



RENFREW DRINKING WATER SYSTEM

2014 SUMMARY REPORT FOR MUNICIPALITIES

Schedule 22 of O. Reg. 170/03

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Section 11 of O. Reg. 170/03

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Annual Record of Water Taking of O. Reg. 387/04



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Foreword

This document contains three different annual reports required for the Renfrew Drinking Water System:

These reports are the:

- Section 11 Annual Report as per section 11 of Ontario Regulation 170/03
- Summary Report as per Schedule 22 of the Ontario Regulation 170/03
- Summary of the raw water taking that were submitted to the Ministry of the Environment under the Ontario Regulation 387/04 (Water Taking and Transfer)

Section 12 of O. Reg. 170/03 requires both the Summary Report and the Annual Report be made available for inspection by any member of the public during normal business hours, without charge. These reports are to be made available for inspection at the office of the municipality.

Section 11 Report

As per

O. Reg. 170/03

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

System Information

Drinking-Water System Name:	Renfrew Drinking Water System
Drinking-Water System Number:	210001102
Drinking-Water System Owner:	Town of Renfrew
Operating Authority:	Ontario Clean Water Agency
Drinking-Water System Category:	Large, municipal, residential
Period being reported:	January 01 – December 31, 2014

Summary Report (170/03 Schedule 22) will be available for inspection at:

<p>Town of Renfrew Municipal Office 127 Raglan Street South Renfrew, Ontario. K7V 4G7</p>
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List all Drinking Water Systems which receive all of their drinking water from your system:

Name	Drinking Water System Number
No other system receives water from the Renfrew Drinking Water System.	

Provide a brief description of the system:

<p>The Renfrew Drinking Water System, water treatment consists of a surface water treatment plant that has been upgraded to an Actiflo® treatment system. Actiflo® is a system where sand is used to assist the sedimentation process. Three dual media filters filter the water before chlorine is applied for disinfection. Lime is added for pH adjustment and fluoridation is practiced.</p>

Does your Drinking-Water System serve more than 10,000 people?

YES NO

If yes, is your annual report available to the public at no charge on a web site on the internet?

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: _____

Water Treatment Chemicals were used during the reporting year:

Chemical Name	Use	Supplier
Chlorine gas	Disinfection	Brenntag
PASS 8	Primary Coagulation	Kemira
Fluoride: Hydrofluosilicic Acid	Fluoridation helps to prevent tooth decay	Brenntag
Polymer: LT27AG	Coagulant aid.	BASF
Lime	pH adjustment	Solvay

Summary of any reports made to the Ministry under subsection 18 (1) of the Act or section 16-4 of Schedule 16 and reported to Spills Action Centre:

Incident Date	AWQI #	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
April	117235	Filter Performance	85.3 %	NTU	Filter Maintenance	On-going
September	120691	Filter Performance	91.3 %	NTU	Filter Maintenance	On-going
10/20/2014	121143	THM-running avg.	101	ug/L	Resample and test	10/21/2014
11/04/2014	121446	Total coliforms	2	cfu/100 ml	Resample and test	11/09/2014

Sample Results Summary

Operational Testing (170/03, Sch.7, Sch.8 or Sch.9):

Parameter	Number of Samples Collected	Range of Results (min #)-(max #)	Annual Average
Turbidity: Filter 1 (NTU)	8760	0.02 – 1.280	0.125
Turbidity: Filter 2 (NTU)	8760	0.03 – 0.990	0.130
Turbidity: Filter 3 (NTU)	8760	0.02 – 5.000	0.136
Chlorine: Treated Water (free chlorine residual: mg/L)	8760	0.94 – 3.41	1.83
Chlorine: Distribution (free chlorine residual: mg/L)	8760	0.1 - 2.1	1.21
	249	0.1 – 1.55	0.85

NOTE: 8760 denotes results from continuous monitors

ND: not detectable

NTU: Nephelometric Turbidity Units

Parameter	Month	Month Average	Unit of Measure	Annual Average
Fluoride As monitored by continuous on-line analyzer	January	0.602	mg/L	0.565 mg/L
	February	0.552	mg/L	
	March	0.525	mg/L	
	April	0.508	mg/L	
	May	0.626	mg/L	
	June	0.594	mg/L	
	July	0.624	mg/L	
	August	0.567	mg/L	
	September	0.575	mg/L	
	October	0.567	mg/L	
	November	0.506	mg/L	
	December	0.528	mg/L	

