

Collingwood Public Utilities



Raymond A. Barker Ultrafiltration Plant And Collingwood Distribution System 2007 Annual Compliance Report

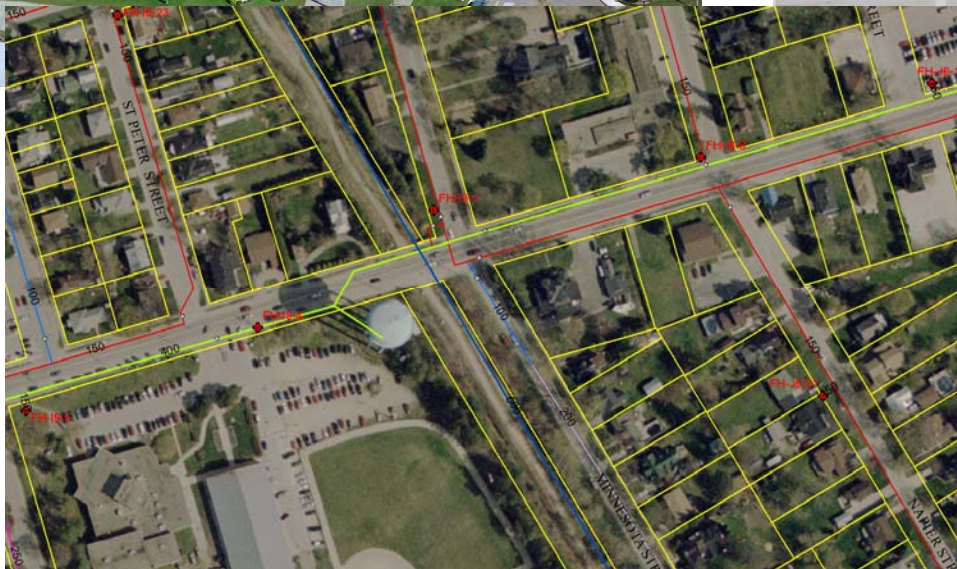


Table of Contents

Section	Contents	Page Number
1	Drinking Water System General Information	3
1.1	Drinking Water System Description	4
2	Compliance Statements	5
3	Results of External Performance Audits	6
3.1	Ministry of Environment Inspection	6
3.2	ISO 14001	6
4	Treatment Chemicals Used	7
5	Required Reports to the Ministry of the Environment	8
6	Summary of Results of the Required Tests	9
7	Items of Significant Investment in the Water System in 2007	11
APPENDICIES		
Appendix 1 – Summary of Plant Flows		

Definitions

Collingwood Public Utilities	CPU
Ministry of the Environment	MOE
Flow	(m ³ /d) cubic metres per day
Weight	(kg) kilograms
Chlorine Residuals	(mg/l) milligrams/litre
Chlorine dosages	(mg/l) milligrams/litre
Temperature	(°C) degree Celsius
Turbidity	(NTU) nephelometric turbidity unit
Conditions	Visual checks
Bacteriological Sample	Sample count / Safe or adverse
Organic Sample	(mg/l) milligrams/litre (unless expressed otherwise)
Pesticides & PCB	(mg/l) milligrams/litre (unless expressed otherwise)
Inorganic	(mg/l) milligrams/litre (unless expressed otherwise)
Physical	(mg/l) milligrams/litre (unless expressed otherwise)
Maximum Allowable Concentration	MAC
American Water Works Association.	(AWWA)

Section 1 Drinking Water System General Information

This report has been prepared in accordance with the reporting requirements of the Safe Drinking Water Act 2002 O. Reg. 170/03, s 11 (1), (6), (7), (8), (9.1) & (10)

Collingwood Public Utilities have presented this report to Council and placed a notice in local newspapers notifying the public and any interested authority that the Raymond A. Barker Ultrafiltration Plant and Collingwood Distribution System 2007 Annual Compliance Report can be viewed on the websites shown below, or viewed in the Public Information Books at the locations listed below or on request a copy will be made available free of charge.

