

Drinking-Water Systems Regulation O. Reg. 170/03Drinking-Water System Number: **210001219**Drinking Water System Name: **Casselman Water Treatment Plant**Drinking-Water System Owner: **The Corporation of the Village of Casselman**Drinking-Water System Category: **Large Municipal Residential**Period being reported: **January 1 to December 31, 2010**Large Municipal Residential:

Does your Drinking-Water System serve more than 10,000 people? No

Is your Annual Report available to the public at no charge on a website on the Internet? Yes

Location where Summary Report required under O. Reg. 170/3 Schedule 22 will be available for inspection:

Municipal Office

The Corporation of the Village of Casselman

751 St-Jean Street, PO Box 710

Casselman, Ontario, K0A 1M0

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

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? N/A

Indicate how you notified system users that your Annual Report is available, and is free of charge:

- Downloadable from the website
- Public access via Municipal Office

Describe your Drinking-Water System:

Serving the residents of the Village of Casselman, the surface water treatment plant is capable of supplying water at a rate of 3,182 m³/day. This facility operates under MOE Certificate of Approval No. 2398-6QLNTQ and Permit to Take Water No. 88-P-4041.

The treatment process consists of the following components: one (1) raw water intake; one (1) low lift wet well; three (3) vertical turbine low lift pumps; one (1) elevated storage tank; two (2) ballasted flocculation water treatment units (Actiflo® process units) complete with coagulation, injection, maturation and settling tanks; two (2) mixed media filters and filter backwash system; one (1) filtered water holding tank with three (3) variable speed pumps; two (2) clearwells (415 m³ and 440 m³); three (3) vertical turbine high lift pumps; two (2) ultraviolet (UV) disinfection units; and chemical feed systems consisting of chemical pumps, storage tanks, piping and associated appurtenances to dose aluminum sulphate, polyelectrolyte, potassium permanganate, sodium hydroxide and chlorine gas.

February 28, 2011

List all water treatment chemicals used over this reporting period:

Aluminum sulphate, polyaluminum chloride, polyelectrolyte, potassium permanganate, sodium hydroxide, chlorine gas

Were any significant expenses incurred to install/repair/replace requirement equipment? Yes

2010 Log Book Summary:

- 6-Jan Calibrated backflow preventers
- 19-Jan Repaired raw water pump
- 29-Jan Serviced mixers on both Actiflo®
- 2-Feb Serviced poly and Alum pumps
- 9-Feb Annual calibration of instrumentation
- 16-Feb Annual fire extinguisher inspection
- 19-Feb Installed heater in valve room at Water Tower
- 23-Feb Maintained and calibrated chlorinators
- 24-Mar Changed belt on circulation pump for Actiflo® #1
- 25-Mar Changed UPS for ACP01
- 7-Apr Started flushing hydrants
- 12-Apr Calibrated turbidity meter
- 20-Apr Changed solenoid on Alum feed line at injection point
- 30-Apr Installed new UPS for ACP01
- 10-May Worked on raw water sampling pump
- 19-May Cleaned raw water well, backwash tank and supernatant tank
- 1-Jun Voltage too high due to change made by Hydro One
- 2-Jun Fire hydrant maintenance
- 10-Jun Changed pre- and post-chlorine lines
- 18-Jun Changed belt on circulation pump for Actiflo® #2
- 30-Jun Switched from SternPAC to PAS-8
- 2-Jul Removed and cleaned solenoid on coagulant feed line
- 5-Jul Started flushing hydrants
- 8-Jul Started painting hydrants
- 31-Jul Changed lamps 1, 2, 5, 6, 7, 11, 12 in UV Reactor #2
- 1-Aug Changed lamp 8 in UV Reactor #2; Shutdown UV (problem with CPU) - notified MOE
- 6-Aug Serviced UV system - Reactor #2 back online
- 16-Aug Installed and calibrated new turbidity meter
- 18-Aug Repaired lateral and changed saddle on watermain at corner of Laval St. and Dollard St.
- 23-Aug Maintained all pumps

2010 Log Book Summary (Continued):

- 1-Sep MOE annual inspection
- 13-Sep Started flushing hydrants
- 12-Oct UV Reactor #1 back online - notified MOE
- 20-Oct Calibrated gas detector
- 21-Oct Serviced bar screen at SP#1
- 25-Oct Started flushing hydrants
- 26-Oct Winterized fire hydrants
- 8-Nov Repaired fire hydrants; Started installation of new forcemain to Industrial Park
- 9-Nov Switched to SternPAC
- 24-Nov Changed all belts on Actiflo® #2 circulation pump
- 29-Nov Tapped new main (south of Hwy 417) to existing system on Industrial Street
- 15-Dec Maintained all pumps
- 16-Dec Serviced sludge pumps