Treated Water Parameter	Result Value Range (min – max)	Average	Unit of Measure
Aluminum: Dissolved	0.01 – 0.114	0.042	mg/L
Alkalinity	44 – 85	62.7	mg/L
Colour	< 2.0 – < 2.0	< 2.0	TCU
Conductivity	182 - 298	234.6	uS/cm
pH	6.98 – 7.81	7.37	Not applicable
Total Dissolved Solids	110 - 250	165.8	mg/L
Total Hardness	71 - 130	100.3	mg/L
Dissolved Organic Carbon (DOC)	2.3 – 7.1	3.85	mg/L
Iron	0.03 – 0.08	0.034	mg/L
Manganese	0.01 – 0.05	0.015	mg/L

Summary of additional samples:

Date of legal instrument issued	Parameter	Annual Avg.	Unit of Measure	Compliance Limit
MDWL (Municipal Drinking Water Licence)	Suspended Solids Backwash Effluent Residuals.	8.33	mg/L	25 mg/L

Date of legal instrument issued	Parameter	Annual Avg.	Unit of Measure	Compliance Limit
MDWL (Municipal Drinking Water Licence)	Suspended Solids Actiflo Residuals	10.5	mg/L	25 mg/L

Microbiological testing done during this reporting Period

Location	Number of Samples	Range of E. Coli (min #) - (max #)	Range of Total Coliform Results (min #) - (max #)	Number of HPC Samples	Range of HPC Results (min #) - (max #)
Raw - RW	52	0 - 690	0 - 1900		
Treated - TW	52	0 - 0	0 - 0	52	0 - 102
Distribution - DW	211	0 - 0	0 - 2	110	1 - 121

E-Coli & Total Coliform results are reported in cfu/100 mL
HPC (Heterotrophic Plate Count) results are reported in cfu/1 mL
cfu = colony forming unit

Summary of Schedule 23 & 24 sample results:

Parameter	Sample Date	Sample Result	Exceedance
Antimony: Sb (ug/L) - TW	21/01/2014	< 0.50	No
Arsenic: As (ug/L) - TW	21/01/2014	< 1.00	No
Barium: Ba (ug/L) - TW	21/01/2014	30.00	No
Boron: B (ug/L) - TW	21/01/2014	< 10.00	No
Cadmium: Cd (ug/L) - TW	21/01/2014	< 0.10	No
Chromium: Cr (ug/L) - TW	21/01/2014	2.00	No
Mercury: Hg (ug/L) - TW	21/01/2014	< 0.10	No
Selenium: Se (ug/L) - TW	21/01/2014	< 1.00	No
Sodium: Na (mg/L) - TW	18/01/2011	4.00	No
Uranium: U (ug/L) - TW	21/01/2014	< 1.00	No
Fluoride Residual: Mean (mg/L) - TW	16/12/2014	0.62	No
Nitrite (mg/L) - TW	14/01/2014	< 0.10	No
Nitrite (mg/L) - TW	16/04/2014	< 0.10	No

Parameter	Sample Date	Sample Result	Exceedance
Nitrite (mg/L) - TW	15/07/2014	< 0.10	No
Nitrite (mg/L) - TW	14/10/2014	< 0.10	No
Nitrate (mg/L) - TW	14/01/2014	0.14	No
Nitrate (mg/L) - TW	16/04/2014	0.66	No
Nitrate (mg/L) - TW	15/07/2014	0.14	No
Nitrate (mg/L) - TW	14/10/2014	< 0.10	No

