

## **Operations Committee**

**Tuesday, February 16, 2010, 5:00 p.m.**  
**City Hall - Council Chambers**

---

### Committee Members

Councillor G. Beach,  
Chair  
Councillor H. Noble  
Councillor L. Severson  
Mayor D.L. Henderson,  
Ex-Officio

### Areas of Responsibility

Operations	CRCA
Community Services	Airport Board
Fire	Arena Advisory Board
Museum	Visual/Performing Arts
Library Board	Committee
Cemetery Board	PLMG
St. Lawrence Lodge	BMAAC
Mgmt. Board	Brockville Municipal
L,L&G Health Unit	Non-Profit Housing
	Committee

## **AGENDA**

Page

### REFERRED FROM COUNCIL/COMMITTEE

- 3-6      1. Ms. Tonya Martin, Downtown Brockville  
              Referred from January 26, 2010 Council Meeting  
              Nuisance By-Law

### CORRESPONDENCE

- 7      1. Healthy Pets  
              Downtown Concerns (Nuisance)

### STAFF REPORTS

- 9-10     1. 2010-026-02  
              Supply of Granular "A"  
              Contract 2010-27
- 11-12    2. 2010-027-02  
              Purchase of 2820 Litres of Traffic Paint  
              Quotation 1-2010
- 13-46    3. 2010-030-02  
              2009 Annual Summary Report  
              Water Pollution Control Centre
- 47-120   4. 2010-031-02  
              2009 Annual Summary Report  
              Water Treatment Plant
- 121-143 5. 2010-032-02  
              Request to Endorse Policy Framework on

Page

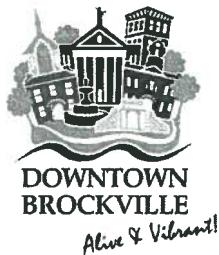
#### STAFF REPORTS

- |         |  |
|---------|--|
| 145-147 | Affordable Access to Recreation for Ontarians  |
|         | 6. 2010-033-02<br>Update on RinC and<br>BCF Intake II Programs   |
| 149-150 | 7. 2010-008-02<br>Renewal of Agreement with The Commissionaires Inc.<br>Kingston & Region Division for Parking Enforcement |

#### NEW BUSINESS FROM MEMBERS OF COUNCIL

1. Amendment to Solid Waste By-Law to Prohibit e-Waste  
(Councillor Journal)

A staff report will be prepared for the March Operations meeting.



January 22, 2009

**City of Brockville**  
1 King St. W.  
Brockville, ON  
K6V 7L2

**Attention: Sandra Seale**

**City Clerk**

**Subject: Delegation Request**

Dear Sandi,

The DBIA is requesting a delegation for Tuesday January 26, 2009 Council meeting. Tonya Martin, DBIA Board member, will represent us as the delegation to present to council a recommendation for a Nuisance Bylaw.

Sincerely,

Brenda Clarke  
Executive Director

**The Corporation of the City of Brockville**

**BYLAW NUMBER 2009 - ???**

**A BYLAW PROHIBITING LOITERING AND TO PROHIBIT THE CAUSING OF A DISTURBANCE OR A PUBLIC NUISANCE UPON HIGHWAYS AND OTHER PUBLIC PLACES.**

**WHEREAS** section 8, 9 and 10 of the Municipal Act, S.O. Chapter 25 (the Municipal Act) authorize the City of Brockville to pass by-laws necessary or desirable for municipal purposes, and in particular paragraphs 5, 6 and 8 of subsection 10(2) authorize by-laws respecting the economic, social and environmental well-being of the municipality, the health, safety and well-being of persons and the protection of persons and property;

**AND WHEREAS** section 128 of the Municipal Act provides that a local municipality may prohibit and regulate with respect to public nuisances, including matters that are in the opinion of Council are or could become public nuisances.

**NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE CITY OF BROCKVILLE ENACTS THE FOLLOWING:**

**DEFINITIONS:**

In this bylaw,

**Foul or Fouling** – shall mean and includes spitting, urinating, defecating or other acts of defacing property.

**Loiter** – means to linger or to stand around idle or to move about slowly.

**Disturbance** – means the interruption of the peace, quiet and good order of a neighbourhood or community, particularly by unnecessary and distracting noises.

**Public Nuisance** – means any activity, undertaking or conduct which annoys or disturbs or may annoy or disturb persons in a public place or on a highway.

**Pedestrian Way** – shall mean that portion of the highway designed for the passage of person and includes that part of the road where pedestrians have priority over traffic.

**Shall** – is mandatory and not directory; words in the singular include the plural; words in the plural include the singular; words in the present tense include future, or past tense.

1. No person shall throw, drop, place, or otherwise deposit garbage, paper, paper or plastic products, cans, rubbish, or other debris on any City property including but not limited to vacant or other lands owned by the City, a highway, roadway, sidewalk, pedestrian way, boulevard, or watercourse, unless authorized by the City.

2. No person shall throw, drop, place, or otherwise deposit garbage, paper, paper or plastic products, cans, rubbish, or other debris on any private property not owned by such person, unless authorized by the private property owner.
3. No person shall pick over, interfere with, disturb, remove or scatter any material placed out for City refuse collection, or placed in a garbage or other refuse receptacle placed by the City intended for the collection of garbage, paper, cans, rubbish, or similar items of refuse.
4. No person shall foul or permit the fouling of any vacant or other lands owned by the City, a highway, roadway, sidewalk, pedestrian way, boulevard or watercourse.
5. No person shall give away or otherwise provide at no charge, items, products, samples of items or products, or any other similar item to members of the public from any City property including but not limited to vacant or other lands owned by the City, a highway, roadway, sidewalk, pedestrian way, or boulevard, unless authorized by the City. Notwithstanding the provisions of this section, any federally, provincially or municipally funded organization or any registered charitable organization or any individual that is giving away or otherwise providing food, water, clothing, or medical attention, at no charge to members of the public shall not be deemed to be in contravention of this section.
6. No person shall block, interfere with or otherwise impede the passage of any pedestrian on any City sidewalk or other City pedestrian-way, or portion thereof, unless authorized by the City.
7. No person shall ride a bicycle, skateboard, and other muscularly powered vehicles on or over any sidewalk or pedestrian way within the Downtown Improvement Area as defined by bylaw from time to time, except as may be authorized by the City, unless such persons is under 16 years of age and accompanied by a parent or adult custodian.
8. No person shall ride or otherwise operate a motorized vehicle on or over any sidewalk or pedestrian way within the City unless for the purpose of maintaining such sidewalk or pedestrian way and as authorized by the City or other Provincial legislation as may be applicable to such motorized vehicle.
9. No person shall loiter or cause a disturbance or public nuisance upon a highway within the City of Brockville.
10. No person shall loiter or cause a disturbance or public nuisance upon or within a public space within the City of Brockville.
11. Any person shall be deemed to be loitering within the meaning of this Bylaw when he or she is standing or sitting on a highway, including, without the generality of the foregoing, any sidewalk

located thereon, or within three feet of any highway and fails to move on when requested to do so by a Police Officer or By law Enforcement Officer.

12. Any person shall be deemed to causing a disturbance within the meaning of this bylaw when he or she is drunk, screaming or swearing in a public place or on a highway.
13. Any person shall deemed to be causing a disturbance within the meaning of this bylaw when he or she is shouting or singing in a public place or on a highway except when such person is shouting or singing in pursuance of a lawfully sanctioned activity.
14. No person or persons shall stand in groups or sit or lounge on a public street in front of licensed premises, restaurant, poolroom, boarding house, hotel or place of public accommodation or place of public entertainment so as to cause any obstruction to the free egress and ingress and use of any doorways abutting on the street, or on the step of or approach to any premises or dwelling open to a street whereby the public are subjected to disturbance or annoyance.

#### **ENFORCEMENT:**

The provisions of this by-law shall be enforced by a Municipal Law Enforcement Officer, Police Officer, Peace Officer, or other individual duly appointed for the purpose of enforcing this by-law.

#### **PENTALTY:**

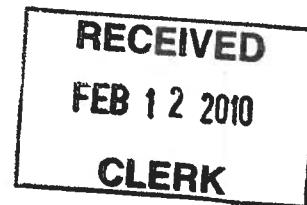
Every person who contravenes the provisions of this By-law established and passed by the City, pursuant to the authority contained in the Municipal Act or any other General or specific Act, is guilty of an offense and liable upon conviction to a penalty not exceeding \$5,000.00 exclusive of costs and the provisions of the Provincial Offenses Act, R.S.O. 1990, c P.33, as amended, shall apply to the said fine.

#### **SEVERABILITY:**

Should any section of this By-law be declared by a Court of competent jurisdiction as ultra vires or illegal for any reason, the remaining parts shall nevertheless remain valid and binding, and shall be read as if the offending section or part had been struck out.

February 12, 2010

City of Brockville Council Members  
And City Clerk  
City Hall  
Brockville, Ontario



Dear Sandi,

As you know, we own the Healthy Pets store at 144 King Street West.

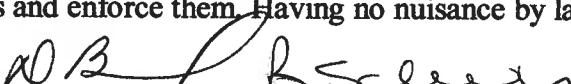
A man comes into our store daily begging for food and money. This is his scam. He interrupts our staff in mid sale, and hits on our customers (especially women) to get money. He is getting more aggressive. Other business owners have told me he is now a regular at their stores too. We will have to call the police. This takes time.

Yesterday three local women were yelling rude things at each other, as they continued a verbal fight that started at Tim Horton's, and carried over to the TD Bank, as two of the females slowly walked away still yelling. This is a regular event at Tim Horton's. Impromptu street theater of the worst kind.

Yesterday we also had four people, one in the passenger seat in a parked car (in our 15 minute spot) and three standing in front of our store for one hour. They were loud, and using the F word as a noun, adjective and verb regularly. It seems to be an approved and understood way of life now in Brockville to use loud public obscenity as every third word in every sentence. We were concerned, as we thought they were fighting, and we needed to call the police.

This all really has a negative effect on our store and our business. We understand and support that Brockville is trying to develop a tourism industry future. Having professional beggars, out of control street people, and loud crude arguments in the street as a way of life, has a very negative impact on the city and our businesses. No customer or tourist wants to wade through that to tour our city, or get to our stores.