Refer to attached Tables for additional required information:

Table 1: Summary of 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

Table 2: Microbiological Testing completed under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting period

Table 3: Operational Testing completed under Schedule 7, 8 or 9 of Regulation 170/03 during this reporting period

Table 4: Summary of Additional Sampling carried out in accordance with the requirements of an approval, order or other legal instrument

Table 5: Summary of Inorganic Parameters tested during this reporting period, or the most recent sample results

Table 6: Summary of Organic Parameters tested during this reporting period, or the most recent sample results

Table 7: List of Any Inorganic or Organic Parameters that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

Table 8: 2010 Water Taking Data from the South Nation River under Permit #88-P-4041

Table 9: Lead Sampling Results from the water distribution system

Table 10: Total Suspended Solids Results for process water

Table 1: Summary of 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	Date of Corrective Action
None Reported	-	-	-	-	-

Table 2: Microbiological Testing completed under Schedule 10, 11 or 12 of Regulation 170/03 during this reporting period

	No. of Samples	Range of E. Coli or Fecal Results (Min - Max) in cts/100 mL	Range of Total Coliform Results (Min - Max) in cts/100 mL	No. of HPC* Samples	Range of HPC Results (Min - Max) in cts/mL
Raw	57	0 - 480	6 - 110,000	-	-
Treated	57	0	0	57	<2 - 2
Distribution	160	0	0	54	<2 - 24

* Note: HPC = Heterotrophic Plate Count

Table 3: Operational Testing completed under Schedule 7, 8 or 9 of Regulation 170/03 during this reporting period

Month	Treated Water Turbidity Post-Cleanwell NTU		Post-Chlorination Dosage mg/L		UV Reactor #1 mJ/cm ²		UV Reactor #2 mJ/cm ²	
	Min	Max	Avg	Max	Avg	Max	Avg	Max
Jan	0.05	5	4.29	-	0	0	85.51	250
Feb	0.06	1.33	4.45	-	0	0	134.26	250
Mar	0.06	5	4.6	-	0	0	178.77	250
Apr	0	5	5.28	-	0	0	48.44	250
May	0.09	5	5.49	-	0	0	15.82	250
Jun	0.06	5	6.25	-	0	0	22.15	250
Jul	0	2.19	6.53	-	0	0	20.16	250
Aug	0	5	5.74	-	0	0	93.71	250
Sep	0	5	5.17	-	0	0	111.27	250
Oct	0	5	4.85	-	59.68	250	91.69	250
Nov	0	5	4.76	-	94.44	250	61.13	250
Dec	0	5	4.69	-	73.43	250	57.63	250
Min	0	1.33	4.29	-	0	0	15.82	250
Max	0.09	5	6.53	-	94.44	250	178.77	250

Table 4: Summary of Additional Sampling carried out in accordance with the requirements of an approval, order or other legal instrument

Date of legal instrument issued: Certificate of Approval, dated April 24, 2003

Date Collected	Parameter	Result		Unit of Measure
		Raw	Treated	
5-Jan	Alkalinity	260	236	mg/L
5-Jan	Aluminum	0.10	0.03	mg/L
5-Jan	Total Organic Carbon	7.2	4.0	mg/L
5-Jan	Dissolved Organic Carbon	7.2	3.9	mg/L
9-Feb	Alkalinity	267	248	mg/L
9-Feb	Aluminum	0.41	0.01	mg/L
9-Feb	Total Organic Carbon	6.9	3.8	mg/L
9-Feb	Dissolved Organic Carbon	6.9	3.8	mg/L
2-Mar	Alkalinity	195	199	mg/L
2-Mar	Aluminum	0.67	0.02	mg/L
2-Mar	Total Organic Carbon	7.2	3.5	mg/L
2-Mar	Dissolved Organic Carbon	7.0	3.5	mg/L
4-Apr	Alkalinity	219	196	mg/L
4-Apr	Aluminum	0.65	0.05	mg/L
4-Apr	Total Organic Carbon	7.2	4.0	mg/L
4-Apr	Dissolved Organic Carbon	7.2	4.0	mg/L
11-May	Alkalinity	230	198	mg/L
11-May	Aluminum	0.50	0.04	mg/L
11-May	Total Organic Carbon	9.9	4.3	mg/L
11-May	Dissolved Organic Carbon	10.1	4.5	mg/L
1-Jun	Alkalinity	237	216	mg/L
1-Jun	Aluminum	0.11	0.02	mg/L
1-Jun	Total Organic Carbon	7.9	4.0	mg/L
1-Jun	Dissolved Organic Carbon	7.9	4.0	mg/L
13-Jul	Alkalinity	237	180	mg/L
13-Jul	Aluminum	0.13	0.05	mg/L
13-Jul	Total Organic Carbon	9.5	4.4	mg/L
13-Jul	Dissolved Organic Carbon	9.5	4.4	mg/L
3-Aug	Alkalinity	228	167	mg/L
3-Aug	Aluminum	0.61	0.07	mg/L
3-Aug	Total Organic Carbon	11.3	5.3	mg/L
3-Aug	Dissolved Organic Carbon	11.3	5.3	mg/L
7-Sep	Alkalinity	175	120	mg/L
7-Sep	Aluminum	0.60	0.04	mg/L
7-Sep	Total Organic Carbon	11.4	4.7	mg/L
7-Sep	Dissolved Organic Carbon	11.3	4.7	mg/L
5-Oct	Alkalinity	61	38	mg/L
5-Oct	Aluminum	1.12	0.05	mg/L
5-Oct	Total Organic Carbon	11.1	4.4	mg/L
5-Oct	Dissolved Organic Carbon	10.9	4.3	mg/L
15-Nov	Alkalinity	258	247	mg/L
15-Nov	Aluminum	0.54	0.07	mg/L
15-Nov	Total Organic Carbon	8.5	4.8	mg/L
15-Nov	Dissolved Organic Carbon	8.4	4.7	mg/L
7-Dec	Alkalinity	228	199	mg/L
7-Dec	Aluminum	0.70	0.04	mg/L
7-Dec	Total Organic Carbon	8.9	4.5	mg/L
7-Dec	Dissolved Organic Carbon	8.5	4.4	mg/L

Table 5: Summary of Inorganic Parameters tested during this reporting period or the most recent sampling results

Parameter	Date Collected	Result	Unit of Measure	Exceedance
Antimony	6-Apr	<0.0001	mg/L	No
Arsenic	6-Apr	0.0004	mg/L	No
Barium	6-Apr	0.048	mg/L	No
Boron	6-Apr	0.027	mg/L	No
Cadmium	6-Apr	<0.00002	mg/L	No
Chromium	6-Apr	<0.002	mg/L	No
Fluoride	6-Apr	0.2	mg/L	No
Lead (dist)	-	-	mg/L	-
Mercury	6-Apr	<0.00002	mg/L	No
Selenium	6-Apr	0.001	mg/L	No
Sodium	6-Apr	23.3	mg/L	Yes
Uranium	6-Apr	0.0004	mg/L	No
Nitrite	5-Jan	<0.1	mg/L	No
Nitrite	6-Apr	<0.1	mg/L	No
Nitrite	27-Jul	<0.1	mg/L	No
Nitrite	5-Oct	<0.1	mg/L	No
Nitrate	5-Jan	3.1	mg/L	No
Nitrate	6-Apr	2.6	mg/L	No
Nitrate	28-Jul	1.6	mg/L	No
Nitrate	5-Oct	2.5	mg/L	No

Table 6: Summary of Organic Parameters tested during this reporting period or the most recent sampling results

Parameter	Date Collected	Result	Unit of Measure	Exceedance
Alachlor	6-Apr	<0.3	ug/L	No
Aldicarb	6-Apr	<3	ug/L	No
Aldrin + Dieldrin	6-Apr	<0.02	ug/L	No
Atrazine + N-dealkylated metabolites	6-Apr	<0.5	ug/L	No
Azinphos-methyl	6-Apr	<1	ug/L	No
Bendiocarb	6-Apr	<3	ug/L	No
Benzene	6-Apr	<0.5	ug/L	No
Benzo(a)pyrene	6-Apr	<0.005	ug/L	No
Bromodichloromethane	6-Apr	4.9	ug/L	No
Dibromochloromethane	6-Apr	<0.1	ug/L	No
Bromoform	6-Apr	<0.1	ug/L	No
Bromoxynil	6-Apr	<0.3	ug/L	No
Bromoxyrene	-	-	ug/L	-
Carbaryl	6-Apr	<3	ug/L	No
Carbofuran	6-Apr	<1	ug/L	No
Carbon Tetrachloride	6-Apr	<0.2	ug/L	No
Chlordane (total)	6-Apr	<0.04	ug/L	No
Chloroform	6-Apr	31.2	ug/L	No
Chlorpyrifos	6-Apr	<0.5	ug/L	No
Cyanazine	6-Apr	<0.5	ug/L	No
Diazinon	6-Apr	<1	ug/L	No
Dicamba	6-Apr	<5	ug/L	No
1,2-Dichlorobenzene	6-Apr	<0.1	ug/L	No
1,4-Dichlorobenzene	6-Apr	<0.2	ug/L	No
Dichlorodiphenyltrichloroethane (DDT) + metabolites	6-Apr	<0.1	ug/L	No
1,2-Dichloroethane	6-Apr	<0.1	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)			ug/L	No
Dichloromethane	6-Apr	<0.3	ug/L	No
2,4-Dichlorophenol	6-Apr	<0.1	ug/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	6-Apr	<5	ug/L	No
Diclofop-methyl	6-Apr	<0.5	ug/L	No
Dimethoate	6-Apr	<1	ug/L	No

Dinoseb	6-Apr	<0.5	ug/L	No
Diquat	6-Apr	<5	ug/L	No
Diuron	6-Apr	<5	ug/L	No
Glyphosate	6-Apr	<25	ug/L	No
Heptachlor + Heptachlor Epoxide	6-Apr	<0.1	ug/L	No
Lindane (total)	6-Apr	<0.1	ug/L	No
Malathion	6-Apr	<5	ug/L	No
Methoxychlor	6-Apr	<0.1	ug/L	No
Metolachlor	6-Apr	<3	ug/L	No
Metribuzin	6-Apr	<3	ug/L	No
Monochlorobenzene	6-Apr	<0.2	ug/L	No
Paraquat	6-Apr	<1	ug/L	No
Parathion	6-Apr	<3	ug/L	No
Pentachlorophenol	6-Apr	<0.1	ug/L	No
Phorate	6-Apr	<0.3	ug/L	No
Picloram	6-Apr	<5	ug/L	No
Polychlorinated Biphenyls (PCB)	6-Apr	<0.05	ug/L	No
Promethyne	6-Apr	<0.1	ug/L	No
Simazine	6-Apr	<0.5	ug/L	No
Total Trihalomethanes	6-Apr	36.1	ug/L	No
THM	<i>Refer to Summary Table Below</i>			
Temephos	6-Apr	<10	ug/L	No
Terbufos	6-Apr	<0.3	ug/L	No
Tetrachloroethylene	6-Apr	<0.2	ug/L	No
2,3,4,6-Tetrachlorophenol	6-Apr	<0.1	ug/L	No
Triallate	6-Apr	<10	ug/L	No
Trichloroethylene	6-Apr	<0.1	ug/L	No
2,4,6-Trichlorophenol	6-Apr	<0.1	ug/L	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	6-Apr	<10	ug/L	No
Trifluralin	6-Apr	<0.5	ug/L	No
Vinyl Chloride	6-Apr	<0.2	ug/L	No

THM Parameter	Date Collected	Sample Location	Result	Unit of Measure
Chloroform	5-Jan	812 Principale	72.7	ug/L
Chloroform	6-Apr	812 Principale	34.4	ug/L
Chloroform	27-Jul	812 Principale	78.2	ug/L
Chloroform	5-Oct	812 Principale	112	ug/L
Bromodichloromethane	5-Jan	812 Principale	16.9	ug/L
Bromodichloromethane	6-Apr	812 Principale	5.2	ug/L
Bromodichloromethane	27-Jul	812 Principale	12.6	ug/L
Bromodichloromethane	5-Oct	812 Principale	13.2	ug/L
Dibromochloromethane	5-Jan	812 Principale	2.9	ug/L
Dibromochloromethane	6-Apr	812 Principale	<0.1	ug/L
Dibromochloromethane	27-Jul	812 Principale	1.6	ug/L
Dibromochloromethane	5-Oct	812 Principale	1.8	ug/L
Bromoform	5-Jan	812 Principale	<0.1	ug/L
Bromoform	6-Apr	812 Principale	<0.1	ug/L
Bromoform	27-Jul	812 Principale	<0.1	ug/L
Bromoform	5-Oct	812 Principale	<0.1	ug/L
Total Trihalomethanes	5-Jan	812 Principale	92.5	ug/L
Total Trihalomethanes	6-Apr	812 Principale	39.6	ug/L
Total Trihalomethanes	27-Jul	812 Principale	92.4	ug/L
Total Trihalomethanes	5-Oct	812 Principale	127	ug/L

Table 7: List of Any Inorganic or Organic Parameters that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards

Parameter	Date Collected	Result	Standard	Unit of Measure
Sodium	6-Apr	23.3	20	mg/L

Table 8: 2010 Water Taking Data from the South Nation River under Permit #88-P-4041