The following are locations at which hard copies can be viewed or a request placed for a hard copy free of charge:

Location	Address
Raymond A. Barker Ultra-filtration Plant	2 Raglan St.
Collingwood Public Utilities	43 Stewart Road
Collingwood Town Hall (Clerks Office)	97 Hurontario St.

2007 Drinking Water System Annual Report can also be viewed and down loaded in PDF format from the following websites:

www.collus.com & www.town.collingwood.on.ca/

Certificate of Approval (C of A) No.	5164-6YKQY8 issued March 27, 2007
Permit to Take Water No.	91-P-3037
Maximum Rated Capacity	31,140 m ³ /d
Drinking Water System Number	220001165
Drinking Water System Name	Raymond A. Barker Ultrafiltration Plant and Collingwood Distribution System
Drinking Water System Owner	Collingwood Public Utilities
Drinking Water System Category	Large Municipal Residential
Water Treatment Subsystem Class	Class 2 Certificate No. 277 issued November 15, 2005
Water Distribution Subsystem Class	Class 2 Certificate No. 3009 issued November 15, 2005
Period being Reported	January 1, 2007 to December 31, 2007

Other Drinking Water Systems that receive drinking water from Raymond A. Barker Ultrafiltration Plant

Drinking Water System Owner	Town Of New Tecumseth
Drinking Water System Number	220001174
Drinking Water System Owner	Town Of The Blue Mountains
Drinking Water System Number	220001762
Drinking Water System Owner	Baxter Distribution System (Township of Essa)
Drinking Water System Number	260086866

1.1 Description of the Drinking Water System

The Raymond A Barker Ultrafiltration Plant (RAB) is a direct filtration membrane surface water treatment plant. The RAB supplies safe drinking water to the Collingwood distribution system, which is comprised of approximately 145.5km of various diameter water mains, ranging from 100mm to 600mm diameter, 24.1km of private water mains, one (1) 2250m³ multi legged elevated storage tank, one (1) 6800m³ in-ground reservoir and booster pumping station (A.R. (Ted) Carmichael West End Reservoir), and one (1) in line booster station (Osler Bluff Road). Currently RAB also supplies safe drinking water to three (3) other municipalities, the Town of the Blue Mountain through a connection to Collingwood's distribution system at the boundary of the two municipalities and the Village of Baxter & Town of New Tecumseth through the 58km Regional Pipeline.

Surface water is taken from Nottawasaga Bay through a submerged inlet structure, approximately 765m off shore in a depth of approximately 8m (26ft). Raw water flows by gravity through a 1067mm diameter intake pipe and surge chamber into the raw water well. Chlorine is applied to the raw water at the surge chamber, to assist in the disinfection process. Within the raw water well a submersible mixer is utilised to increase the hydraulic grade line of the raw water. Pre-chlorinated raw water then flows by gravity to the membrane distribution channel in the main building.

Pre-chlorinated raw water is then distributed to six (6) membrane tanks or treatment trains. Five (5) trains are fed by gravity, these house the 500 series ZeeWeed ultra-filtration membrane modules and one (1) train is fed with a low lift vertical turbine pump and a 5 micron strainer with automatic cleaner. This tank houses the 1000 series ZeeWeed ultra-filtration membrane (Mobile Package Plant).

Each treatment train of the Zenon membrane filtration system, both 500 and 1000 series, in general consists of membrane modules, one (1) permeate/backpulse pump, one (1) backpulse tank and one (1) air blower. The membranes have a pore size 0.035 micron and as such remove all particulate matter greater than this. The permeate pump creates a slight vacuum which sucks clean (permeate) water through the membrane leaving any particulate matter greater than 0.035 micron in the process tank.

The permeate water is then disinfected with the addition of chlorine. The chlorinated permeate water then flows into the two (2) 413 m³ chlorine contact chambers (total volume 826 m³) prior to flowing by gravity into the Clear well. The finished water is then pumped into two (2) separate systems, the Collingwood Distribution System and the Regional Pipeline, each with its own dedicated set of high lift pumps.