We encourage you to advocate for a regular "walk the beat police presence", and enact the nuisance by law recently suggested by the DBIA, as soon as possible (so police have something to enforce). We will then be at least matching similar by laws put in place by other cities. You may have heard that a similar nuisance by law is being suggested for By Ward Market in Ottawa. They realize that to maintain tourism, you have to have standards and enforce them. Having no nuisance by law is no longer an option.

  
Debra and Ralph Schuh  
Behrens and Carnahan Investments Inc.

cc: Kent Henderson (DBIA)



**02Feb2010**

**REPORT TO OPERATIONS COMMITTEE - FEBRUARY 17, 2010**

**2010-026-02  
SUPPLY OF GRANULAR "A"  
CONTRACT 2010-27**

**C. J. COSGROVE, P. ENG.  
DIRECTOR OF OPERATIONS  
R. FRASER  
PUBLIC WORKS SUPERVISOR**

**RECOMMENDATION**

THAT the tender from Lafarge Concrete Inc. in the amount of Thirteen Thousand, Two Hundred and Seventy-six Dollars (excluding GST) (\$13,276.00) for Contract 2010-27 for the supply of approximately 1000 tonnes of Granular "A" Aggregate for the period May 1, 2010 to April 30, 2011, be accepted.

**ORIGIN**

This approximate quantity of Granular "A" Aggregate is required to carry out our proposed budgeted activities.

**ANALYSIS**

Tenders were opened at 12:00 noon on Monday, February 1, 2010 with the following results:

Firm	<u>Price Per Tonne</u>		Contract Price excluding GST
	Material (excl GST)	Trucking (excl GST)	
Lafarge Canada Inc. Brockville, Ont.	\$ 10.476	\$ 2.80	\$ 13,276.00
G. Tackaberry & Sons Const.	\$ 9.72	\$ 3.95	\$ 13,670.00
Operations Dept. Estimate	\$10.28	\$ 2.74	\$13,020.00
2009 Price	\$10.152	\$ 2.70	\$12,852.00

**EXISTING POLICY**

As per Budgetary Control and Purchasing By-Law 090-2005. Council approval for this tender is required as less than three bids were received.

**FINANCIAL CONSIDERATION**

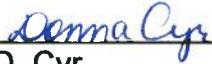
Funding for this work is budgeted in the following accounts:

3351-3250-2010 (Stormwater Maintenance)	\$16,845
3601-1444-2010 (Watermain Repair)	\$ 33,296
3601-4031-2010 (Water Service Repair)	\$17,311
3430-5290-2010 (Wastewater Maintenance)	\$29,083
3360-3540-2010 (Ditching Culverts)	\$11,335

The contract price, based on an estimated quantity of 1000 tonnes , is \$256.00 more than the amount currently included in the proposed 2010 budget. The final contract cost will be based on the actual quantity.



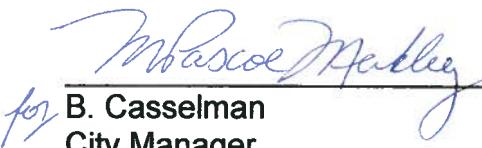
R. Fraser  
Public Works Supervisor



D. Cyr  
Director of Finance



C. J. Cosgrove, P. Eng.  
Director of Operations



for  
B. Casselman  
City Manager

**03Feb2010**

**REPORT TO OPERATIONS COMMITTEE - FEBRUARY 17, 2010**

**2010-027-02  
PURCHASE OF 2820 LITRES  
OF TRAFFIC PAINT  
QUOTATION 1-2010**

**C. J. COSGROVE, P. ENG.  
DIRECTOR OF OPERATIONS  
RUSS FRASER  
PUBLIC WORKS SUPERVISOR**

**RECOMMENDATION**

THAT Council accept the Quotation from Sherwin Williams Co. in the amount of Nine Thousand, One Hundred and Six Dollars and Thirty Five Cents (\$9,106.35), excluding GST, for the supply of 2820 litres of traffic paint.

**ORIGIN**

The City purchases the paint to be applied by City crews for intersection marking painting. Documents were sent to 3 suppliers with only two returning their bids.

**ANALYSIS**

Quotations were opened at 12:00 Noon on Monday, February 1, 2010 with the following results.

<b>FIRM</b>	<b>QUOTATION PRICE (excl. GST)</b>	<b>AVERAGE UNIT PRICE</b>
Sherwin-Williams Co. Scarborough, Ont.	9,106.35	2.99/L
Ennis Paint Ennis, Texas	10,517.04	3.729/L
Operations Department Estimate	10,554.00	3.74/L
Last Year's Price (2640 Litres)	9,774.43	3.702/L

**EXISTING POLICY**

As per Budgetary Control and Purchasing By-Law 090-2005. Council approval for this tender is required as less than three bids were received.

## FINANCIAL CONSIDERATIONS

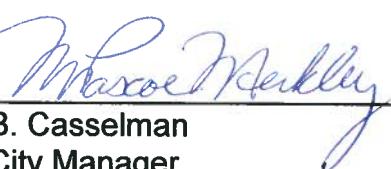
Funds for this material are budgeted in the following two accounts:

3390 - 3610 - 2010	(Zone Painting)	\$10,111.00
1270 - 6430 - 2010	(On Street Parking)	\$500.00

  
R. Fraser  
Public Works Supervisor

  
D. Cyr  
Director of Finance

  
C. J. Cosgrove, P. Eng.  
Director of Operations

  
B. Casselman  
City Manager

**February 9, 2010**

**REPORT TO OPERATIONS COMMITTEE – FEBRUARY 17, 2010**

**2010-030-02**

**2009 ANNUAL SUMMARY REPORT  
WATER POLLUTION CONTROL CENTRE**

**C.J. COSGROVE, P.ENG.  
DIRECTOR OF OPERATIONS**

**RECOMMENDATION**

**THAT the 2009 Annual Summary Report on the City of Brockville's Water Pollution Control Centre, Appendix 1 to Report 2010-030-02 be received; and**

**THAT the Director of Operations be designated to sign the 2009 Annual Summary Report on the City of Brockville's Water Pollution Control Centre; and**

**THAT the 2009 Annual Summary Report on the City of Brockville's Water Pollution Control Centre be forwarded to the MOE District Office – Kingston.**

**ORIGIN**

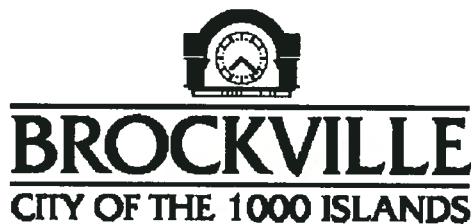
This annual summary report covers the period January 1, 2009 through December 31, 2009, and is a requirement under our Certificate of Approval 5526-7SGL3D, Section 10 (6).

**ANALYSIS**

We are pleased to present The 2009 Annual Summary Report for the Water Pollution Control Centre. This Report provides a summary of the flow data, summary of compliance results, sampling results, abatement initiatives, sludge disposal, bypass events, and Operational Highlights. The annual summary report will be posted on the City's web site.

  
C. J. Cosgrove, P.Eng.  
Director of Operations

  
B. Casselman  
City Manager



## **CITY OF BROCKVILLE WATER POLLUTION CONTROL CENTRE**

---

### **2009 ANNUAL SUMMARY REPORT FOR COUNCIL**

C.J. Cosgrove, P.Eng., Director of Operations  
B. Fox, Chief Operator – Wastewater Treatment

**DATE: February 11, 2010**  
**FILE: E03-04**

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

## EXECUTIVE SUMMARY

The enclosed 2009 Annual Summary Report is prepared in accordance with the Certificate of Approval (C of A) for the City of Brockville's Water Pollution Control Centre (WPCC) for submission to the Ontario Ministry of the Environment (MOE). Included with this report are analytical data, plant flow, by-pass events, biosolids data, as well as a process flow schematic of the facility. Information is also provided on the status of plant and operator certification.

In all cases, the City of Brockville's WPCC sampling and analysis program met or surpassed the requirements outlined in the plant's C of A. The plant overview will discuss the level of performance with regard to effluent limits specified in the C of A, however as reported on a quarterly basis, the plant effluent cBOD<sub>5</sub> (concentration and loading) did not comply during the reporting period. In 2009, there were no bypasses at the WPCC or from the collection system, including the Main Pumping Station.

Each year, the City of Brockville focuses on Capital and Operational Targets to improve the quality of the wastewater treatment system. In 2009 these improvements included:

- **WPCC Secondary Treatment Project** – New C of A Number 5526-7SGL3D was issued to the WPCC on June 26<sup>th</sup>, 2009 in order to proceed with the proposed works for the Secondary Treatment Upgrade. On January 14<sup>th</sup>, 2010 Council awarded the contract to J.C. Sulpher Construction Ltd. Work on the project is expected to start in February 2010.
- **Digesters** – November 10<sup>th</sup>, 2009 TSSA performed an audit on the WPCC digester gas system. A response report was submitted to TSSA on January 28<sup>th</sup>, 2010.
- **Centrifuges** – Both rotodifferentials and the bowl and scroll from Centrifuge #301 were rebuilt. The rebuild for the bowl and scroll included a new type of tile and the machine was reset to Original Equipment Manufacturer (OEM) specification.
- **Main Pumping Station** – A new VFD was installed on Pump #3 motor. Pump #2 was replaced including a new motor and VFD. A ventilation assessment of the Main Pumping Station was completed and the necessary repairs were made. A new explosion proof heater was also purchased and installed. A new permanent platform was also fabricated in order to service the ventilation equipment in the screen room.
- **Pumping Stations** – West End PS had extensive work (new PLC, wiring and controls) completed due to damage caused by flooding due to a broken watermain. During 2009 there were three pump blockages at Georgina and one at Oxford. There were four blockages at Thomas Street PS due to a deteriorated gravity main on Thomas Street. This gravity main was relined. All Bell communication BKCS circuits were changed to LDDS circuits.

