	2019/01/08	0.38	6.0	No	No
Arsenic: As (ug/L)	2019/10/29	<MDL 0.2	10.0	No	No
Barium: Ba (ug/L)	2019/01/08	19.8	1000.0	No	No
Boron: B (ug/L)	2019/01/08	12.0	5000.0	No	No
Cadmium: Cd (ug/L)	2019/01/08	0.009	5.0	No	No
Chromium: Cr (ug/L)	2019/01/08	0.11	50.0	No	No

Parameters (Treated Water)	Sample Date	Sample Results	MAC	No. of Exceedances MAC	No. of Exceedances ½ MAC
Mercury: Hg (ug/L)	2019/01/08	<MDL 0.01	1.0	No	No
Selenium: Se (ug/L)	2019/01/08	0.05	50.0	No	No
Uranium: U (ug/L)	2019/01/08	0.025	20.0	No	No
Additional Inorganics					
Fluoride (mg/L)	2018/01/15	<MDL 0.06	1.5	No	No
Nitrite (mg/L)	2019/01/08	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2019/04/03	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2019/07/10	<MDL 0.003	1.0	No	No
Nitrite (mg/L)	2019/10/09	<MDL 0.003	1.0	No	No
Nitrate (mg/L)	2019/01/08	0.307	10.0	No	No
Nitrate (mg/L)	2019/04/03	0.401	10.0	No	No
Nitrate (mg/L)	2019/07/10	0.193	10.0	No	No
Nitrate (mg/L)	2019/10/09	0.09	10.0	No	No
Sodium: Na (mg/L)	2018/01/15	10.7	20*	No	No

*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Schedule 15 Sampling:

The Schedule 15 Sampling is required under O.Reg.170/03. This system is under reduced sampling. No plumbing samples were collected.

Distribution System	No. of Sampling Points	No. of Samples	Range of Results (MIN)	Range of Results (MAX)	MAC (ug/L)	No. of Exceedances
Alkalinity (mg/L)	2	2	68	80	N/A	N/A
pH	2	2	8.22	8.32	N/A	N/A
Lead (ug/l)	N/A	N/A				

Organic Parameters

These parameters are tested annually as a requirement under O.Reg.170/03. In the event any of the parameters exceed half of the maximum allowable concentration the parameter is required to be sampled quarterly.

Parameter	Sample Date	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Treated Water					
Alachlor (ug/L)	2019/01/08	<MDL 0.02	5.0	No	No
Atrazine + N-dealkylated metabolites (ug/L)	2019/01/08	<MDL 0.01	5.0	No	No
Azinphos-methyl (ug/L)	2019/01/08	<MDL 0.05	20.0	No	No
Benzene (ug/L)	2019/01/08	<MDL 0.32	1.0	No	No
Benzo(a)pyrene (ug/L)	2019/01/08	<MDL 0.004	0.01	No	No
Bromoxynil (ug/L)	2019/01/08	<MDL 0.33	5.0	No	No
Carbaryl (ug/L)	2019/01/08	<MDL 0.05	90.0	No	No
Carbofuran (ug/L)	2019/01/08	<MDL 0.01	90.0	No	No
Carbon Tetrachloride (ug/L)	2019/01/08	<MDL 0.16	2.0	No	No
Chlorpyrifos (ug/L)	2019/01/08	<MDL 0.02	90.0	No	No
Diazinon (ug/L)	2019/01/08	<MDL 0.02	20.0	No	No
Dicamba (ug/L)	2019/01/08	<MDL 0.2	120.0	No	No
1,2-Dichlorobenzene (ug/L)	2019/01/08	<MDL 0.41	200.0	No	No
1,4-Dichlorobenzene (ug/L)	2019/01/08	<MDL 0.36	5.0	No	No
1,2-Dichloroethane (ug/L)	2019/01/08	<MDL 0.35	5.0	No	No
1,1-Dichloroethylene (ug/L)	2019/01/08	<MDL 0.33	14.0	No	No
Dichloromethane (Methylene Chloride) (ug/L)	2019/01/08	<MDL 0.35	50.0	No	No
2,4-Dichlorophenol (ug/L)	2019/01/08	<MDL 0.15	900.0	No	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L)	2019/01/08	<MDL 0.19	100.0	No	No
Diclofop-methyl (ug/L)	2019/01/08	<MDL 0.4	9.0	No	No
Dimethoate (ug/L)	2019/01/08	<MDL 0.03	20.0	No	No
Diquat (ug/L)	2019/01/08	<MDL 1.0	70.0	No	No
Diuron (ug/L)	2019/01/08	<MDL 0.03	150.0	No	No
Glyphosate (ug/L)	2019/01/08	<MDL 1.0	280.0	No	No
Malathion (ug/L)	2019/01/08	<MDL 0.02	190.0	No	No
Metolachlor (ug/L)	2019/01/08	<MDL 0.01	50.0	No	No
Metribuzin (ug/L)	2019/01/08	<MDL 0.02	80.0	No	No
Monochlorobenzene (Chlorobenzene) (ug/L)	2019/01/08	<MDL 0.3	80.0	No	No
Paraquat (ug/L)	2019/01/08	<MDL 1.0	10.0	No	No
PCB (ug/L)	2019/01/08	<MDL 0.04	3.0	No	No
Pentachlorophenol (ug/L)	2019/01/08	<MDL 0.15	60.0	No	No
Phorate (ug/L)	2019/01/08	<MDL 0.01	2.0	No	No
Picloram (ug/L)	2019/01/08	<MDL 1.0	190.0	No	No
Prometryne (ug/L)	2019/01/08	<MDL 0.03	1.0	No	No
Simazine (ug/L)	2019/01/08	<MDL 0.01	10.0	No	No
Terbufos (ug/L)	2019/01/08	<MDL 0.01	1.0	No	No

