



OPTIONAL ANNUAL REPORT TEMPLATE

Drinking-Water System Number:	220003582
Drinking-Water System Name:	Cardinal Water System
Drinking-Water System Owner:	Township of Edwardsburgh Cardinal
Drinking-Water System Category:	Large Municipal, Residential
Period being reported:	January 1, 2014 to December 31, 2014

Complete if your Category is Large Municipal Residential or Small Municipal Residential

Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]

Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []

Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.

Cardinal Wastewater Treatment Plant 4000 John St Cardinal, Ontario K0E 1E0

Complete for all other Categories.

Number of Designated Facilities served:

Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []

Number of Interested Authorities you report to:

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water? Yes [] No []



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web**
- Public access/notice via Government Office**
- Public access/notice via a newspaper**
- Public access/notice via Public Request**
- Public access/notice via a Public Library**
- Public access/notice via other method** _____

Describe your Drinking-Water System

This is a surface water treatment plant that receives its source water supply from the St. Lawrence River. Treatment consists of pre-chlorination, basket screens, chemically assisted coagulation and flocculation, 4 rapid dual media filters (anthracite coal and sand) for physical removal of turbidity, ultraviolet irradiation (primary disinfection) followed by post chlorination (secondary disinfection). Parameters such as uv intensity, chlorine residual, pH, filter and potable turbidity are continuously monitored. All process and security alarms are monitored 24/7 by Falcon Security. The distribution system includes an elevated storage tank, 6 sample stations, 82 hydrants and a mix of distribution material piping.

List all water treatment chemicals used over this reporting period

**Sodium Hypochlorite – ANSI/NSF 60
SternPAC (Aluminum chloride hydroxide sulphate) –ANSI/NSF 60**

Were any significant expenses incurred to?

- Install required equipment**
- Repair required equipment**
- Replace required equipment**

Please provide a brief description and a breakdown of monetary expenses incurred

**Annual inspection of chlorine injection ring
Semi-annual servicing of Trojan UV Swift 12
Semi-annual servicing of backup generator
Annual backflow testing
Replace two SCADA communication switches**



**Repair service water leak and thaw 3 frozen water services in winter of 2014
Repair water main break- December 2014**

Provide 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
N/A	N/A	N/A	N/A	N/A	N/A

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

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	52	0 - 24	2-70	N/A	N/A
Treated	52	0	0	52	<2-32
Distribution	158	0	0	156	0- >500

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

Parameter	Number of Grab Samples	Range of Results (min #)-(max #)
Potable Turbidity		
Continuous	8760	0.05-0.14
Grab	364	0.04-0.37
Filter 1A Turbidity		
Continuous	8760	0.03-0.30
Grab	723	0.02-0.15
Filter 1B Turbidity		
Continuous	8760	0.03-0.32
Grab	723	0.04-0.18
Filter 2A Turbidity		
Continuous	8760	0.04-0.29
Grab	722	0.03-0.16
Filter 2B Turbidity		
Continuous	8760	0.03-0.27
Grab	722	0.03-0.18
Chlorine (Primary)		
Continuous	8760	0.38-2.47
Grab	945	0.3-2.9
Chlorine(Point of Entry)		
Continuous	8760	0.78-3.3

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



Grab	726	1.5-3.4
Chlorine(Distribution)		
Grab	1205	Free: 0.34-2.7 Total: 0.53-2.7
UV Disinfection	8760	45.19-81.45
Fluoride	N/A	N/A

NOTE: Units of measures include:

Chlorine – mg/L

Turbidity – NTU

UV – mj/cm²

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
N/A	N/A	N/A	N/A	N/A

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	08-Oct-14	0.0002	mg/L	No
Arsenic	08-Oct-14	0.0014	mg/L	No
Barium	08-Oct-14	0.021	mg/L	No
Boron	08-Oct-14	0.023	mg/L	No
Cadmium	08-Oct-14	<0.00002	mg/L	No
Chromium	08-Oct-14	<0.002	mg/L	No
*Lead	06-Jan-14	<0.00002	mg/L	No
Mercury	08-Oct-14	<0.00002	mg/L	No
Selenium	08-Oct-14	0.001	mg/L	No
Sodium	01-Dec-14	16.1	mg/L	No
Uranium	08-Oct-14	0.00016	mg/L	No
Fluoride	01-Dec-14	0.1	mg/L	No
Nitrite	01-Dec-14	<0.1	mg/L	No
Nitrate	01-Dec-14	0.3	mg/L	No