Parameter	Sample Date	Result Value	Exceedance
Alachlor (ug/L) - TW	21/01/2014	< 1.00	No
Aldicarb (ug/L) - TW	21/01/2014	< 9.00	No
Aldrin + Dieldrin (ug/L) - TW	21/01/2014	< 0.012	No
Atrazine + N-dealkylated metabolites (ug/L) - TW	21/01/2014	< 0.20	No
Azinphos-methyl (ug/L) - TW	21/01/2014	< 2.00	No
Bendiocarb (ug/L) - TW	21/01/2014	< 2.00	No
Benzene (ug/L) - TW	21/01/2014	< 0.50	No
Benzo(a)pyrene (ug/L) - TW	21/01/2014	< 0.010	No
Bromoxynil (ug/L) - TW	21/01/2014	< 0.50	No
Carbaryl (ug/L) - TW	21/01/2014	< 5.00	No
Carbofuran (ug/L) - TW	21/01/2014	< 5.00	No
Carbon Tetrachloride (ug/L) - TW	21/01/2014	< 0.20	No
Chlordane:Total (ug/L) - TW	21/01/2014	< 0.018	No
Chlorpyrifos (ug/L) - TW	21/01/2014	< 1.00	No
Cyanazine (ug/L) - TW	21/01/2014	< 1.00	No
Diazinon (ug/L) - TW	21/01/2014	< 1.00	No
Dicamba (ug/L) - TW	21/01/2014	< 1.00	No
1,2-Dichlorobenzene (ug/L) - TW	21/01/2014	< 0.40	No
1,4-Dichlorobenzene (ug/L) - TW	21/01/2014	< 0.40	No
Dichlorodiphenyltrichloroethane(DDT) + metabolites (ug/L) - TW	21/01/2014	< 0.024	No
1,2-Dichloroethane (ug/L) - TW	21/01/2014	< 0.20	No
1,1-Dichloroethylene (ug/L) - TW	21/01/2014	< 0.50	No
Dichloromethane (ug/L) - TW	21/01/2014	< 4.00	No
2,4-Dichlorophenol (ug/L) - TW	21/01/2014	< 0.50	No
2,4-Dichlorophenoxy acetic acid (2,4-D) (ug/L) - TW	21/01/2014	< 1.00	No
Diclofop-methyl (ug/L) - TW	21/01/2014	< 1.00	No
Dimethoate (ug/L) - TW	21/01/2014	< 2.50	No
Dinoseb (ug/L) - TW	21/01/2014	< 1.00	No
Diquat (ug/L) - TW	21/01/2014	< 5.00	No
Diuron (ug/L) - TW	21/01/2014	< 10.00	No
Glyphosate (ug/L) - TW	21/01/2014	< 10.00	No
Heptachlor+Heptachlor Epoxide (ug/L) - TW	21/01/2014	< 0.012	No
Lindane: (ug/L) - TW	21/01/2014	< 0.006	No

Parameter	Sample Date	Result Value	Exceedance
Malathion (ug/L) - TW	21/01/2014	< 5.00	No
Methoxychlor (ug/L) - TW	21/01/2014	< 0.006	No
Metolachlor (ug/L) - TW	21/01/2014	< 1.00	No
Metribuzin (ug/L) - TW	21/01/2014	< 5.00	No
Monochlorobenzene (ug/L) - TW	21/01/2014	< 0.20	No
Paraquat (ug/L) - TW	21/01/2014	< 5.00	No
Parathion (ug/L) - TW	21/01/2014	< 1.00	No
Pentachlorophenol (ug/L) - TW	21/01/2014	< 0.50	No
Phorate (ug/L) - TW	21/01/2014	< 1.00	No
Picloram (ug/L) - TW	21/01/2014	< 5.00	No
Polychlorinated Bichenysl(PCB) (ug/L) - TW	21/01/2014	< 0.10	No
Prometryne (ug/L) - TW	21/01/2014	< 1.00	No
Simazine (ug/L) - TW	21/01/2014	< 1.00	No
THM (ug/L) - DW	2014	101	yes
Temephos (ug/L) - TW	21/01/2014	< 10.00	No
Terbufos (ug/L) - TW	21/01/2014	< 1.00	No
Tetrachloroethylene (ug/L) - TW	21/01/2014	< 0.30	No
2,3,4,6-Tetrachlorophenol (ug/L) - TW	21/01/2014	< 0.50	No
Triallate (ug/L) - TW	21/01/2014	< 1.00	No
Trichloroethylene (ug/L) - TW	21/01/2014	< 0.30	No
2,4,6-Trichlorophenol (ug/L) - TW	21/01/2014	< 0.50	No
2,4,5-Trichlorophenoxy acetic acid (ug/L) - TW	21/01/2014	< 1.00	No
Trifluralin (ug/L) - TW	21/01/2014	< 1.00	No
Vinyl Chloride (ug/L) - TW	21/01/2014	< 0.20	No

Maintenance Summary

WO#	Completion Date	Comments
2829498	02/04/2014	Completed installation of new upgraded Chlorine Gas system
3026252	03/11/2014	Replaced wet cell for Chlorine Analyser
3029874	03/11/2014	Replaced 1720E Turbidity sensor.
3043108	02/10/2014	Replaced level sensor at low lift station.
3043119	03/05/2014	Replaced makeup air system damper.
3045695	07/18/2014	Diving service for low lift influent valve. The main isolation valve for the raw water tank in