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1,010	1,015	1,007	1,635	1,311	1,104	1,430	1,352	1,262	1,231	826	797
2	1,189	1,296	1,328	1,130	1,391	1,483	1,569	1,428	1,086	1,114	1,009	1,171
3	1,380	994	1,011	1,477	1,399	911	1,462	1,409	1,256	1,072	862	851
4	1,060	874	1,005	1,031	1,185	1,645	1,396	1,369	879	1,225	929	1,284
5	1,035	1,454	1,302	1,380	1,177	1,208	1,882	1,431	874	911	1,061	1,019
6	1,399	1,167	1,274	1,676	1,414	1,036	2,314	1,509	1,187	844	929	1,101
7	1,121	1,190	1,329	2,041	1,172	1,498	1,830	1,090	1,191	1,124	1,097	601
8	1,207	904	1,015	1,383	1,439	971	1,445	1,384	920	964	818	1,956
9	1,187	1,186	1,247	1,301	1,167	1,639	1,416	1,579	859	964	1,116	874
10	1,222	1,703	981	1,142	1,154	1,148	1,325	1,332	1,182	862	828	1,128
11	1,048	1,110	939	1,249	1,394	1,367	1,581	1,306	923	1,267	1,181	953
12	1,263	1,208	1,299	1,186	1,269	1,152	1,500	1,569	1,066	1,004	865	905
13	1,026	1,301	1,173	1,228	1,522	1,629	1,406	1,287	1,602	1,121	1,005	981
14	939	988	1,082	1,012	1,243	1,151	1,407	1,393	1,623	816	1,205	1,119
15	1,448	1,170	938	1,523	1,683	1,419	1,475	1,197	1,245	1,081	677	899
16	1,266	1,238	1,261	1,069	1,701	1,419	1,403	1,539	851	963	1,202	1,131
17	1,229	946	1,006	1,299	1,572	1,429	1,596	1,263	1,155	1,071	828	896
18	1,081	952	908	1,307	1,261	1,364	1,370	1,228	1,040	869	1,309	1,296
19	1,380	1,370	1,331	1,406	1,448	1,245	1,959	1,466	1,074	1,072	833	962
20	1,043	1,185	1,058	1,199	1,599	1,532	1,343	826	972	762	899	1,054
21	1,023	1,178	1,189	1,123	1,619	1,368	1,546	964	1,158	942	1,252	857
22	1,370	1,048	874	1,487	1,238	1,517	1,173	1,051	971	1,224	597	1,171
23	1,122	1,339	1,254	1,059	1,776	1,165	1,410	1,266	1,090	974	1,322	920
24	1,199	970	1,051	1,733	1,685	1,684	1,209	1,081	1,013	1,001	692	1,316
25	1,078	872	1,000	1,308	1,687	1,398	1,489	999	878	1,588	1,191	736
26	1,163	1,320	1,460	1,158	1,704	1,069	1,624	1,194	1,030	1,002	835	1,157
27	960	1,178	1,127	1,226	1,553	1,703	2,025	917	929	1,102	1,030	1,093
28	1,190	1,108	1,190	1,269	1,613	1,062	1,548	1,030	1,139	878	1,338	845
29	1,268	-	1,116	914	1,472	1,637	1,344	1,200	1,229	1,137	844	1,116
30	1,147	-	1,039	1,705	1,517	1,464	1,564	1,454	905	1,021	1,314	926
31	1,213	-	1,016	-	1,566	-	1,306	1,203	-	1,013	-	1,155
Min	939	872	874	914	1,154	911	1,173	826	851	762	597	601
Max	1,448	1,703	1,460	2,041	1,776	1,703	2,314	1,579	1,623	1,588	1,338	1,956
Avg	1,170	1,152	1,123	1,322	1,449	1,347	1,527	1,268	1,086	1,039	996	1,041

Table 9: Lead Sampling Results from the water distribution system

Sample Location	Date Collected	Lead (mg/L)	Alkalinity (mg/L)
<i>None To Report</i>			

Table 10: Total Suspended Solids Results for process water

Parameter	Date Collected	Supernatant Actiflo®	Backwash Tank	Unit of Measure
Total Suspended Solids	5-Jan	<3	<3	mg/L
	9-Feb	<3	<3	mg/L
	2-Mar	<3	<3	mg/L
	6-Apr	3	4	mg/L
	11-May	<3	<3	mg/L
	1-Jun	<3	9	mg/L
	13-Jul	<3	<3	mg/L
	3-Aug	3	<3	mg/L
	8-Sep	3	<3	mg/L
	5-Oct	3	3	mg/L
	15-Nov	3	3	mg/L
	7-Dec	<3	<3	mg/L