The fouling of the membranes is controlled by a regular cleaning cycle that consists of reversing the flow of clean water stored in the backpulse tank back through the membranes under positive pressure. This process concentrates the raw water which in turn is rejected to waste. It should be noted that this reject water can be discharged to the sewer or returned to the lake but in 2007 it was wasted to the non-potable industrial process supply. Air is also used to prevent fouling of the membranes by injecting it at the bottom of the tank thus scouring the membranes with air bubbles as they rise to the surface. This air scouring process also assists in keeping the concentrated solids in suspension, prior to reject.

RAB is continually monitored 24 hours a day 365 days a year. The treated water parameters monitored are Turbidity, Flow, Pressure, Chlorine Residual, Temperature and pH. This is achieved through the SCADA (Supervisory Control And Data Acquisition) system.

Section 2 Compliance Statements

- Collingwood Public Utilities ensures compliance with the ODWS by establishing a sampling schedule in accordance with O. Reg. 170/03. All sampling is performed in accordance with the Ministry of the Environment’s “Guide to Collection and Submission of Samples for Laboratory Analysis”. Compliance is also ensured by having all laboratory samples analyzed by a laboratory accredited by the Canadian Association for Environmental Analytical Laboratories (C.A.E.A.L.) of Canada.
- Collingwood Public Utilities ensures compliance is met with the requirements of the ODWS by operating the water treatment facility so that water intended for human consumption does not exceed the standards described in the ODWS. These standards are defined as Maximum Acceptable Concentration (MAC) standards, and Interim Maximum Acceptable Concentration (IMAC) standards. In the event that ODWS standards are exceeded, CPU will follow the requirements of O. Reg. 170/03 – in notifying the Medical Officer of Health, the MOE and the Town, perform corrective actions as required, and if necessary, post a warning notice in a prominent location.
- Collingwood Public Utilities monitors the chemical parameters (non-health related) that may impair the taste, odour or colour of water or which may interfere with good water quality control practices which are reported as Aesthetic Objectives (AO).
- Collingwood Public Utilities ensures that the water leaving the treatment plant and entering the distribution system is disinfected to meet those requirements described in Ministry of the Environment (MOE) Procedure for Disinfecting Water in Ontario as amended from time to time.
- Collingwood Public Utilities ensures that all chemicals used in the treatment process and all materials contacting the water meet both the American Water Works Association (AWWA) quality criteria as set out in AWWA standards and the American National Standard Institute (ANSI) safety criteria as set out in ANSI standard NSF/60 or NSF/61
- Collingwood Public Utilities ensures that the Overall Responsible Operator is an operator who holds a valid license that is applicable to RAB and that this is the same or higher class than the class determined for the water treatment plant in accordance O Reg. 128/04 as amended from time to time.
- Collingwood Public Utilities exercises due diligence in ensuring that at all times, the works and related equipment and appurtenances used to achieve compliance are properly operated and maintained.

Section 3 Results of External Performance Audits

The following section discusses performance audits conducted by external agencies.

3.1 Ministry of Environment Inspection

The MOE carried out the annual inspection on September 19, 2007. The purpose of the inspection is to confirm compliance with MOE legislation and authorising documents such as Orders and Certificates of Approval (C of A), as well as evaluating conformance with Ministry Drinking Water Policies and Guidelines during the inspection.

The inspection type was based on the MOE's format for an "announced" full system review. Every three years all drinking water systems in the province must have a full system inspection.

In brief the inspection was once again successful, no Orders were issued and it was noted that CPU carry out more testing than is required by Regulation and that CPU's procedures and maintenance practices exceed the norm.