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems



Summary of lead testing under Schedule 15.1 during this reporting period
(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	N/A	N/A	N/A
Distribution	4	0.00016-0.00086	0

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	14-Oct-14	<0.3	ug/L	No
Aldicarb	14-Oct-14	<3	ug/L	No
Aldrin + Dieldrin	17-Oct-14	<0.02	ug/L	No
Atrazine + N-dealkylated metabolites	14-Oct-14	<0.5	ug/L	No
Azinphos-methyl	14-Oct-14	<1	ug/L	No
Bendiocarb	14-Oct-14	<3	ug/L	No
Benzene	08-Oct-14	<0.5	ug/L	No
Benzo(a)pyrene	14-Oct-14	<0.005	ug/L	No
Bromoxynil	14-Oct-14	<0.3	ug/L	No
Carbaryl	14-Oct-14	<3	ug/L	No
Carbofuran	14-Oct-14	<1	ug/L	No
Carbon Tetrachloride	08-Oct-14	<0.2	ug/L	No
Chlordane (Total)	17-Oct-14	<0.04	ug/L	No
Chlorpyrifos	14-Oct-14	<0.5	ug/L	No
Cyanazine	14-Oct-14	<0.5	ug/L	No
Diazinon	14-Oct-14	<1	ug/L	No
Dicamba	14-Oct-14	<5	ug/L	No
1,2-Dichlorobenzene	08-Oct-14	<0.1	ug/L	No
1,4-Dichlorobenzene	08-Oct-14	<0.2	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	08-Oct-14	<0.01	ug/L	No
1,2-Dichloroethane	08-Oct-14	<0.1	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	08-Oct-14	<0.1	ug/L	No
Dichloromethane	08-Oct-14	<0.3	ug/L	No
2-4 Dichlorophenol	14-Oct-14	<0.1	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	14-Oct-14	<5	ug/L	No
Diclofop-methyl	14-Oct-14	<0.5	ug/L	No
Dimethoate	14-Oct-14	<1	ug/L	No
Dinoseb	14-Oct-14	<0.5	ug/L	No
Diquat	10-Oct-14	<5	ug/L	No
Diuron	14-Oct-14	<5	ug/L	No
Glyphosate	14-Oct-14	<25	ug/L	No
Heptachlor + Heptachlor Epoxide	17-Oct-14	<0.1	ug/L	No
Lindane (Total)	17-Oct-14	<0.1	ug/L	No
Malathion	14-Oct-14	<5	ug/L	No



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Methoxychlor	17-Oct-14	<0.1	ug/L	No
Metolachlor	14-Oct-14	<3	ug/L	No
Metribuzin	14-Oct-14	<3	ug/L	No
Monochlorobenzene	08-Oct-14	<0.2	ug/L	No
Paraquat	10-Oct-14	<1	ug/L	No
Parathion	14-Oct-14	<3	ug/L	No
Pentachlorophenol	14-Oct-14	<0.1	ug/L	No
Phorate	14-Oct-14	<0.3	ug/L	No
Picloram	14-Oct-14	<5	ug/L	No
Polychlorinated Biphenyls(PCB)	17-Oct-14	<0.05	ug/L	No
Prometryne	14-Oct-14	<0.1	ug/L	No
Simazine	14-Oct-14	<0.5	ug/L	No
THM (NOTE: show latest annual average)	Jan-Oct-14	59.33	ug/L	No
Temephos	14-Oct-14	<10	ug/L	No
Terbufos	14-Oct-14	<0.3	ug/L	No
Tetrachloroethylene	08-Oct-14	<0.2	ug/L	No
2,3,4,6-Tetrachlorophenol	14-Oct-14	<0.1	ug/L	No
Triallate	14-Oct-14	<10	ug/L	No
Trichloroethylene	08-Oct-14	<0.1	ug/L	No
2,4,6-Trichlorophenol	14-Oct-14	<0.1	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	14-Oct-14	<10	ug/L	No
Trifluralin	14-Oct-14	<0.5	ug/L	No
Vinyl Chloride	08-Oct-14	<0.2	ug/L	No

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample