



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

System Information

Drinking-Water System Name:	Renfrew Water Treatment Plant
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, 2006

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

**Town of Renfrew
 Municipal Office
 127 Raglan Street South
 Renfrew, Ontario.
 K7V 4G7**

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 Water Treatment system.	

Provide a brief description of the system:

The Renfrew Water Treatment Facility is 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. Powdered activated carbon is added occasionally for taste and odour control.

Does your Drinking-Water System serve more that 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
Alum: Aluminum sulphate	Primary Coagulation	Kemiron (Eaglebrook)
PASS 100: Aluminum Hydroxide Sulfate	Primary Coagulation	Kemiron (Eaglebrook)
Fluoride: Hydrofluosilicic Acid	Fluoridation helps to prevent tooth decay	Min-Chem.
Polymer: LT27AG	Coagulant aid.	Ciba
Lime	pH adjustment	Solvay
Activated Carbon	Taste and odour control	Carbon Activated Corporation

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
17 Nov 2006	69036	Turbidity: filter effluent	>1.0	NTU	Switch treatment process from using Alum to PASS 100	17 Nov. 2006
Dec 04, 18 & 27, 2006	Letter to local Drinking Water Inspector	Treated water HPC	Samples were tested for Background rather than HPC.		Regulator requirements were reviewed with staff members. All outdated chain-of-custodies were destroyed.	08 Jan 2007
27 Dec 2006		Distribution water HPC	Samples were not tested for Background or HPC.			

Regulatory Sample Results Summary

Microbiological Testing (170/03, Sch.10, Sch.11 or Sch.12):

	# of E-coli Samples Taken	E-Coli Results (min-max)	# of Total Coliform Samples Taken	Total Coliform Results (min-max)
Raw	52	1 – 215	52	17 – 27,000
Treated	52	0 - 0	52	0 - 0
Distribution	204	0 - 0	204	0 - 0

Microbiological Testing (170/03, Sch.10, Sch.11 or Sch.12) continued:

	# of Background Samples Taken	Background Results (min-max)	# of HPC Samples Taken	HPC Results (min-max)
Raw	25	0 - 200		
Treated	25	0 – 1	28	0 - 2
Distribution	96	0 - 1	63	0 - 21

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

Parameter	Number of Grab Samples	Range of Results (min #)-(max #)
Turbidity: Treated Water	8760	ND – 9.99* NTU
Turbidity: Filter 1	8760	ND – 9.99* NTU
Turbidity: Filter 2	8760	ND – 10.0* NTU
Turbidity: Filter 3	8760	ND – 10.0* NTU
Chlorine: Treated Water (free chlorine residual)	8760	0.9 -3.2mg/L
	365	1.14 – 2.68 mg/L
Chlorine: Distribution (free chlorine residual)	8760	0.2 – 2.36 mg/L
	204	0.14 – 2.12 mg/L
Fluoride	288**	0.08 – 0.74 mg/L

NOTE: 8760 denotes results from continuous monitors

ND = not detectable

* Turbidity spikes recorded by online instrumentation were a result of air bubbles and various maintenance and calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03

** Problems with the on-line fluoride analyzer are on-going. Fluoride feed was taken off-line January 16, 2006 because the Ministry of Environment inspector raised concerns about the analyzer during a facility inspection. Fluoride addition resumed on April 04, 2006. Staff members perform daily in-house analysis.

Summary of additional samples:

Date of legal instrument issued	Parameter	Month	Result	Unit of Measure	Compliance Limit
Certificate of Approval Number 1114-5S3HHE Issued: 13 Feb. 2004	Suspended Solids Backwash Effluent Residuals.	January	69*	mg/L	Not applicable
		February	89*	mg/L	Not applicable
		March	9	mg/L	Not applicable
		April	9	mg/L	Not applicable
		May	11	mg/L	Not applicable
		June	85	mg/L	Not applicable
		July	2	mg/L	Not applicable
		August	4	mg/L	Not applicable
		September	3	mg/L	Not applicable
		October	8	mg/L	Not applicable
		November	5	mg/L	Not applicable
		December	10	mg/L	Not applicable
				Annual Avg.	25.3

* Please note: the January and February residuals were taken as a composite sample of both the backwash effluent and the Actiflo effluent residual. The effluent samples were combined and then analyzed. In late February, the Ministry of Environment Inspector recommended these process stream be assessed separately. The Actiflo residuals are summarized below.