There were two (2) recommendations made by the inspector with respect to best practices. One involved documentation improvements for the notification of other water systems of an unusual operational occurrence within Collingwood's water system. The second noted that Water losses had improved to 13.45% at the time of the inspection from 19.5% and 18.3% for 2005 and 2006 respectively and that CPU continue all feasible efforts to reduce water losses in distribution to less than 10%. The first recommendation was implemented immediately and the inspector noted that no further action was required on this matter. The second recommendation is a continual improvement item that CPU is monitoring and endeavouring to achieve.

There was also one (1) issue of non-compliance with regulatory requirements which has been subsequently resolved. This was as follows:

1. CPU were sampling for trihalomethanes, nitrate and nitrite, within the system on a quarterly basis. Unfortunately because CPU change sampling months on a yearly basis the prescribed frequency stated in O. Reg. 170/03 was exceeded. CPU has subsequently submitted a sampling schedule for the next five years to the MOE which was reviewed and accepted by the MOE inspector and as such the issue has been resolved and the non-conformity closed.

.3.2 ISO 14001

The 3 year ISO 14001 re-registration audit was conducted by a representative of NSF International Strategic Registrations, Ltd. on October, 25th 2007. The primary purpose of the audit is to document CPU's continuing conformity to those element requirements addressed during the audit, and to verify that CPU's Environmental Management System (EMS) is being maintained. The overall objectives being to:

- Verify action taken on any non-conformances identified during the previous audit.
- Assess the EMS to selected requirements and elements of the Standard for continued conformance.

- Carefully follow the audit trail for procedures and processes related to the Standard elements schedule to be audited.
- Document evidence of continual improvement of the EMS as well as positive practices.

In brief the audit was successful the Auditor noted that all outstanding minor non-conformities had been closed and that corrective action plans had been accepted and implemented.

At the conclusion of the re-registration audit the auditor noted one (1) new minor non-conformity and one (1) new opportunity for improvement. The minor non-conformity has subsequently been closed and the corrective action plan accepted and implemented.

Section 4 Treatment Chemicals Used

The following section discusses the chemicals used in the treatment process.

The only chemical used for the treatment of water at RAB is **Chlorine Gas**. 12,031 kg were used in 2007.

The following table shows total chlorine used per month together with free chlorine residual in the raw water used for pre-treatment, average post filtration chlorine dosage and average free chlorine residual after contact time. In addition average raw water temperature, average raw water turbidity and average finished water turbidity are shown

Month	Total Chlorine Used (kg)	Ave.(Free) Pre-treatment Residual	Ave. Post Chlorine Dose (mg/l)	Ave. Free Chlorine Residual (mg/l)	Ave. Water Temp. °C	Ave. Raw Water Turbidity	Ave. Finished Water Turbidity
January	783	0.18	1.47	1.13	2.9	0.9	0.04
February	797	0.14	1.61	1.16	0.4	2.0	0.04
March	855	0.16	1.57	1.21	0.9	0.8	0.04
April	797	0.16	1.60	1.27	3.0	1.1	0.04
May	968	0.16	1.68	1.25	6.9	0.6	0.04
June	1162	0.14	1.68	1.18	11.0	0.7	0.04
July	1287	0.15	1.87	1.27	17.4	1.0	0.04
August	1271	0.16	1.79	1.27	19.9	1.1	0.04
September	1097	0.17	1.80	1.36	17.2	0.8	0.04
October	1128	0.14	1.77	1.32	14.5	1.2	0.04
November	1095	0.16	1.75	1.33	8.1	2.0	0.04
December	792	0.17	1.49	1.25	2.4	2.7	0.04
Total/Ave.	12,031	0.16	1.67	1.25	8.72	1.2	0.04
Max	1,287	0.18	1.87	1.36	19.93	2.7	0.04
Min	783	0.14	1.47	1.13	0.42	0.58	0.04

The following table shows Chlorine residual testing conducted throughout the distribution system in 2007