---

Conal Cosgrove, Director of Operations

---

Barry Fox, Chief Operator - WWT

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

## TABLE OF CONTENTS

	PAGE #
EXECUTIVE SUMMARY	2
TABLE OF CONTENTS	3
1. INTRODUCTION	4
2. FACILITY DESCRIPTION	4
3. APPROVALS AND CERTIFICATION	4
3.1 Certificate of Approval	4
3.2 Operator Certification	4
4. FLOW MONITORING DATA	5
4.1 Plant Flow	5
4.2 Bypasses, including Pumping Station Overflows	5
4.3 Chemical Usage	5
5. ANALYTICAL DATA	7
5.1 Background	7
5.2 Sampling and Analysis Program	7
5.3 Abatement Program	7
5.4 Effluent Quality Performance – Compliance Limits	7
6. OPERATIONS & MAINTENANCE	8
6.1 Operations Log	8
6.2 Maintenance Programs	8
6.3 Biosolids Management, Land Application and Disposal	8
6.4 Effluent Monitoring Devices & Calibration	8
6.5 WPCC Pumping Stations – Completed & Planned Works	8
7. KEY CONTACTS AND REFERENCES	9
APPENDICES AND FIGURES	
■ Figure 1 - Brockville WPCC ADF vs Precipitation	6
■ Appendix A: WPCC Process Flow Schematic	10
■ Appendix B: 2009 WPCC PARS Summary & Figures	11
■ Appendix C: Operator Licenses	12
■ Appendix D: 2009 Bypass Summary Report	13
■ Appendix E: 2009 WPCC Operational Data	14-25
■ Appendix F: 2009 WPCC Annual Chemical Summary	26
■ Appendix G: 2009 WPCC & Pumping Stations Operational Highlights	27-30
■ Appendix H: 2009 WPCC Centrifuge Sludge Feed & Cake Disposal	31
■ Appendix I: Calibration Report Summary	32
■ Appendix J: 2009 Capital Project Sheet	33

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

## 1. INTRODUCTION

We are pleased to present the 2009 Water Pollution Control Centre Annual Summary Report for Council. The purpose of this Report is to provide a performance summary on the facility for the period January 1 to December 31, 2009, and is a legal requirement under Section 10 (6) of the Certificate of Approval (C of A) made under the *Ontario Water Resources Act* (R.S.O. 1990, c. O.40). In 2009 a new C of A, number 5526-7SGL3D, was issued in order for the WPCC alterations that are required as part of the Secondary Treatment Upgrade. This Annual Report must be forwarded to the Ministry of Environment no later than March 31, 2010.

## 2. FACILITY DESCRIPTION

Brockville's wastewater treatment facility is a chemically enhanced (for phosphorus removal) primary treatment plant with a capacity of 21,800 cubic metres per day and a peak design of 54,500 cubic metres per day. It is classified as a physical/chemical process inclusive of screening, grit removal, primary clarification, sodium hypochlorite disinfection, with phosphorus removal, anaerobic digestion of sludge, centrifuge dewatering of sludge, centrate return to the primary clarifiers and sludge cake disposal to landfill/compost. The main plant was built in the 1960's, and was upgraded in several phases, the most recent in 1991 to 1995. These works also included a major upgrade to the Main Pumping Station on Water Street. **Appendix A: WPCC Process Flow Diagram** is provided and an aerial photograph appears on the cover of this report.

The wastewater treatment plant services a population of approximately 21,500 as well as nearby Elizabethtown-Kitley Township retirement homes (3) and the Brockville Psychiatric Hospital and the St. Lawrence Valley Correctional and Treatment Centre. There are 12 pumping stations located throughout the community to transfer wastewater to the treatment facility. The treated effluent receiver is the St. Lawrence River.

## 3. APPROVALS & CERTIFICATION

### 3.1 Certificate of Approval

The City of Brockville's WPCC (Works #120000122) operates under new Certificate of Approval (C of A) NUMBER 5526-7SGL3D issued to the facility on June 26<sup>th</sup>, 2009 in order to proceed with proposed works. The Facility is a Class III facility in accordance with the *Licensing of Sewage Works Operators Regulation* (O. Reg. 129/04) made under the *Ontario Water Resources Act*.

The C of A for Brockville's WPCC establishes final effluent limits for 5-day Carbonaceous Biochemical Oxygen Demand (cBOD<sub>5</sub>), Total Suspended Solids (TSS) and Total Phosphorus (TP). The limits are based on annual rotating averages, and apply to concentration as well as total daily loading. The limits are used to determine compliance with the C of A. The limits are found in the lower area below the Monthly data of **Appendix B: WPCC 2009 PARS Summary**.

## 2009 ANNUAL SUMMARY REPORT FOR COUNCIL CITY OF BROCKVILLE – WPCC

The C of A also establishes the rating of the facility for *average daily flow* or ADF. ADF is the cumulative total flow of sewage to the sewage works during the year divided by the number of days of flow. A rating is also determined for *peak flow* (the maximum rate of sewage flow for which the plant was designed). The rated ADF for the WPCC is 21,800 m<sup>3</sup>/day and the peak flow rating is 54,500 m<sup>3</sup>/day.

### 3.2 Operator Certification

The *Licensing of Sewage Works Operators Regulation* (O. Reg. 129/04) requires owners to ensure that every operator employed in the facility holds a license applicable to that type of facility (s. 14 (1)). The licenses of operators working within the City of Brockville Wastewater Treatment System are outlined in **Appendix C: Operator Licenses**.

O. Reg. 129/04 also requires the designation of an overall responsible operator (ORO) for the facility and that the ORO holds a license applicable to and of the same class as or higher than the class of the facility or one level below for no longer than six months. Melodie Hobbs, Supervisor WT & WWT Division was the designated ORO in 2009 from January 1 to July 8, holding Class IV licenses in wastewater treatment and wastewater collection. Barry Fox was the designated ORO from July 9 to December 31, holding Class 2 licenses in wastewater treatment and wastewater collection (Class 3 pending).

## 4. FLOW MONITORING DATA

### 4.1 Plant Flow

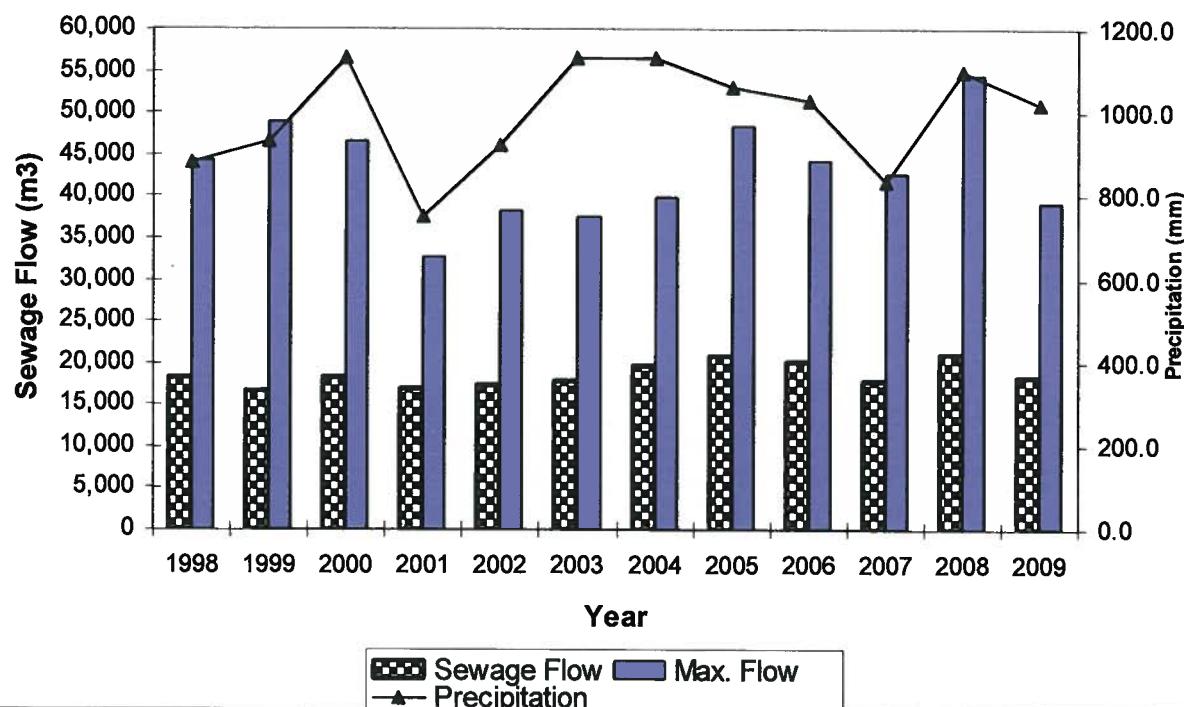
The wastewater flow during the reporting period is outlined in **Appendix B: WPCC PARS Summary**. The total flow received during the 2009 reporting period was 6,670,661 m<sup>3</sup> with an annual ADF of 18,299 m<sup>3</sup> or 84% of the plant's current rated capacity. The Maximum Daily Flow of 39,053 m<sup>3</sup> occurred on April 4<sup>th</sup>, and the minimum daily flow of 11,073 m<sup>3</sup> occurred on September 19<sup>th</sup>. The ADF at the WPCC for 2009 compared to 2008 showed a decrease of 13.4%. **Figure 1** shows the precipitation and flow graphically.

### 4.2 Bypasses, including Pumping Station Overflows

The occurrence of a Spill, Bypass or pump station overflow results in the generation of an event report and entry into the operational log.

There were no bypass events in 2009. See **Appendix D: Bypass Report Summary**.

**Figure 1: Brockville WPCC  
Average Annual Daily Flow vs Precipitation  
1998 - 2009**



#### 4.3 Chemical Usage

The consumption of chemicals that aid in achieving effluent criteria are tracked by the treatment facility, and are outlined in **Appendix F: 2009 WPCC Annual Chemical Summary**.

Sodium Hypochlorite (NaOCl) has been the disinfectant at the WPCC since the 1993 Upgrade when Chlorine gas was removed from the facility. The plant upgrade will require a disinfectant that is non-toxic, which for any facility using chlorine products, must now add sodium bisulfite to dechlorinate. Ultraviolet radiation has been recommended as the new disinfection technology for the secondary plant upgrade.