Date of legal instrument issued	Parameter	Month	Result	Unit of Measure	
MOE Recommendation February 2006	Suspended Solids Actiflo Residuals	January			
		February			
		March	40	mg/L	
		April	32	mg/L	
		May	54	mg/L	
		June	54	mg/L	
		July	8	mg/L	
		August	23	mg/L	
		September	4	mg/L	
		October	16	mg/L	
		November	29	mg/L	
		December	35	mg/L	
				Annual Avg.	29.5

Date of legal instrument issued	Parameter	Month	Result	Unit of Measure
Certificate of Approval Number 1114-5S3HHE Issued: 13 Feb. 2004	Raw Water: DOC (Dissolved Organic Carbon)	January	5.7	mg/L
		February	6.4	mg/L
		March	6.4	mg/L
		April	6.6	mg/L
		May	6.4	mg/L
		June	6.9	mg/L
		July	6.6	mg/L
		August	6.8	mg/L
		September	6.7	mg/L
		October	6.7	mg/L
		November	7.5	mg/L
		December	7.3	mg/L

Date of legal instrument issued	Parameter	Month	Result	Unit of Measure
Certificate of Approval Number 1114-5S3HHE Issued: 13 Feb. 2004	Raw Water Aluminum	January	0.04	mg/L
		February	0.24	mg/L
		March	0.04	mg/L
		April	0.35	mg/L
		May	0.05	mg/L
		June	0.07	mg/L
		July	0.07	mg/L
		August	0.1	mg/L
		September	0.13	mg/L
		October	0.28	mg/L
		November	0.04	mg/L
		December	0.07	mg/L

Summary of inorganic parameters tested or most recent sample result:

Parameter	Result Value	Unit of Measure	Date of Sample	Exceedance	Exceedence of ½ MAC
Antimony	<0.001	mg/L	2006/01/16	no	no
Arsenic	<0.001	mg/L	2006/01/16	no	no
Barium	0.03	mg/L	2006/01/16	no	no
Boron	0.01	mg/L	2006/01/16	no	no
Cadmium	<0.0001	mg/L	2006/01/16	no	no
Chromium	<0.001	mg/L	2006/01/16	no	no
Mercury	<0.0001	mg/L	2006/01/16	no	no
Selenium	<0.001	mg/L	2006/01/16	no	no
Uranium	<0.001	mg/L	2006/01/16	no	no
1 st Quarter Nitrite	<0.10	mg/L	2006/01/16	no	Not applicable
2 nd Quarter Nitrite	<0.10	mg/L	2006/04/03	no	Not applicable
3 rd Quarter Nitrite	<0.10	mg/L	2006/07/10	no	Not applicable
4 th Quarter Nitrite	<0.10	mg/L	2006/10/02	no	Not applicable
1 st Quarter Nitrate	0.33	mg/L	2006/01/16	no	Not applicable
2 nd Quarter Nitrate	0.51	mg/L	2006/04/03	no	Not applicable
3 rd Quarter Nitrate	0.1	mg/L	2006/07/10	no	Not applicable
4 th Quarter Nitrate	<0.10	mg/L	2006/10/02	no	Not applicable
Sodium	13.0	mg/L	2006/01/16	no	no

Parameter	Result Value	Unit of Measure	Date of Sample	Exceedance	Exceedence of ½ MAC
Distribution System:					
Lead (Pb)	<1.0	ug/L	2006/01/30	no	no
	<1.0	ug/L	2006/07/04	no	no
THM Annual Average	70.9	ug/L	2006	no	Not applicable

Summary of Organic parameters tested or most recent result

Parameter	Result	Unit of measure	Sample Date	Exceedence of MAC	Exceedence of ½ MAC
Alachlor	<0.5	ug/L	2006/01/16	no	MDL
Aldicarb	<9	ug/L	2006/01/16	no	no
Aldrin + Dieldrin	<0.012	ug/L	2006/01/16	no	no
Atrazine + N-Dealkylated metabolites	<0.2	ug/L	2006/01/16	no	no
Azinphos-methyl	<2	ug/L	2006/01/16	no	no
Bendiocarb	<2	ug/L	2006/01/16	no	no
Benzene	<0.5	ug/L	2006/01/16	no	no
Benzo<a>pyrene	<0.01	ug/L	2006/01/16	no	MDL
Bromoxynil	<0.5	ug/L	2006/01/16	no	no
Carbaryl	<5	ug/L	2006/01/16	no	no
Carbofuran	<5	ug/L	2006/01/16	no	no
Carbon Tetrachloride	<0.5	ug/L	2006/01/16	no	no
Chlordane (Total)	<0.018	ug/L	2006/01/16	no	no