Parameter	Sample Date	Sample Result	MAC	Exceedance MAC	Exceedance ½ MAC
Parameter	**Sample Date**	**Sample Result**	**MAC**	**Exceedance MAC**	**Exceedance ½ MAC**
Tetrachloroethylene (ug/L)	2019/01/08	<MDL 0.35	10.0	No	No
2,3,4,6-Tetrachlorophenol (ug/L)	2019/01/08	<MDL 0.2	100.0	No	No
Triallate (ug/L)	2019/01/08	<MDL 0.01	230.0	No	No
Trichloroethylene (ug/L)	2019/01/08	<MDL 0.44	5.0	No	No
2,4,6-Trichlorophenol (ug/L)	2019/01/08	<MDL 0.25	5.0	No	No
2-methyl-4-chlorophenoxyacetic acid (MCPA) (ug/L)	2019/01/08	<MDL 0.12	100.0	No	No
Trifluralin (ug/L)	2019/01/08	<MDL 0.02	45.0	No	No
Vinyl Chloride (ug/L)	2019/01/08	<MDL 0.17	1.0	No	No
Distribution Water					
Trihalomethane: Total (ug/L) Annual Average	2019	109.5	100.0	Yes	Yes
HAA Total (ug/L) Annual Average	2019	74.8	80.0	No	Yes

MAC = Maximum Allowable Concentration as per O. Reg.169/03
MDL = Method Detection Limit

Additional Legislated Samples

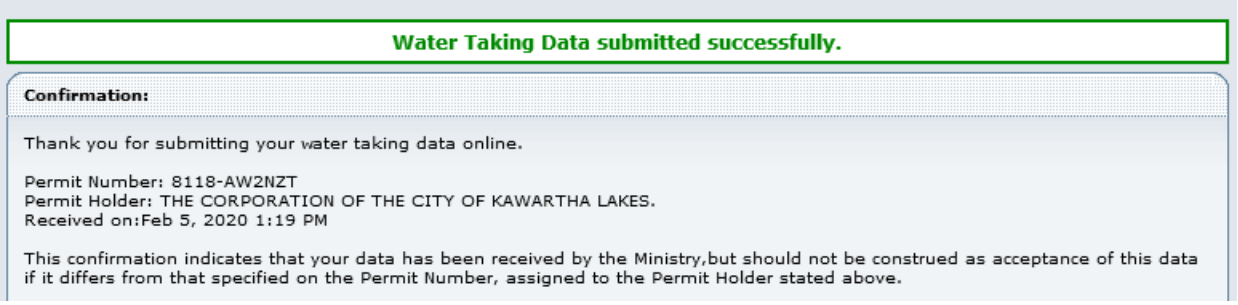
Parameter	Location	No. of Samples Collected	Range of Results (MIN)	Range of Results (MAX)
Alkalinity (mg/L as CaCO3)	Point of Entrance to Distribution System	4	67.0	83.0
Aluminum (ug/L)	Point of Entrance to Distribution System	4	22.0	130.0
Dissolved Organic Carbon (mg/L)	Point of Entrance to Distribution System	4	2.0	3.0
Total Suspended Solids (mg/L)	Settling Tank Discharge Point	12	2.0	13.0

Major Maintenance Summary incurred to install, repair or replace required equipment

WO #	Description
628011	Replacement of Filter PLC and Valves
1103047	Interior Roof Replacement

Appendix A

WTRS Data and Submission Confirmation



Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 8118-AW2NZT
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.
Received on:Feb 5, 2020 1:19 PM

This confirmation indicates that your data has been received by the Ministry,but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.