The chlorine dosage averaged 2.93 mg/L resulting in a total of 18,672 kg applied in 2009, and is a 17.8% increase from 2008.

Ferric Chloride ( $\text{FeCl}_3$ ) is used to aid in phosphorus (P) removal and enhance the coagulation and removal of suspended solids (TSS) and carbonaceous biochemical oxygen demand ( $\text{cBOD}_5$ ). An average dosage of 106.2 mg/L of Ferric Chloride (product as received) resulted in 701,864 kg of Ferric Chloride applied throughout 2009. This represents a 4.6% decrease from 2008. The plant polymer was also applied throughout 2009 at a minimal dosage. The 2009 total dosage had no significant change from 2008.

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

## 5.0 ANALYTICAL DATA

### 5.1 Background

The WPCC performs analysis on the samples collected, and participates in a Proficiency Testing Program. The WPCC also sends out some samples to an outside lab that is accredited with the Canadian Association for Laboratory Accreditation (CALA) as part of the quality assurance program. The Lab schedules the sampling days, and maintains a sampling schedule for the WPCC that meets the requirements of the C of A.

### 5.2 Sampling and Analysis Program

The Brockville WPCC maintains a schedule of sampling Raw Influent and Final Effluent weekly as per the C of A, as well as raw sludge, digested sludge and other process samples. The frequency of sampling and the testing performed met or exceeded the minimum requirement in the Certificate of Approval.

### 5.3 Abatement Program

Waste Survey Reports continue to be updated and reviewed by Abatement Staff.

In addition to regular Lab and Abatement work, our Land Application Program for Digested Sludge also utilized Abatement Staff for the sampling component as per the Certificate of Approval. This program includes digested sludge analysis, as well as Surface Water monitoring.

WPCC loadings of high strength BOD and high pH in 2009 have remained consistent with 2008 trends. Any incident of high organic strength or high pH conditions cause considerable increased demand for disinfection (NaOCl), as well as other plant effluent quality issues. Abatement Staff worked with industry in 2009 as they implemented capital work projects to address the above issues.

In 2009 elevated final effluent phosphorus levels lead Abatement Staff to review WPCC SCADA pH trends and to contact industry to review their recent discharges. As a result, it was determined that citric acid was discharged to the sanitary sewer. Research confirmed citric acid interferes with the WPCC's ability to properly remove phosphorus. Abatement Staff worked with industry to find solutions that would minimize the impact to the WPCC.

WPCC Abatement Staff continued to work on the Fats, Oils and Grease (FOG) Program. Contact with Food Service Establishments to introduce them to the new FOG Program and provide them with educational material continued throughout 2009.

WPCC Staff started to review the existing Sewer Use By-law (12-91) in preparation for updating the by-law in conjunction with the completion of the Secondary Treatment Upgrade.

### 5.4 Effluent Quality Performance – Compliance Limits

The analysis results of the routine sampling at the WPCC are shown by month in **Appendix E: 2009 City of Brockville Wastewater Treatment Plant Operational Data** for both the raw influent and final effluent samples. Compliance was achieved in both TP and TSS

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

(concentration and loading) however, cBOD<sub>5</sub> continues to be non-compliant for concentration and loading. Bacteriological analysis was performed in the first part of 2009; however this requirement was removed from the new C of A upon receipt in July 2009. These results can be found in the last column of the PARS Report found in **Appendix B**.

Quarterly reports were submitted to City Council and Monthly reports were submitted to the MOE outlining the treatment plant's performance for each month respecting flows and sampling results for CBOD<sub>5</sub>, Total Suspended Solids and Total Phosphorus concentrations and loadings. The PARS Report contains the concentration and loading values as an average for the month (**Appendix B: 2009 WPCC PARS Summary**).

## 6.0 OPERATIONS AND MAINTENANCE

### 6.1 Operations Log

The use of an operational log book, as required under the *Licensing of Sewage Works Operators Regulation* (O. Reg. 129/04, s. 19 (1)), to record departures from normal operating procedures, unusual or abnormal conditions, and equipment that was taken out of service, ceased to operate, underwent maintenance or repair, is kept by the facility. The highlights captured in the operational log are detailed in **Appendix G: WPCC & Pumping Stations Operational Highlights**.

### 6.2 Maintenance Programs

Preventative Maintenance (PM) routines are performed at a minimum of once a year or as recommended by the original equipment manufacturer (OEM). Inspection, testing and calibration of electrical, mechanical, instrumentation and SCADA equipment is performed and documented by fully trained and qualified technicians. The equipment includes process digester gas systems, overhead cranes and gantries, fall protection devices, heating, ventilation and air conditioning (HVAC) systems, standby generator equipment and high voltage switchgear, to name a few. Critical process equipment that is found to be malfunctioning is repaired or replaced immediately.

### 6.3 Biosolids Management, Land Application and Disposal

The 2009 Land Application Program covered the period of August 11 – September 29, 2009. The material land applied was from the routine operation of both Digesters #1 and #2.

On September 18, 2009, the General Nutrient Management Regulation (O. Reg 267/03), under the Nutrient Management Act, 2002, was amended to make changes to the regulatory framework for non-agricultural source materials (NASM). Under the City of Brockville's current Certificate of Approvals we are required to follow the "Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land (March 1996)". As these Certificate of Approvals expire, any new or renewed Certificate of Approvals may be subject to this newly amended regulation. As a result, the City of Brockville will be required to be compliant with the E. coli standard for liquid digested sludge to ensure the continuance of the Land Application Program. E. coli levels will be required to be below 2 million per gram of dry solids. Currently the City of Brockville's liquid digested sludge exceeds this E. coli standard. As we continue to move forward with the Land Application Program considerations will need to be given on how to achieve compliance with the E. coli standard in the Nutrient Management Act 2002 in order to continue with the Land Application Program.

## 2009 ANNUAL SUMMARY REPORT FOR COUNCIL CITY OF BROCKVILLE – WPCC

As part of the City of Brockville's secondary treatment upgrade the issue of achieving compliance with the E. coli standards, in the Nutrient Management Regulation (O. Reg 267/03), under the Nutrient Management Act, 2002 amendment, will be addressed as part of the digester upgrades. Upgrades to the digesters will include mixers with draft tubes which will aid in better mixing. Better mixing will result in more complete digestion with the expectation that the E. coli levels will drop to levels below the Nutrient Management standard.

**Appendix H: 2009 Centrifuge Sludge Feed and Cake Disposal.** For the majority of 2009 the cake was hauled to Lafleche Landfill. Starting in October the cake was diverted to Lafleche's compost facility which accepts this material and has a C of A to receive it. A separate report has been filed with the MOE for the Biosolids Application Program, confirming that 2,994.25 m<sup>3</sup> of digested sludge was land applied in 2009. This Report was filed ahead of the March 1, 2010 deadline, and is also available for review.

### 6.4 Effluent Monitoring Devices

Instrumentation equipment is maintained in accordance with OEM recommendations, or better. Historical calibration sheets are completed each time, and if the instrument is out of calibration, corrective action is implemented along with the Contractor performing the calibration. The calibration report is included in **Appendix I: Calibration Report Summary**. Various programs are in place to ensure we are current with new technologies, replace end-of-life equipment and maintain a high level of quality assurance.

### 6.5 WPCC & Pumping Stations – Completed and Planned Works

**Appendix J: Capital Project Manager's Sheet** contains the 2009 Capital Projects for the WPCC and Pumping Stations. We also allocated \$60,500 in capital to replace the Variable Frequency Drive on Pump #3 at the Main Pumping Station due to an electrical failure. These projects have been integral to refurbishing or replacing aging assets in order to maintain efficient operation and redundancy. This program utilizes risk analysis, maintenance costs and replacement analysis to give the best 10 year model possible. As always, not all risks are known and sometimes unforeseen breakdowns do occur. Excellent coordination between staff and various contractors and suppliers allows the work to be assessed and performed while keeping on track from a budget standpoint.

## 7.0 KEY CONTACTS AND REFERENCES

For further information on this report, enquiries on a related topic, or to arrange a plant tour of the wastewater treatment facilities, please contact:

Barry Fox  
Chief Operator - Wastewater Treatment  
613-342-8772 ext 8303  
E-mail: [bfox@brockville.com](mailto:bfox@brockville.com)

Conal Cosgrove, P. Eng.  
Director of Operations  
613-342-8772 ext. 8205  
E-mail: [ccosgrove@brockville.com](mailto:ccosgrove@brockville.com)

Ministry of the Environment  
Ontario Water Wastewater Certification Office  
Water Environment Federation  
Water Environment Equipment Association of Ontario  
Ontario Agriculture and Food