WO#	Completion Date	Comments
		the low lift building had failed and could not be actuated.
3046220	02/18/2014	Replaced network switch due to communication failure
3062891	05/30/2014	SCADA programming work to repair and upgrade functions.
3065905	04/17/2014	Replaced PLC memory batteries
3083924	06/20/2014	Replaced UPS for Filter PLC cabinet
3103815	09/02/2014	Replace worn parts for Actiflow pump system
3144645	08/05/2014	Replaced failed lighting in facility
3150045	08/18/2014	Replacement Preventative Maintenance repair kits.
3178925	09/09/2014	Procured an Inspection and condition report/services by J. L. Richards for filter structural condition.
3208668	12/16/2014	Installed custom shelving to improve storage capacity.

END

Schedule 22
Summary Report

For

Municipalities

as per

O. Reg. 170/03

RENFREW DRINKING WATER SYSTEM
2014 SUMMARY REPORT FOR MUNICIPALITIES

Report

This report is a summary of water quality information for the Renfrew Drinking Water System, published in accordance with Schedule 22 of Ontario's Drinking-Water Systems Regulation for the reporting period of January 1 to December 31, 2014. The Renfrew Drinking Water System is categorized as a Large Municipal Residential Drinking Water System.

This report was prepared by the Ontario Clean Water Agency for the Town of Renfrew.

Who gets a copy of the Report:

- in the case of a drinking-water system owned by a municipality, the members of the municipal council;

What must the Report contain?

The report must,

- (a) list the requirements of the Act, the regulations, the system's approval, drinking water works permit, municipal drinking water licence and any orders applicable to the system that were **Not** met at any time during the period covered by the report and specify the duration of the failure; and
- (b) for each requirement referred to in clause (a) that was not met, specify the duration of the failure and the measures that were taken to correct the failure.

The following table lists the requirements that the system failed to meet and the measures taken to correct the failure:

Drinking Water Legislation	List the requirement(s) the system failed to meet	Specify the duration of the failure (i.e. date(s))	Describe the measures taken to correct the failure	Status (complete or outstanding)
PFDDWO	95 % of filter turbidity results in each month < 0.3 NTU	April, 2014 (85.3 %)	Process monitoring, filter maintenance activities.	Complete
PFDDWO	95 % of filter turbidity results in each month < 0.3 NTU	September, 2014 (91.3 %)	Process monitoring, filter maintenance activities.	Complete
O. Reg. 170/03	THM-annual running avg. 100 ug/L	10/20/2014 (101 ug/L)	Resample and Test	Complete
O. Reg. 170/03	Total Coliforms. 0 cfu/100 ml	11/04/2014 (2 cfu/100 ml)	Resample and Test	Complete

PFDDWO – Procedure for Disinfection of Drinking Water in Ontario
THM – Trihalomethanes
CFU – Colony Forming Units

The following table lists additional items identified during the annual Ministry of Environment inspection report:

Drinking Water Legislation	List the requirement(s) the system failed to meet	Specify the duration of the failure (i.e. date(s))	Describe the measures taken to correct the failure	Status (complete or outstanding)
MDWL	The owner had not ensured that all equipment was installed in accordance with Schedule A and Schedule C of the Drinking Water Works Permit.	Feb. 4, 2014 – Jan. 28, 2015	A Director Notification Form - Alterations to a Drinking Water System was prepared on January 28, 2015 and submitted to the MOECC on January 29, 2015.	Complete
MDWL	The owner/operating authority was not in compliance with the requirement to prepare Form 2 documents as required by their Drinking Water Works Permit during the inspection period.	Feb. 4, 2014 – Jan. 28, 2015	A Form 2 - Record of Minor Modifications or Replacements to the Drinking Water System was completed on January 28, 2015	Complete