Month	No. of Samples	Ave Free Chlorine Residual mg/l	No. of Samples > 0.05 mg/l	No. of Samples < 0.05 mg/l	No. of Samples	Ave Total Chlorine Residual mg/l	No. of Samples > 0.05 mg/l	No. of Samples < 0.05 mg/l
January	34	0.77	34	0	34	0.85	34	0
February	27	0.83	27	0	27	0.92	27	0
March	28	0.89	28	0	28	0.98	28	0
April	34	0.79	34	0	34	0.90	34	0
May	36	0.79	36	0	36	0.87	36	0
June	32	0.74	32	0	32	0.91	32	0
July	40	0.67	40	0	40	0.75	40	0
August	32	0.71	32	0	32	0.79	32	0
September	32	0.76	32	0	32	0.85	32	0
October	40	0.77	40	0	40	0.96	40	0
November	32	0.76	32	0	32	0.93	32	0
December	34	0.8	34	0	34	0.89	34	0
Total	401		401	0	401		401	0
Average		0.77				0.89		

Section 5 Required Reports to the Ministry of the Environment

Summary of reports made to Ministry under subsection 18 (1) of the Act or 16-4 of Schedule 16 for the period covered by this report

Incident Date	Parameter	Result	Unit of Measurement	Corrective action	Corrective action date
08/22/07	pH an aesthetic objective, non health related	6.00pH	none	Recorded & monitored pH & chlorine residual throughout the system.	August 23/08 AWQI 73550
<p>Note: Incident date is represented by the sample date : Corrective action date is represented by the date the incident was resolved by confirmation of laboratory results</p>					

Section 6 Summary of Results of the Required Tests

Microbiological Testing done under Schedule 10, 11 or 12 of Regulation 170/03 during the period covered by this annual report for 2007

	Number Of Samples	Range of E. Coli or Fecal Result (min #)-(max#)	Range of Total Coliform Results (min #)-(max#)	Number of HPC Samples	Range of HPC Results (min #)-(max#)
Raw	52	0 (min) - 4 (max)	0 (min) - 80 (max)	0	
Treated	52	0 (max)	0 (max)	52	<10 (max)
Distribution	401	0 (max)	0 (max)	377	<10 (min) 135 (max)*

* This result is an anomaly as sample results taken before and after showed levels of <10. However, flushing was undertaken to ensure water quality.

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this annual report for 2007

	Number of Samples	Range of Results
Turbidity	Continuous analyzers	0.03 min 0.045max
Chlorine	Continuous analyzers	0.60 min. 1.36 max

Summary of Inorganic parameters tested during the period covered by this annual report

	Date of Samples				MAC
	Mar	Jun	Sept	Dec	mg/l
Antimony	<.001	<0.001	<0.001	<0.001	0.006
Arsenic	<0.0006	<0.0006	0.00062	<0.0006	0.025
Barium	0.0117	0.0122	0.0141	0.0124	1.0
Boron	0.0131	0.0127	0.0234	0.0131	5.0
Cadmium	<0.0005	<0.0005	<0.0005	0.0005	0.005
Chromium	<0.0006	<0.0006	0.00202	<0.0006	0.05
Fluoride	0.02	0.07	0.05	0.06	1.5
Lead	0.0005	0.0005	0.0005	0.0005	0.01 at a point with most residence time in the system
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	0.001
Nitrate + Nitrite (as N)	0.3	0.027	0.22	0.25	10.0
Nitrite	<0.05	<0.05	<0.05	<0.05	1.0
Nitrate	0.3	0.27	0.22	0.25	10.0
Selenium	<0.0008	<0.0008	0.001	0.0008	0.01
Sodium	4	4.63	4.12	3.94	greater than 20 to be reported
Total Dissolved Solids	112				500
Uranium	<0.0002	<0.0002	0.00023	0.0002	0.02

Summary of Organic parameters tested during the period covered by this annual report