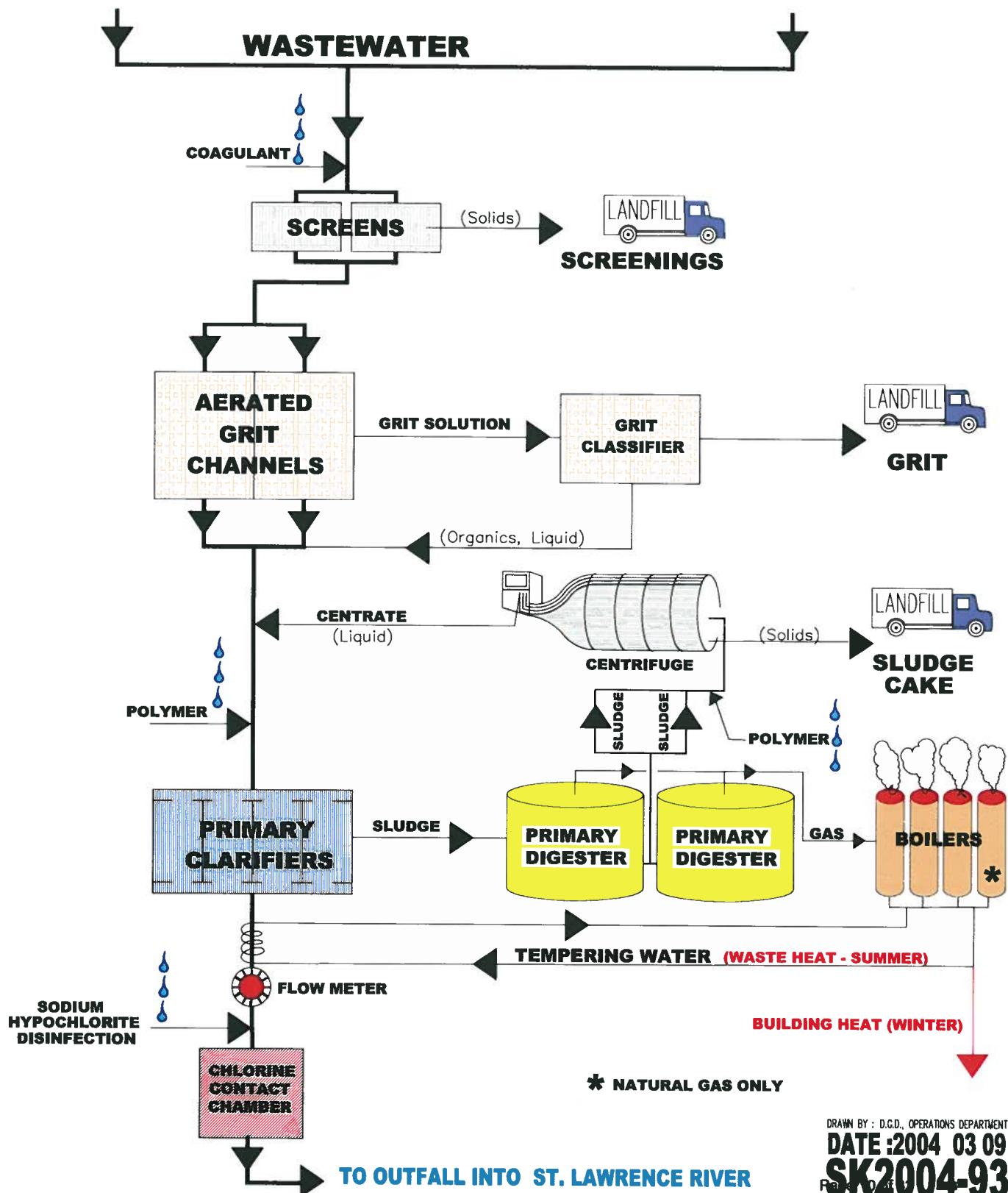
[www.ene.gov.on.ca](http://www.ene.gov.on.ca)  
[www.owwco.ca](http://www.owwco.ca)  
[www.wef.org](http://www.wef.org)  
[www.weao.org](http://www.weao.org)  
[www.gov.on.ca/omafra](http://www.gov.on.ca/omafra)

# WATER POLLUTION CONTROL CENTRE PROCESS FLOW DIAGRAM

APPENDIX A

**BROCKVILLE  
SEWERS**

**ELIZABETHTOWN- KITLEY  
SEWERS**



## APPENDIX B

### BROCKVILLE WATER POLLUTION CONTROL CENTRE SEWAGE PLANT PERFORMANCE ASSESSMENT REPORT

MUNICIPALITY:  
BROCKVILLE  
PROJECT NUM.:  
120000122  
WORKS NUM.:  
120000122

DESCRIPTION:  
A PRIMARY TREATMENT FACILITY, COMPLETE WITH TWO PRIMARY ANAEROBIC DIGESTERS  
TWO CENTRIFUGES FOR SLUDGE THICKENING AND UTILIZING POLYMER FOR PHOSPHORUS REMOVAL  
AND SODIUM HYPOCHLORITE FOR EFFLUENT DISINFECTION.

YEAR:  
2009  
WATER COURSE:  
ST. LAWRENCE RIVER  
DESIGN CAPACITY:  
21,800 X 1000 m<sup>3</sup>/d  
PEAK DESIGN CAPACITY:  
54,500 X 1000 m<sup>3</sup>/d

STATISTICS FOR THE MONTH OF DECEMBER:

2008 716.62 23.117  
2007 574.49 18.532  
2006 717.49 23.145

MONTH	TOTAL FLOW 1000m <sup>3</sup>	Avg Day Flow 1000m <sup>3</sup>	Max Day Flow 1000m <sup>3</sup>	Avg Raw BOD (mg/L)	Total BOD (mg/L)	% Removal Eff. BOD (%)	Avg Raw BOD (mg/L)	Total SS (mg/L)	% Removal SS (%)	Avg Raw SS (mg/L)	Total Phos. (mg/L)	% Removal Phos. (mg/L)	Avg Raw Phos. (mg/L)	Phosphorus (kg/day)	Total P (kg/day)	% Removal P (%)	Fecal Coliform (Organisms per 100 ml)	BACT. RESULTS
DEC 08	628.37	20.270	32.364	107.29	43.43	880.33	59.5	129.75	24.50	486.62	81.1	2.56	0.61	12.36	76.2	N/R*	N/R*	
NOV 08	488.39	16.613	19.635	136.18	52.91	878.89	61.1	141.50	31.75	527.46	77.6	3.10	0.73	12.13	76.5	N/R*	N/R*	
OCT 08	474.80	15.316	22.831	148.38	64.39	832.88	63.4	151.13	40.00	612.64	79.5	3.15	0.96	14.70	69.5	N/R*	N/R*	
SEP 08	398.06	13.202	15.880	141.20	52.20	688.14	63.0	165.25	36.88	486.89	77.7	3.24	0.88	11.62	72.8	N/R*	N/R*	
AUG 08	478.59	15.438	18.059	139.40	52.90	816.67	62.1	153.40	37.60	580.47	75.5	2.84	0.83	12.81	70.8	N/R*	N/R*	
JUL 08	512.78	16.541	23.097	137.80	50.17	829.86	63.6	143.50	34.56	571.66	75.9	2.67	0.76	12.57	71.5	120	1	
JUN 08	493.00	16.433	19.174	102.90	42.09	691.66	59.1	144.00	31.42	516.32	78.2	2.83	0.79	12.98	72.1	1,720	1	
MAY 08	619.54	19.370	24.070	87.50	24.36	839.36	50.9	136.55	29.36	566.76	78.5	2.55	0.77	15.39	69.8	900	1	
APR 08	738.70	24.623	39.053	61.62	39.08	962.27	36.6	106.77	25.62	630.84	76.0	2.03	0.84	15.76	68.5	2,300	1	
MAR 08	649.81	20.962	28.317	76.55	45.25	948.53	40.9	101.23	25.93	543.54	74.4	2.18	0.63	13.21	71.1	1,000	1	
FEB 08	614.14	21.934	35.817	77.58	48.73	1068.84	37.2	98.50	32.27	707.81	67.2	2.31	0.91	19.96	60.6	940	1	
JAN 08	566.48	18.274	20.639	67.67	53.25	973.09	36.3	116.58	33.17	806.15	72.0	2.68	0.98	17.91	63.4	1,060	1	
Avg	18,299	108.67	108.67	48.12	369.30	63.05	132.51	31.92	572.26	75.64	2.68	0.78	14.28	70.23				
MAX	21,800	39.053	148.38	54.38	63.59	165.25	40.00	81.12	32.27	707.81	67.2	3.24	0.98	22.00				
CRITERIA				35.00	763.00		45.00	981.00				1.00						

COMPLIANCE YES NO NO NO YES YES YES YES YES YES YES YES YES YES

STATISTICS FOR THE MONTH OF DECEMBER:

2008 72.50 33.75 780.20 53.4 98.11 25.44 588.10 74.1 2.08 0.58 13.41 72.1  
2007 96.40 46.20 856.18 52.1 122.30 26.40 489.24 78.4 2.88 0.74 13.71 74.3  
2006 71.30 33.83 783.00 52.6 101.60 16.44 380.50 83.8 2.42 0.63 14.58 74.0

TOTAL LOADINGS MONTH	Total Loadings			TOTAL RAW P (kg/day)	TOTAL RAW SS (kg/day)	TOTAL RAW BOD (kg/day)	MONTH	Comments:
	NOV 08	DEC 08	OCT 08					
DEC 08	2,175	2,630	52					
NOV 08	2,262	2,351	52					
OCT 08	2,273	2,315	48					
SEP 08	1,864	2,182	43					
AUG 08	2,152	2,368	44					
JUL 08	2,279	2,374	44					
JUN 09	1,691	2,388	47					
MAY 09	1,749	2,729	51					
APR 09	1,517	2,629	50					
MAR 09	1,605	2,122	46					
FEB 09	1,702	2,160	51					
JAN 09	1,602	2,167	49					
Avg	1,906	2,366	48					
Max	2,279	2,729	52					

\*As per our new C of A 5526-7SGI 3D issued on June 26th 2008, we are currently not required to sample for bact. We stopped sampling Fecal Coliform in August.

