

**Drinking-Water Systems Regulation
 O. Reg. 170/03 Section 11 Annual Report**

Drinking-Water System Number:	220001254
Drinking-Water System Name:	James W. King Water Treatment Plant
Drinking-Water Licence Number:	156-101
Drinking-Water Works Permit:	156-201
Drinking-Water System Owner:	Separated Town of Gananoque
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1, 2017 to December 31, 2017

The Town of Gananoque owns and operates a Large Municipal Residential Water System. The annual report is available to the public at The Public Works Office at 665 Charles Street North, Gananoque between 7 AM and 3 PM and on the Town’s website. Notification that this report is available for the public is achieved through the Town’s website and Radio Station.

Description of Gananoque’s Drinking-Water System

The raw water source is the St. Lawrence River. Water enters the water plant via a 600 mm intake pipe which extends along the river bottom for 416 meters and terminates at depth of about 6 meters below the water surface. Chlorine is added at the intake or low lift wet well for zebra mussel control and disinfection.

Chlorinated raw water passes through two removable stationary screens into a wet well where one of three vertical turbine pumps, each having a capacity of 60 L/sec., pumps water into a rapid mix tank.

Water and alum are mixed together in the rapid mix chamber. Alum is a coagulant used to join suspended particles in the water into floc. Water then flows into the flocculation tanks where it is stirred gently to allow the particles of floc and suspended particles to join and create larger floc.

Two dual media filters each containing 750 mm of filter GAC over 250 mm of silica sand receives water from the flocculation tanks. The GAC media has eliminated the need for PAC addition seasonally for taste and odour control. These filters remove the floc as water passes through the dual media into clearwells.

Filtered water flows into the clearwells, storage reservoir and high left well. A total of 3,144 m³ of treated water can be stored. Chlorine is added to the water as it first enters the clearwells to provide sufficient chlorine contact time and adequate free chlorine residual is maintained to ensure the water is safe for consumption.

For filter cleaning, called backwashing, air is forced backwards through the filter media to loosen the floc caught during filtration, and then treated water is pumped through the media in a reverse direction, to wash loosened floc and sediment into the backwash tanks. Each tank has a pump, which discharges backwash water into the sanitary sewer system.

There are four high lift pumps: two 100 HP pumps in normal rotating operation and two 200 HP fire pumps, which move water to the distribution system and elevated water storage tank. Up to 1,327 m³ of treated water is stored in the elevated water tank, which supplies water to the distribution system when the high lift pumps are off. A 400 KVA diesel-driven standby generator provides enough power to run the water plant.

There are approximately 48 km of water mains in Gananoque’s distribution system. They range in size from 75 mm to 350 mm, and they supplied an average of 1785m³ of water daily to the residents, businesses, and industries in Gananoque in 2017. There are approximately 230 fire hydrants connected to the distribution system.

The water plant provides multiple barriers against bacteriological contamination. Water samples are collected from the distribution system, raw water, and treated water weekly, quarterly and annually. Samples are sent to an accredited laboratory for analysis, satisfying the regulated sampling requirements. Chlorine levels in the distribution system are checked daily and at the time of sampling. Chlorine residual and turbidity of the treated water is monitored continuously to ensure safe water leaving the plant.

Chemicals used over this reporting period include:

- Aluminum Sulfate
- Gaseous Chlorine

Significant expenses incurred throughout the year:

- New Boiler System - \$75,786
- New Gas Chlorination System - \$62,091
- Victoria Avenue – Water portion of full replacement - \$28,087
- Water Meter Replacement – Water portion only - \$34,891

Notice 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

- No adverse water quality issues occurred in 2017

Microbiological testing done during this reporting period (Schedule 10 of ON reg. 170/03):

	Number of Samples	Range of E.Coli Results (min #)-(max #) Limit = 0 in finished water	Range of Total Coliform Results (min #)-(max #) Limit = 0 in finished water	Range of HPC Results (min #)-(max #) Limit = 500 cfu/ mL in finished water
Raw	52	0 – 8 G	0 – 490 G	NA
Treated*	52	0 - 0	0 - 0	<10 - 70
Distribution*	208	0 - 0	0 - 0	<10 - 250

Operational testing done under Schedule 7 of Regulation 170/03 during the period covered by this Annual Report:

	Number of Grab Samples	Range of Results (min #) - (max #)
Turbidity(Filters)	8760	0.022 – 0.516 NTU
Chlorine(Treated)	8760	1.58 – 3.32 mg/L
Distribution Chlorine	529	0.40 – 3.12 mg/L

NOTE: For continuous monitors use 8760 as the number of samples.

Summary of Inorganic parameters tested during this reporting period or the most recent sample results:

Parameter	Sample Date	Result Value	Unit of Measure	Limit
Antimony	Jan 12/17	0.0001	mg/L	0.006
Arsenic	Jan 12/17	0.0005	mg/L	0.01
Barium	Jan 12/17	0.023	mg/L	1.0
Boron	Jan 12/17	0.018	mg/L	5.0
Cadmium	Jan 12/17	<0.00002	mg/L	0.005
Chromium	Jan 12/17	<0.002	mg/L	0.05
*Lead (For Systems Testing Under Sch. 15.2)	Oct. 20/15	0.00017	mg/L	0.01
Mercury	Jan 12/17	<0.00002	mg/L	0.001
Selenium	Jan 12/17	0.001	mg/L	0.05
Sodium	Jan 13/15	14.1	mg/L	20
Uranium	Jan 12/17	0.00025	mg/L	0.02
Fluoride	Jan 13/15	0.2	mg/L	1.5
Nitrite	Jan 11/17	<0.1	mg/L	1.0
Nitrate	Jan 11/17	0.3	mg/L	10.0