O. Reg. 170/03	Records did not indicate that the treatment equipment was operated in a manner that achieved the design capabilities required under Ontario Regulation 170/03 or a Permit, Licence or Approval issued under Part V of the SDWA at all times that water was being supplied to consumers.	April and September 2014	OCWA and the owner have secured the services of OCWA's Process Specialist, and J.L. Richards and associates to investigate the possible causes of the failures to meet the filter performance criteria. Filter media samples have been collected and sent away for analysis by Anthrafilter Media and Coal. A report will be made to the undersigned inspector by January 31, 2016.	In Progress
O. Reg. 170/03	All sampling requirements for lead prescribed by schedule 15.1 of O. Reg. 170/03 were not met.	On-going	The Town of Renfrew has contracted OCWA to undertake lead sampling duties for the Renfrew DWS. OCWA has asked the town for a list of volunteer sample locations for the winter sampling session of December 15, 2014 - April 15, 2015. An application for relief from strict compliance with regulatory requirements will be submitted to the undersigned inspector as well as the Director.	In Progress

What else must the Report contain?

The report must also include the following information for the purpose of enabling the owner of the system to assess the capability of the system to meet existing and planned uses of the system:

1. A summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly average and maximum daily flows.
2. A comparison of the summary referred to in paragraph 1 to the rated capacity and flow rates approved in the system's approval, drinking water works permit or municipal drinking water licence.

The table below is a summary of the flow rates and the rated capacity flow rates approved in the system's municipal drinking water licence:

2014	Month Avg. Day Volume (m3/d)	Month Max. Day Volume (m3/d)	Rated Capacity (m3/d)	Month Max Day Volume (%)
January	3676.19	4565.00	18184	25.1
February	3936.93	6246.00	18184	34.3
March	3700.84	4549.00	18184	25.0
April	3671.00	4726.00	18184	26.0
May	3741.74	4858.00	18184	26.7
June	4106.33	5333.00	18184	29.3
July	4016.29	5077.00	18184	27.9
August	3838.56	5222.00	18184	28.7
September	3885.33	5202.00	18184	28.6
October	3507.58	4441.00	18184	24.4
November	3399.31	4648.04	18184	25.6
December	3493.66	4295.37	18184	23.6

% Rated Capacity	2011	2012	2013	2014
January	33	42	29	25.1
February	35	34	30	34.3
March	36	32	27	25.0
April	36	29	28	26.0
May	32	33	29	26.7
June	36	38	32	29.3
July	37	37	33	27.9
August	37	35	31	28.7
September	59*	37	28	28.6
October	33	36	30	24.4
November	30	26	27	25.6
December	32	28	28	23.6

*Standpipe refill

When Does the Report Get Submitted?

If a report is prepared for a system that supplies water to a municipality under the terms of a contract, the owner of the system shall give a copy of the report to the municipality by March 31.

Annual Record of Water Taking

(Permit to Take Water)

of

O. Reg. 387/04

Facility Flow Summary

Drinking-Water System Number: 210001102
 Drinking-Water System Name: RENFREW DRINKING WATER SYSTEM
 Drinking-Water System Owner: Title Holder: Municipality
 Drinking-Water System Category: Large Municipal Residential
 Municipal Drinking Water License: 183-101
 Period being reported: Jan-14 Dec-14

Raw Water					
Raw Water (Source Name)		<i>Raw Water</i>			
Source Type:					
Drinking Water Permit to Take Water No:		8088-9AXJ6C			
Month	Monthly Flow Total (m3/month)	Daily Flow Average (m3/day)	Daily Flow Maximum (m3/day)	Daily Flow Peak Flow Rate (L/min)	Number of Days of Water Taking
Jan	124568.00	4018.32	4945.00	10380.00	31
Feb	120231.00	4293.96	6745.00	10380.00	28
Mar	134116.00	4326.32	4931.00	10320.00	31
Apr	122827.46	4094.25	5286.00	10260.00	30
May	128049.00	4130.61	5564.00	10680.00	31
Jun	134923.00	4497.43	5878.00	8940.00	30
Jul	135872.00	4382.97	5428.00	10260.00	31
Aug	129920.00	4190.97	5727.00	10380.00	31
Sep	133451.00	4448.37	9145.00	10380.00	30
Oct	118365.00	3818.23	4768.00	10200.00	31
Nov	110694.03	3689.80	5102.59	10214.00	30
Dec	118916.94	3836.03	5111.00	9540.00	31
Total	1511933.43				365
Avg	125994.45	4143.94	5719.22	10161.00	30
Max	135872.00	4497.43	9145.00	10680.00	31



Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 8088-9AXJ6C
Permit Holder: THE CORPORATION OF THE TOWN OF RENFREW.
Received on: Feb 4, 2015 3:19 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.