Note: As per our new C of A 5526-7SGI 3D issued on June 26th, 2009, we now measure BOD on raw influent

**APPENDIX C**

**PLANT OPERATING STAFF LICENSES**

**FACILITY: BROCKVILLE WATER POLLUTION CONTROL CENTRE**

<b><u>NAME AND LICENSE TYPE</u></b>	<b><u>LIC. CLASS</u></b>	<b><u>LIC. #</u></b>	<b><u>EXPIRY</u></b>
<b>CASSIDY, CHRIS</b>	<b>OPERATOR I</b>		
Wastewater Treatment	Class 3	8179	12/31/12
Wastewater Collection	Class 2	14590	11/30/12
<b>FOX, BARRY</b>	<b>CHIEF OPERATOR</b>		
Wastewater Treatment	Class 2	16689	04/30/10
Wastewater Collection	Class 2	12536	11/30/12
<b>HOBBS, MELODIE</b>	<b>SUPERVISOR, WPCC</b>		
Wastewater Treatment	Class 4	9249	10/31/10
Wastewater Collection	Class 4	11349	03/31/11
<b>MALCOMNISON, ED</b>	<b>OPERATOR I</b>		
Wastewater Treatment	Class 3	9146	08/31/10
Wastewater Collection	Class 2	9591	07/31/11
<b>MARSHALL, SCOTT</b>	<b>OPERATOR/MECHANIC II</b>		
Wastewater Treatment	Class 3	8190	05/31/10
Wastewater Collection	Class 2	14608	11/30/12
<b>SINE, DON</b>	<b>MAINTENANCE MECHANIC/OPERATOR</b>		
Wastewater Treatment	Class 2	5327	07/31/12
Wastewater Collection	Class 3	14325	04/30/10
<b>TRACEY, STEPHEN</b>	<b>OPERATOR II</b>		
Wastewater Treatment	Class 2	55107	11/20/12
<b>BARLOW, JASON</b>	<b>OPERATOR/INST. TECH. I</b>		
Wastewater Treatment	Class 3	12448	08/31/11
Wastewater Collection	Class 2	14233	06/30/12

## APPENDIX D

Facility Name: Brockville Water Pollution Control Centre

Report Year: 2009

### 2.0 Pumping Station and Plant Bypass Monthly Summary:

Month	Primary Bypass			Secondary Bypass		
	No. of Days (days)	Duration (hours)	Volume (1,000 m <sup>3</sup> )	No. of Days (days)	Duration (hours)	Volume (1,000 m <sup>3</sup> )
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						
<b>TOTAL</b>	<b>Nil</b>	<b>Nil</b>	<b>Nil</b>			
Volume of Bypass as % of * Average Daily Flow (ADF)			%			

ADF = \_\_\_\_\_ (1,000 m<sup>3</sup>/d)

\* % = Volume of Bypass ÷ ADF ÷ 365 × 100

### Comments Area - Pumping Stations and Plant Bypasses

No bypasses in 2009

---



---



---



---



---

## APPENDIX E

2009 City of Brockville Wastewater Treatment Plant Operational Data

Date	01 Raw Influent			02 Final Effluent			Daily Flow (cubic meters)
	02 Total suspended solids (mg/L)	03 Total phosphorus (mg/L)	04 Soluble residual phosphorus (mg/L)	05 COD <sub>BOD</sub> (mg/L)	06 COD <sub>T</sub> (mg/L)	07 Temperature - (degrees C)	
January, 2009							
1	0.51	20,638.79					
2	0.58	20,554.06					
3	0.42	19,505.99					
4	0.50	19,682.14					
5	0.71	20,075.32					
6	0.36	19,480.01					
7	0.47	19,972.19					
8	0.33	19,744.20					
9	0.89	18,872.46					
10	0.71	16,984.13					
11	0.72	17,800.88					
12	0.82	18,268.38					
13	0.62	18,652.28					
14	0.65	18,210.67					
15	0.65	17,720.57					
16	0.705	17,591.87					
17	0.585	16,196.11					
18	0.48	16,905.86					
19	0.81	17,585.39					
20	0.83	17,924.02					
21	0.63	17,871.43					
22	0.62	17,502.22					
23	0.62	16,986.46					
24	0.65	16,020.67					
25	0.65	16,849.95					
26	0.945	18,722.58					
27	1.045	18,333.79					
28	0.875	18,740.28					
29	0.80	18,319.97					
30	0.80	18,005.69					
31	0.95	16,822.01					
	0.83						
Average	118,583	2,678	87,867	0.706	33,167	0.982	53,250
Minimum	110	2.4	73	0.36	26	0.84	47
Maximum	132	2.88	102	1.045	42	1.5	62
Count	12	12	12	31	12	12	0
Total							10,8 20638.79 1 588480.15

## APPENDIX E

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

Date	01 Raw Influent			02 Final Effluent			03 Daily Flow		
	02 Total suspended solids (mg/L)	03 Total phosphorus (mg/L)	04 Total Kjeldahl Nitrogen / TKN (mg/L)	05 COD (mg/L)	06 BOD (mg/L)	07 Temperature - Temp (degrees C)	08 pH - grab pH	09 Dissolved Solids (mg/L)	10 Ammonium (Total, as N) (mg/L)
February, 2009	1 126.00	2 2.83	3 95.00	4 0.80	5 38.00	6 1.03	7 57.00	8 13.4	9 17.92877
	2 114.00	3 2.75	4 92.00	5 0.853	6 32.00	7 0.89	8 54.00	9 18.80553	
	4 108.00	5 2.83	6 97.00	7 0.65	8 36.00	9 0.90	10 51.00	11 18.64226	
	5 110.00	6 1.78		7 0.85		8 0.65		9 18.26738	
	6 112.00	7 2.35	8 75.00	9 0.65	10 30.00	11 0.76	12 48.00	13 18.34835	
	10 98.00	11 2.23	12 80.00	13 0.69	14 30.00	15 0.83	16 45.00	17 17.60011	
	11 110.00	12 1.78	13 47.00	14 0.62	15 30.00	16 0.83	17 31.00	18 19.01778	
	12 74.00	13 2.03	14 56.00	15 0.95	16 0.78	17 0.99	18 0.71	19 19.58036	
	16 62.00	17 1.88	18 65.00	19 0.95	20 0.82	21 0.84	22 29.00	23 19.43518	
	18 90.00	19 1.85	20 97.00	21 0.80	22 0.80	23 0.84	24 28.00	25 19.24321	
	20 74.00	21 2.23	22 61.00	23 0.84	24 0.82	25 0.84	26 29.00	27 29.74575	
	22 97.00	23 2.28	24 67.00	25 0.55	26 0.58	27 0.75	28 0.77	29 35.81693	
	25 97.00	26 2.63	27 76.00	28 0.95	29 0.95	30 0.75	31 0.77	32 35.81693	
	26 27								33 27.88538
	28								34 25.23455
									35 22.85147
									36 22.42021
									37 22.34864
									38 22.31491
									39 22.15403
									40 20.76686
									41 19.93150
									42 20.26133
									43 20.168742
									44 20.20965
									45 19.91532
									46 21.48571
									47 31.75404
									48 21.49868

**APPENDIX E**

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

	March, 2009	01 Raw Influent			01 Final Effluent			02 Final Effluent			
		02 Total suspended solids mg/L	03 Total Phosphorus mg/L	04 Dissolved Oxygen mg/L	05 Chloride mg/L	06 Nitrogen / TN mg/L	07 Temperature - Temp degrees C	08 Total Phosphorus mg/L	09 Dissolved Oxygen mg/L	10 Ammonium (total, as N) mg/L	11 pH - grab -
1	97.00	2.05	74.00	0.965	0.83	28.00	0.68	44.00	10.9	19.951.85	10.9
2	105.00	2.13	73.90	0.80	24.00	0.60	42.00	44.00	20.485.62	19.483.38	
3	127.00	2.38	92.00	0.725	24.00	0.64			19.834.49	18.122.28	
4				0.63					19.716.39	22.705.15	
5				0.41					23.063.90	23.063.90	
6				0.635					22.238.85	22.238.85	
7	7			0.65					22.486.78	22.486.78	
8				0.68	23.00	0.54	42.00	43.00	28.316.52	28.316.52	
9	103.00	2.25	78.00	0.65	26.00	0.56	43.00	30.00	23.933.32	23.933.32	
10	98.00	1.95	74.00	0.90	23.00	0.47			21.409.69	21.409.69	
11	75.00	1.65	55.00	0.78					19.337.90	19.337.90	
12	12			0.67					19.638.86	19.638.86	
13				0.64					20.809.61	20.809.61	
14				0.51					20.689.17	20.689.17	
15				0.46	27.00	0.65	37.00		20.582.08	20.582.08	
16	120.00	2.45	70.00	0.36	28.00	0.75	57.00		20.832.7	20.832.7	
17	98.00	2.35	60.00	0.61	29.00	0.61	40.00		18.925.32	18.925.32	
18	105.00	2.23	80.00	0.59					18.160.54	18.160.54	
19				0.62					18.584.23	18.584.23	
20				0.77					19.221.63	19.221.63	
21				0.76					18.434.22	18.434.22	
22				0.65	27.00	0.72	54.00		18.639.51	18.639.51	
23				0.64	29.00	0.86	57.00		19.685.70	19.685.70	
24	109.00	2.50	87.00	0.49	35.00	0.94	53.00		19.096.20	19.096.20	
25	NR	NR	NR	0.52					17.985.03	17.985.03	
26	111.00	2.63	94.00	0.85					25.636.62	25.636.62	
27				0.53					26.987.02	26.987.02	
28				0.63					23.852.25	23.852.25	
29				0.88	19.00	0.40	NT				
30	85.00	1.95	NT	0.89	21.00	0.41	NT				
31	85.00	1.83	NT	0.89							
<b>Average</b>		<b>101.231</b>	<b>2.181</b>	<b>78.545</b>	<b>0.685</b>	<b>25.929</b>	<b>0.831</b>	<b>45.250</b>	<b>10.900</b>	<b>20.981.503</b>	
<b>Minimum</b>		<b>75</b>	<b>1.65</b>	<b>55</b>	<b>0.36</b>	<b>19</b>	<b>0.4</b>	<b>30</b>	<b>10.9</b>	<b>17995.03</b>	
<b>Maximum</b>		<b>127</b>	<b>2.63</b>	<b>94</b>	<b>0.98</b>	<b>35</b>	<b>0.84</b>	<b>57</b>	<b>10.8</b>	<b>28316.52</b>	
<b>Count</b>		<b>13</b>	<b>13</b>	<b>11</b>	<b>0</b>	<b>31</b>	<b>14</b>	<b>12</b>	<b>0</b>	<b>1</b>	<b>649806.59</b>
<b>Total</b>											