Summary of lead testing during this reporting period:

Location Type	Number of Samples (Locations) Round 1	Number of Samples (Locations) Round 2	Number of Samples outside the sampling period as per our CCP	Lead Results (mg/L) (min#) - (max#)	Number of Exceedances >0.01 mg/L (Individual Bottles)	Alkalinity (ppm) (min#) - (max #)
Distribution	1	1		0.00007 - 0.00046	0	80-100
Plumbing Residential	10	10	1	0.00002 - 0.00764	0	-
Plumbing Non-Residential	1	1		0.00017 - 0.00205	0	-

Note: The Town of Gananoque received relief from regulatory lead sampling requirements granted in Issue 4 of the Municipal Drinking Water License. These results cover December 15, 2016 to April 15, 2017 and June 15, 2017 to October 15, 2017. One sample was taken outside the sampling period as per our Issue 4 of the MDWL.

Summary of Organic parameters sampled during this reporting period or the most recent sample results:

Parameter	Sample Date	Result Value	Unit of Measure	Limit
Alachlor	Jan 13/17	<0.3	ug/L	5
Aldicarb	Jan 13/15	<3	ug/L	9
Aldrin + Dieldrin	Jan 13/15	<0.02	ug/L	0.7
Atrazine + metabolites	Jan 13/17	<0.5	ug/L	5
Azinphos-methyl	Jan 13/17	<1	ug/L	20
Bendiocarb	Jan 13/15	<3	ug/L	40
Benzene	Jan 12/17	<0.5	ug/L	1
Benzo(a)pyrene	Jan 13/17	<0.005	ug/L	0.01
Bromoxynil	Jan 13/17	<0.3	ug/L	5
Carbaryl	Jan 13/17	<3	ug/L	90
Carbofuran	Jan 13/17	<1	ug/L	90
Carbon Tetrachloride	Jan 12/17	<0.2	ug/L	2
Chlordane (Total)	Jan 13/15	<0.04	ug/L	7
Chlorpyrifos	Jan 13/17	<0.5	ug/L	90
Cyanazine	Jan 13/15	<0.5	ug/L	10
Diazinon	Jan 13/17	<1	ug/L	20
Dicamba	Jan 13/17	<5	ug/L	120
1,2-Dichlorobenzene	Jan 12/17	<0.1	ug/L	200
1,4-Dichlorobenzene	Jan 12/17	<0.2	ug/L	5
Dichlorodiphenyltrichloroethane (DDT) + metabolites	Jan 13/15	<0.01	ug/L	30
1,2-Dichloroethane	Jan 12/17	<0.1	ug/L	5
1,1-Dichloroethene (vinylidene chloride)	Jan 12/17	<0.1	ug/L	14
Dichloromethane	Jan 12/17	<0.3	ug/L	50
2-4 Dichlorophenol	Jan 13/17	<0.1	ug/L	900
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan 13/17	<5	ug/L	100

Diclofop-methyl	Jan 13/17	<0.5	ug/L	9
Dimethoate	Jan 13/17	<1	ug/L	20
Dinoseb	Jan 13/15	<0.5	ug/L	10
Diquat	Jan 20/17	<5	ug/L	70
Diuron	Jan 13/17	<5	ug/L	150
Glyphosate	Jan 13/17	<25	ug/L	280
Heptachlor + Heptachlor Epoxide	Jan 13/15	<0.1	ug/L	3
Lindane (Total)	Jan 13/15	<0.1	ug/L	4
Malathion	Jan 13/17	<5	ug/L	190
MCPA	Jan 16/17	<0.12	ug/L	100
Methoxychlor	Jan 13/15	<0.1	ug/L	900
Metolachlor	Jan 13/17	<3	ug/L	50
Metribuzin	Jan 13/17	<3	ug/L	80
Monochlorobenzene	Jan 12/17	<0.2	ug/L	80
Paraquat	Jan 20/17	<1	ug/L	10
Parathion	Jan 13/15	<3	ug/L	50
Pentachlorophenol	Jan 13/17	<0.1	ug/L	60
Phorate	Jan 13/17	<0.3	ug/L	2
Picloram	Jan 13/17	<5	ug/L	190
Polychlorinated Biphenyls(PCB's)	Jan 13/17	<0.05	ug/L	3
Prometryne	Jan 13/17	<0.1	ug/L	1
Simazine	Jan 13/17	<0.5	ug/L	10
THM (NOTE: show latest annual average)	Jan. 10 , April 18 , July 11, Oct. 10 /17	31.85	ug/L	100
Temephos	Jan 13/15	<10	ug/L	280
Terbufos	Jan 13/17	<0.3	ug/L	1
Tetrachloroethylene	Jan 12/17	<0.2	ug/L	10
2,3,4,6-Tetrachlorophenol	Jan 13/17	<0.1	ug/L	100
Triallate	Jan 13/17	<10	ug/L	230
Trichloroethylene	Jan 12/17	<0.1	ug/L	5
2,4,6-Trichlorophenol	Jan 13/17	<0.1	ug/L	5
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	Jan 13/15	<10	ug/L	280
Trifluralin	Jan 13/17	<0.5	ug/L	45
Vinyl Chloride	Jan 12/17	<0.2	ug/L	1