	Date of Samples				MAC
	Mar	Jun	Sept	Dec	mg/l
Alachlor	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Aldicarb	<0.00015	<0.00015	<0.00015	<0.00015	0.009
Aldrin +Dieldrin	<0.00007	<0.00007	<0.00007	<0.00007	0.0007
Atrazine	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Azinphos-methyl	<0.002	<0.002	<0.002	<0.002	0.02
Bendiocarb	<0.002	<0.002	<0.002	<0.002	0.04
Bromoxynil	<0.0005	<0.0005	<0.0005	<0.0005	0.005
Carbaryl	<0.005	<0.005	<0.005	<0.005	0.09
Carbofuran	<0.005	<0.005	<0.005	<0.005	0.09
Chlordane(Total)	<0.0007	<0.0007	<0.0007	<0.0007	0.007
Chlorpyrifos	<0.001	<0.001	<0.001	<0.001	0.09
Cyanazine	<0.001	<0.001	<0.001	<0.001	0.01
Diazinon	<0.001	<0.001	<0.001	<0.001	0.02
Dicamba	<0.001	<0.001	<0.001	<0.001	0.12
2,4-Dichlorophenol	<0.0005	<0.0005	<0.0005	<0.0005	0.9
DDT	0.003	<0.003	<0.003	0.003	0.03
24-D	<0.001	<0.001	<0.001	<0.001	0.1
Dicoflp-methyl	<0.0009	<0.0009	<0.0009	<0.0009	0.009
Dimethoate	<0.0025	<0.0025	<0.0025	<0.0025	0.02
Dinoseb	0.001	0.001	0.001	0.001	0.01
Diquat	<0.005	<0.005	<0.005	<0.005	0.07
Diuron	<0.01	<0.01	<0.01	<0.010	0.15
Glyphosate	<0.06	<0.06	<0.06	<0.01	0.28
Heptachlor + heptachlor epoxide	<0.0003	<0.0003	<0.0003	<0.0003	0.003
Lindane (Total)	<0.0004	<0.0004	<0.0004	<0.0004	0.004
Malathion	<0.005	<0.005	<0.005	<0.005	0.19
Methoxychlor	<0.09	<0.09	<0.09	<0.09	0.9
Metolachlor	<0.00011	<0.00011	<0.00011	<0.00011	0.05
Metribuzin	<0.00025	<0.00025	<0.00025	<0.00025	0.08
Paraquat	<0.001	<0.001	<0.001	<0.001	0.01
Parathion	<0.001	<0.001	<0.001	<0.001	0.05
Pentachlorophenol	<0.0005	<0.0005	<0.0005	<0.0005	0.06
Phorate	<0.0005	<0.0005	<0.0005	<0.0005	0.002
Picloram	<0.05	<0.05	<0.05	<0.05	0.19
PCB	<0.0002	<0.0002	<0.0002	<0.0002	0.003
Prometryne	<0.00025	<0.00025	<0.00025	<0.00025	0.001
Simazine	<0.001	<0.001	<0.001	<0.001	0.01
Temephos	<0.01	<0.01	<0.01	<0.01	0.28
Terbufos	<0.0007	<0.0007	<0.0007	<0.0007	0.001
2,3,4,6-Terachlorophenol	<0.0005	<0.0005	<0.0005	<0.0005	0.1
Triallate	<0.001	<0.001	<0.001	<0.001	0.23
2,4,6,-Trichlorphenol	<0.0005	<0.0005	<0.0005	<0.0005	0.005

Trifluralin	<0.001	<0.001	<0.001	<0.001	0.045
2,4,5-T	<0.005	<0.005	<0.005	<0.005	0.28
Trichlorophenoxyacetic Acid	<0.0002	<0.0002	<0.0002	<0.0002	0.28
Benzo(a)pyrene	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Benzene	<0.0002	<0.0002	<0.0002	<0.0002	0.005
Carbon Tetrachloride	<0.0002	<0.0002	<0.0002	<0.0002	0.005
1,2-Dichlorobenzene	<0.0001	<0.0001	<0.0001	<0.0002	00.05
1,4-Dichlorobenzene	<0.0001	<0.0001	<0.0001	<0.0001	00.001
1,2-Dichloroethane	<0.0002	<0.0002	<0.0002	<0.0002	00.005
1,4-Dichloroethane	<0.0002	<0.0002	<0.0002	<0.0002	0
1,1-Dichloromethylene	<0.0002	<0.0002	<0.0002	<0.0002	00.014
Dichchloromethane	<0.0003	<0.0003	<0.0003	<0.0003	00.05
Monochlorobezene	<0.0001	<0.0001	<0.0001	<0.0001	0.08
Tetrachloroethylene	<0.0001	<0.0001	<0.0001	<0.0001	0.03
Total Trihalomethanes					
* Note:	0.028	0.017	0.021	0.0065	0.100^a
Trichloroethylene	<0.0002	<0.0002	<0.0002	<0.0002	0.005
Vinyl chloride	<0.00017	<0.00017	<0.00017	<0.00017	0.002
Xylene	<0.0001	<0.0001	<0.0001	<0.001	0.05

^a **Note:** The MAC for Total Trihalomethanes is based on a four (4) quarter running average. The current running average for the Collingwood system is **0.018 mg/l**

Section 7 Items of Significant Investment in the Water System in 2007

Description of items of significant system investment during the period covered by this annual report

Description	Investment
Ninth Street water main upgrade from 100mm C.I. to 150mm D.I.	\$140,000
St Marie Street water main upgrade from 100mm C.I. to 150mm D.I.	\$100,000
South End Reservoir Construction	\$2,000,000
Design Engineering for RAB expansion	\$350,000

In addition Collingwood Public Utilities ensures that drawings accurately showing the works constructed (record drawings) are kept up to date, including timely incorporation of all modifications made throughout the works. Copies of the drawings are stored at the Raymond A Barker Ultra-Filtration Plant and at the Utilities Offices, and are available for inspection by Ministry personnel upon request.

Appendix 1 Summary of Plant Flows

Month	Raw Water Taking				Total Plant Finished Water Supplied			
	Monthly Total (m ³)	Daily Ave (m ³)	Max Day (m ³)	Min Day (m ³)	Monthly Total (m ³)	Daily Ave (m ³)	Max Day (m ³)	Min Day (m ³)
January	586,180	18,909	21,337	15,012	547,706	17,668	19,834	14,418
February	554,016	19,786	21,917	16,565	514,998	18,393	20,507	16,081
March	600,341	19,366	22,377	15,387	562,872	18,157	20,414	15,153
April	559,572	18,652	22,119	13,542	516,773	17,226	20,014	13,255
May	649,260	20,944	25,420	15,686	595,555	19,211	23,052	15,323
June	768,667	25,622	31,132	19,983	709,264	23,642	28,748	18,319
July	757,293	24,429	28,837	19,409	716,263	23,105	27,311	18,667
August	793,306	25,591	28,652	19,961	737,447	23,789	26,415	19,038
September	679,179	22,639	26,412	18,393	631,793	21,060	23,742	17,677
October	705,934	22,772	27,360	17,636	659,706	21,281	25,213	17,238
November	634,795	21,160	24,217	17,925	593,817	19,794	21,993	17,344
December	559,937	18,062	22,111	10,866	514,846	16,608	20,077	10,406
Total	7,848,480	21,494			7,301,040	19,995		
Max	793,306		31,132		737,447		28,748	
Min	554,016			10,866	514,846			10,406

Total Plant Production	7,301,104	m³	Design Capacity	31,140	m³/d
Maximum Production Day	28,748	m³			
Yearly Daily Production Average	19,995	m³			

The Collingwood Public Utilities operates the Raymond A Barker Ultra-Filtration Plant such that the maximum flow rate into the treatment system does not exceed 414.5L/s **except:**

- (a) where necessary to meet an unusual water demand for fighting a large fire, or
- (b) where necessary for the purpose of maintenance of the works and essential to its efficient operation and provide that the treatment water quality satisfies the requirements set out in the Ministry Procedure B13-13 entitled "Chlorination of Potable Water Supplies in Ontario", as amended from time to time.