Chlorpyrifos	<1	ug/L	2006/01/16	no	no
Cyanazine	<1	ug/L	2006/01/16	no	no
Diazinon	<1	ug/L	2006/01/16	no	no
Dicamba	<1	ug/L	2006/01/16	no	no
1,2-Dichlorobenzene	<0.4	ug/L	2006/01/16	no	no
1,4-Dichlorobenzene	<0.4	ug/L	2006/01/16	no	no
Dichlorodiphenyltrichloroethane (DDT) + metabolites	<0.024	ug/L	2006/01/16	no	no
1,2-Dichloroethane	<0.5	ug/L	2006/01/16	no	no
1,1-Dichloroethylene (vinylidene chloride)	<0.5	ug/L	2006/01/16	no	no
Dichloromethane	<4.0	ug/L	2006/01/16	no	no
2,4-Dichlorophenol	<0.5	ug/L	2006/01/16	no	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	<1	ug/L	2006/01/16	no	no
Diclofop-methyl	<0.9	ug/L	2006/01/16	no	no
Dimethoate	<2.5	ug/L	2006/01/16	no	no
Dinoseb	<1	ug/L	2006/01/16	no	no
Diquat	<7	ug/L	2006/01/16	no	no
Diuron	<10	ug/L	2006/01/16	no	no
Glyphosate	<10	ug/L	2006/01/16	no	no
Heptachlor + Heptachlor Epoxide	<0.012	ug/L	2006/01/16	no	no
Lindane	<0.006	ug/L	2006/01/16	no	no
Malathion	<5	ug/L	2006/01/16	no	no
Methoxychlor	<0.024	ug/L	2006/01/16	no	no
Metolachlor	<0.5	ug/L	2006/01/16	no	no
Metribuzin	<5	ug/L	2006/01/16	no	no
Monochlorobenzene	<0.2	ug/L	2006/01/16	no	no
Paraquat	<1	ug/L	2006/01/16	no	no
Parathion	<1	ug/L	2006/01/16	no	no
Pentachlorophenol	<0.5	ug/L	2006/01/16	no	no
Phorate	<0.5	ug/L	2006/01/16	no	no
Picloram	<5	ug/L	2006/01/16	no	no
Polychlorinated Biphenyls (PCB)	<0.1	ug/L	2006/01/16	no	no
Prometryne	<0.25	ug/L	2006/01/16	no	no
Simazine	<1	ug/L	2006/01/16	no	no
Temephos	<10	ug/L	2006/01/16	no	no
Terbufos	<0.4	ug/L	2006/01/16	no	no
Tetrachloroethylene	<0.3	ug/L	2006/01/16	no	no
2,3,4,6-Tetrachlorophenol	<0.5	ug/L	2006/01/16	no	no
Triallate	<1	ug/L	2006/01/16	no	no
Trichloroethylene	<0.3	ug/L	2006/01/16	no	no
2,4,6-Trichlorophenol	<0.5	ug/L	2006/01/16	no	no
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	<1	ug/L	2006/01/16	no	no
Trifluralin	<0.4	ug/L	2006/01/16	no	no
Vinyl Chloride	<0.2	ug/L	2006/01/16	no	no

MAC: Maximum Allowable Concentration.

MDL: Method Detection Limit. The method used for this parameter has a minimum detection limit that is higher than the ½ MAC.

Maintenance Summary

During 2006 a total of 1,232 work orders were completed at the Renfrew WTF. A breakdown of this total is listed below;

Corrective	53
Preventative	367
Weekly PM	731
Operational	62
Capital	19

Highlights of the capital expenditures during the year are summarized below.

A high number of the expenditures this year were to address outstanding deficiencies remaining from the upgrade. The majority of the costs were recovered from the contractor including the replacement of the fluoride analyzer, the treated water turbidity analyzer, 3 filter turbidity analyzers and the pre-chlorination feed line. Other expenditures include modifications to the Actiflo residuals tank and the residuals pump piping, installation of a site gauge and calibration tube on the coagulant tank, backflow prevention device repairs and calibration, additional supports to the clarified water line, and piping to improve drainage in the basement. Several process analyzers utilized from the old plant failed and were replaced; they included the chlorine gas leak monitor and the two Actiflo turbidity analyzers.

Emergency repairs were completed on the chlorinator switch-over module and the generator transfer switch.

Upgrades to the SCADA/PLC were completed to ensure storage of historical process data which is required by the MOE.

A spare parts inventory is being accumulated with the purchase of essential process equipment including a polymer mixing unit, repair kits for the backflow prevention devices, replacement bulbs for the turbidity analyzers, repair kits for the chlorinators and other miscellaneous parts.