## APPENDIX E

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

April, 2009	01 Raw Influent						02 Final Effluent					
	02 Total suspended solids [mg/L]	03 Total phosphorus [mg/L]	04 BOD [mg/L]	05 COD [mg/L]	06 Total Redox [mV]	07 Temperature (degrees C)	08 pH - grab	09 Total Suspended Solids [mg/L]	10 Total Phosphorus [mg/L]	11 Chemicals Soluble Residue [mg/L]	12 Ammonium (total as N) [mg/L]	13 Daily flow (cubic meters)
1	90.00	1.98	61.00					24.00	0.52	34.00	25.128.81	
2								0.90	0.98	0.79	24.348.28	
3								1.205	0.76	25.00	30.157.76	
4								0.79	0.78	0.59	39.052.68	
5								0.776	27.00	0.68	32.535.37	
6								1.095	27.00	0.58	5.1 36.649.90	
7								0.895			36.145.33	
8								0.82			33.563.71	
9								0.735			28.555.51	
10								0.675			24.240.47	
11								0.78			22.900.97	
12								0.675			22.219.23	
13								0.675			22.787.41	
14								0.62			21.986.21	
15								0.63			21.163.23	
16								0.41			20.609.76	
17								0.39			20.453.74	
18								0.28			19.244.43	
19								0.37			18.828.35	
20								0.24			22.145.49	
21								0.62			23.120.38	
22								0.51			22.972.22	
23								0.61			22.375.76	
24								0.70			20.787.37	
25								0.67			19.553.56	
26								0.28			19.307.80	
27								0.41			19.998.35	
28								0.88			23.487.45	
29								0.64			20.911.21	
30								0.80			23.508.63	
Average	106.769	2.030	61.815					0.685	25.615	0.840	5.100 24.623.346	
Minimum	57	1.15	42					0.24	23	0.52	5.1 18828.35	
Maximum	158	2.6	82					1.205	28	0.72	5.1 38052.68	
Count	13	13	13	0	0	0		30	13	0	1	30
Total												738700.37

## APPENDIX E

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

Date	01 Raw Influent			02 Final Effluent			03 Total Suspended Solids (mg/L)			04 Soluble Residual Nitrogen / TKN (mg/L)			05 BOD (mg/L)			06 COD (mg/L)			07 Temperature (Temp, in °F)			08 pH - Grade			09 Dissolved Oxygen (mg/L)			10 Ammonium (Total, as N) (mg/L)			11 Chemicals			12 Total Suspended Solids (mg/L)			13 Total Phosphorus (mg/L)			14 Soluble Residual Nitrogen / TKN (mg/L)			15 Total Suspended Solids (mg/L)			16 PH - Grade			17 Temperature (Temp, in °C)			18 Dissolved Oxygen (mg/L)			19 Daily Flow (gpm/day)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	12210	12211	12212	12213	12214	12215	12216	12217	12218	12219	12220	12221	12222	12223	12224	12225	12226	12227	12228	12229	12230	12231	12232	12233	12234	12235	12236	12237	12238	12239	12240	12241	12242	12243	12244	12245	12246	12247	12248	12249	12250	12251	12252	12253	12254	12255	12256	12257	12258	12259	122510	122511	122512	122513	122514	122515	122516	122517	122518	122519	122520	122521	122522	122523	122524	122525	122526	122527	122528	122529	122530	122531	122532	122533	122534	122535	122536	122537	122538	122539	122540	122541	122542	122543	122544	122545	122546	122547	122548	122549	122550	122551	122552

## APPENDIX E

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

	June, 2009	01 Raw Influent				02 Final Effluent				03 Chemicals			
		02 Total suspended solids (mg/L)	03 Total phosphorus (mg/L)	04 Dissolved oxygen (mg/L)	05 BOD (mg/L)	02 Total suspended solids (mg/L)	03 Total phosphorus (mg/L)	04 Dissolved oxygen (mg/L)	05 BOD (mg/L)	16 pH - grams	17 Temperature (degrees C)	18 Ammonium (total, as N) (mg/L)	19 Chloride (mg/L)
1	115.00	2.65	85.00			1.06	24.00	0.61	31.00			13.9	19,173.63
2	135.00	2.65	108.00			0.91	28.00	0.62	35.00			18,447.59	
3	133.00	2.60	97.00			0.76	33.00	0.79	34.00			18,107.15	
4						0.91						18,008.21	
5						0.595						16,480.91	
6						0.68						15,550.67	
7						0.695						15,891.27	
8	NR	NR	NR			1.05	38.00	0.98	49.00			17,825.22	
9	163.00	2.75	110.00			0.815	32.00	0.82	45.00			18,239.20	
10	150.00	2.80	101.00			0.48	34.00	0.96	40.00			16,862.67	
11						0.49						17,134.52	
12						0.51						16,404.53	
13						0.37						15,028.41	
14						0.55						15,191.37	
15	146.00	3.10	96.00			0.32	30.00	0.75	40.00			16,326.01	
16	143.00	2.70	104.00			0.68	31.00	0.8	37.00			16,303.84	
17	139.00	2.90	102.00			0.33	34.00	0.90	44.00			15,632.14	
18						0.463						16,919.46	
19						0.22						15,558.58	
20						0.29						14,960.80	
21						0.33						15,063.47	
22	159.00	3.05	118.00			0.325	33.00	0.77	55.00			16,222.59	
23	163.00	3.35	108.00			0.63	35.00	0.88	53.00			16,163.83	
24						0.47						15,725.02	
25						0.92						16,008.04	
26						0.75						17,437.56	
27						0.36						14,723.49	
28						0.44						15,339.30	
29						0.63						16,108.85	
30						0.84						16,316.75	
<b>Average</b>		<b>144,000</b>	<b>2,830</b>	<b>102,900</b>		<b>0.595</b>	<b>31,417</b>	<b>0.789</b>	<b>42,081</b>			<b>13,800</b>	<b>16,433,169</b>
<b>Minimum</b>		<b>115</b>	<b>2.58</b>	<b>85</b>		<b>0.22</b>	<b>24</b>	<b>0.58</b>	<b>31</b>			<b>13.9</b>	<b>14,723,49</b>
<b>Maximum</b>		<b>163</b>	<b>3.35</b>	<b>118</b>		<b>1.06</b>	<b>38</b>	<b>0.88</b>	<b>55</b>			<b>13.9</b>	<b>18,173,63</b>
<b>Count</b>		<b>11</b>	<b>11</b>	<b>10</b>		<b>0</b>	<b>30</b>	<b>12</b>	<b>11</b>		<b>0</b>	<b>0</b>	<b>1</b>
<b>Total</b>													<b>482985.08</b>

## APPENDIX E

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

Date	01 Raw Influent		01 Raw Chemicals		02 Final Effluent		03 Ammonium (Total, as N)		04 Dissolved oxygen (mg/L)		05 pH -غرب		06 Temperature (C)		07 Dissolved gases (C)		08 Daily flow (m³/day)	
	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen / TKN (mg/L)	Chemicals (mg/L)	Soluble Residue (mg/L)	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	Ammonium (Total, as N) (mg/L)	Dissolved Oxygen (mg/L)	pH	Temperature (C)	Dissolved Gases (C)	Dissolved Gases (C)	Dissolved Gases (C)	Dissolved Gases (C)	Dissolved Gases (C)	Dissolved Gases (C)	Dissolved Gases (C)
July, 2009	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	123.00	2.43	NR		13													
	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	120.00	2.70	NT	126.00	0.59	0.57	37.00	0.82	45.00									
	165.00	2.53	NT	136.00	0.43	0.78	38.00	0.83	44.00									
	165.00	2.53	NT	136.00	0.67	0.62	38.00	0.82	55.00									
	143.00	2.65			136.00	0.735	0.62											
	162.00	2.93			141.00	0.735	0.73											
	159.00	3.00			150.00	0.82	0.82											
	138.00	2.40			NT	0.735	0.54											
	138.00	2.68			NT	0.43	0.43											
	30																	
	31																	
<b>Average</b>		<b>143.500</b>	<b>2.985</b>		<b>137.800</b>	<b>13.000</b>	<b>0.691</b>	<b>34.556</b>	<b>0.780</b>	<b>50.167</b>	<b>6.900</b>	<b>21.100</b>	<b>13.400</b>	<b>16.541.376</b>				
<b>Minimum</b>		<b>120</b>	<b>2.4</b>		<b>126</b>	<b>13</b>	<b>0.05</b>	<b>28</b>	<b>0.55</b>	<b>44</b>	<b>6.9</b>	<b>21.1</b>	<b>13.4</b>	<b>14285.02</b>				
<b>Maximum</b>		<b>165</b>	<b>3</b>		<b>150</b>	<b>13</b>	<b>1.8</b>	<b>38</b>	<b>0.92</b>	<b>58</b>	<b>6.9</b>	<b>21.1</b>	<b>13.4</b>	<b>23096.72</b>				
<b>Count</b>		<b>8</b>	<b>8</b>		<b>0</b>	<b>5</b>	<b>1</b>	<b>31</b>	<b>9</b>	<b>9</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>512782.86</b>			
<b>Total</b>																		

## APPENDIX E

2009 City of Brockville Wastewater Treatment Plant Operational Data

**APPENDIX E**

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

September, 2009	01 Raw Influent						02 Final Effluent						Daily Flow (gallons/day)	
	02 Total suspended solids [mg/L]	03 Total phosphorus [mg/L]	04 Soluble potassium / TKN [mg/L]	05 COD <sub>BOD</sub> [mg/L]	06 Dissolved oxygen [mg/L]	07 Temperature - degrees C	08 pH - gnb	09 Total phosphorus [mg/L]	10 COD <sub>BOD</sub> [mg/L]	11 Chemicals [mg/L]	12 Total suspended solids [mg/L]	13 Ammonium (total, as N) [mg/L]	14 Daily flow [gallons]	15
1	162.00	3.15	NT	43.00	0.90	14.2	15,234.44							14,349.46
2	195.00	2.85	NT	49.00	0.63	14.455.14								13,889.20
3					0.79									12,491.66
4					1.26									12,123.53
5					0.86									12,427.60
6					0.89									14,000.31
7					0.69									13,219.71
8	161.00	3.48	173.00	39.00	1.01	58.00	6.7	22.1						13,059.57
9	166.00	3.83	156.00	42.00	1.09	67.00								12,732.52
10					0.29									11,580.43
11					0.82									12,276.91
12					0.39									13,279.89
13	165.00	3.30	141.00	28.00	0.74	54.00	7.3	22.7						12,811.83
14					0.46									12,975.79
15					0.43									13,115.40
16					1.05									12,524.97
17					0.62									11,073.45
18					0.28									11,663.86
19					0.59									12,152.12
20	171.00	3.48	NT	29.00	0.76	NT	6.9	23.0						12,549.62
21					1.02									13,046.78
22					1.48									14,447.98
23					1.195									13,684.13
24					0.32									11,875.25
25					0.26									14,056.89
26					0.30									15,571.54
27					0.85									15,880.44
28	164.00	3.13	128.00	1.17	33.00	0.86	49.00	6.8	21.3					14,121.62
29	138.00	2.73	108.00	1.71	32.00	0.74	33.00							
30					0.91									
<b>Average</b>	<b>165.250</b>	<b>3.244</b>	<b>141.200</b>	<b>0.753</b>	<b>38.875</b>	<b>0.875</b>	<b>52.200</b>	<b>6.825</b>	<b>22.275</b>	<b>14,200</b>	<b>13,201.882</b>			
<b>Minimum</b>	<b>138</b>	<b>2.73</b>	<b>108</b>	<b>0.095</b>	<b>28</b>	<b>0.74</b>	<b>33</b>	<b>6.7</b>	<b>21.3</b>	<b>14.2</b>	<b>11,073.45</b>			
<b>Maximum</b>	<b>195</b>	<b>3.83</b>	<b>173</b>	<b>1.71</b>	<b>49</b>	<b>1.09</b>	<b>67</b>	<b>7.3</b>	<b>23</b>	<b>14.2</b>	<b>15,880.44</b>			
<b>Count</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>38605.85</b>		
<b>Total</b>				<b>30</b>										

**APPENDIX E**

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

Date	01 Raw Influent		02 Final Effluent		03 Total suspended solids		04 Chemicals		05 CBOD		06 pH - grab		07 Temperature - grab		08 Ammonium (total, as N)		09 Daily flow (cubic meter)	
	Total suspended solids	TSS	Total phosphorus	TSP	Total suspended solids	TSS	Sodium hypochlorite residual	mg/L	Total phosphorus	TSP	pH	degrees C	Temperature	grab	Total phosphorus	TSP	Ammonium (total, as N)	mg/L
October, 2009							0.835											13,967.32
1	2						1.03											14,864.15
2	3						0.985											13,128.44
3	4						0.44											13,584.68
4	5	169.00	3.38	158.00	20		0.985	48.00	0.93	59.00	7.0	19.7	20.5	15,227.88				15,498.77
5	6						0.49		0.49									15,102.06
6	7						0.90											14,685.14
7	8						0.415											15,618.85
8	9						0.865											14,082.11
9	10						0.56											13,491.98
10	11						0.89											13,497.76
11	12						0.67											14,874.41
12	13	161.00	3.28	176.00			0.855	49.00	1.25	59.00		6.9	18.21					14,820.43
13	14	142.00	3.35	157.00			1.5	46.00	1.20	72.00								14,368.39
14	15						0.37											13,767.75
15	16						0.28											12,611.97
16	17						0.26											13,156.57
17	18						0.54											14,030.42
18	19	166.00	3.53	90.00			0.50	48.00	1.36	57.00		7.0	18.1					14,326.09
19	20	167.00	3.43	172.00			0.98	53.00	1.30	73.00								14,847.75
20	21						1.48											15,242.95
21	22						1.02											17,811.58
22	23						0.60											17,702.74
23	24						1.81											16,524.81
24	25						1.60											16,660.37
25	26	135.00	2.85	152.00			0.95	22.00	0.45	53.00		6.9	16.8					15,824.76
26	27	144.00	2.88	150.00			1.11	24.00	0.58	44.00								18,890.63
27	28	126.00	2.53	132.00			1.07	30.00	0.58	18.00		NT	NT					17,040.62
28	29																	16,688.31
29	30																	22,831.17
30	31																	
Average	151.125	3.154	148.375	20.000			0.884	40.000	0.855	54.375		6.950	18,203					20,500.15,318.183
Minimum	126	2.53	90	20			0.26	22	0.45	18		6.9	16.8					20.5 12611.97
Maximum	169	3.53	176	20			1.81	53	1.35	73		7	19.7					20.5 22831.17
Count	8	8	0	8	1		31	8	8	8		4	4					1 474801.988
Total																		

**APPENDIX E**

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

	01 Raw Influent			02 Final Effluent			03 Raw (Cumulative)		
	02 Total suspended Solids (mg/L)	03 Total phosphorus (mg/L)	04 Dissolved oxygen (mg/L)	05 COD <sub>BOD</sub> (mg/L)	06 Nitrogen / TKN (mg/L)	07 Temperature (degrees C)	08 pH - grams	09 Chloride (mg/L)	10 Ammonium (total, as N) (mg/L)
November, 2009	1 112.00 2 2.58 3 121.00 4 2.73	1 113.00 2 121.00	1 1.255 2 1.55 3 0.45 4 0.945 5 0.665 6 0.815 7 1.005 8 1.00 9 142.00 10 133.00 11 166.00 12 144.00 13 14 14 3.30 15 3.38 16 156.00 17 156.00 18 160.00 19 3.30 20 3.20 21 3.13 22 151.00 23 144.00 24 151.00 25 3.28 26 3.15 27 121.00 28 2.85 29 30 121.00	1 23.00 2 29.00 3 0.45 4 0.61 5 35.00 6 37.00 7 NT 8 NT 9 NT 10 NT 11 NT 12 NT 13 NT 14 NT 15 NT 16 NT 17 NT 18 NT 19 NT 20 NT 21 NT 22 NT 23 NT 24 NT 25 NT 26 NT 27 NT 28 NT 29 NT 30 NT	1 0.92 2 0.87 3 0.92 4 0.92 5 0.92 6 0.92 7 0.92 8 0.92 9 0.92 10 0.92 11 0.92 12 0.92 13 0.92 14 0.92 15 0.92 16 0.92 17 0.92 18 0.92 19 0.92 20 0.92 21 0.92 22 0.92 23 0.92 24 0.92 25 0.92 26 0.92 27 0.92 28 0.92 29 0.92 30 0.92	1 6.5 2 6.5 3 6.5 4 6.5 5 6.5 6 6.5 7 6.5 8 6.5 9 6.5 10 6.5 11 6.5 12 6.5 13 6.5 14 6.5 15 6.5 16 6.5 17 6.5 18 6.5 19 6.5 20 6.5 21 6.5 22 6.5 23 6.5 24 6.5 25 6.5 26 6.5 27 6.5 28 6.5 29 6.5 30 6.5	1 10.3 2 10.3 3 10.3 4 10.3 5 10.3 6 10.3 7 10.3 8 10.3 9 10.3 10 10.3 11 10.3 12 10.3 13 10.3 14 10.3 15 10.3 16 10.3 17 10.3 18 10.3 19 10.3 20 10.3 21 10.3 22 10.3 23 10.3 24 10.3 25 10.3 26 10.3 27 10.3 28 10.3 29 10.3 30 10.3	1 19.382.11 2 19.382.11 3 19.382.11 4 19.382.11 5 19.382.11 6 19.382.11 7 19.382.11 8 19.382.11 9 19.382.11 10 19.382.11 11 19.382.11 12 19.382.11 13 19.382.11 14 19.382.11 15 19.382.11 16 19.382.11 17 19.382.11 18 19.382.11 19 19.382.11 20 19.382.11 21 19.382.11 22 19.382.11 23 19.382.11 24 19.382.11 25 19.382.11 26 19.382.11 27 19.382.11 28 19.382.11 29 19.382.11 30 19.382.11	
Average Minimum Maximum Count Total	141,500 112 160 12	3,101 2.58 3.38 12	136,182 113 166 0	0.718 0.23 1.55 0	31,750 21 39 12	52,808 35 66 11	6,540 6.4 6.7 5	15,740 14.5 17.3 5	10,300 10.3 10.3 1
									16,613,042 14467.98 19834.6 498391.26

## APPENDIX E

**2009 City of Brockville Wastewater Treatment Plant Operational Data**

Date	01 Raw Influent			011 Chemicals			02 Final Effluent			02 Final Effluent		
	02 Total suspended Solids (mg/L)	03 Total phosphorus (mg/L)	04 BOD (mg/L)	05 COD (mg/L)	06 Total Kjeldahl Nitrogen / TKN (mg/L)	07 Dissolved oxygen (mg/L)	08 Soluble residue (mg/L)	09 Dissolved solids (mg/L)	10 Total phosphorus (mg/L)	11 pH - gph	12 Temperature (degrees C)	13 Ammonium (total, as N) (mg/L)
December, 2009	131.00	2.45	118.00				0.825 0.57	21.00	0.52	56.00	NT	19,284.06 24,997.09
1	131.00	2.45	118.00				1.48			NT	NT	32,364.40
2							0.85			NT	NT	25,322.21
3							0.79			NT	NT	21,657.48
4							0.63			NT	NT	20,765.54
5							0.65	23.00	0.68	43.00	6.5	11.1
6							1.11	24.00	0.63	43.00	NT	21,493.24
7							0.95	19.00	0.48	41.00		20,225.98
8							0.84					22,748.56
9							1.03					23,546.85
10							0.94					21,421.67
11							0.63					19,318.79
12							0.97	25.00	0.68	41.00	6.8	
13							1.36	24.00	0.57	37.00		20,883.08
14							1.4	29.00	0.51	43.00		21,452.31
15							0.92					21,157.14
16							0.80					20,289.12
17							0.63					19,245.25
18							1.1					17,574.14
19							0.59					17,553.80
20							1.11					17,732.93
21							1.155					16,847.06
22							0.905					16,234.31
23							0.67					15,207.75
24							0.33					13,761.04
25							0.855					22,565.56
26							0.94					21,484.72
27							0.955					19,107.78
28							0.94					18,971.52
29							0.94					18,564.70
30							0.94					17,075.84
31												
Average	128.750	2.561	107.286				0.899	24.500	0.808	43.428	6.825	12,300
Minimum	105	2.2	97				0.33	19	0.48	37	6.5	10.8
Maximum	198	3.18	120				1.48	31	0.88	58	6.8	11.1
Count	8	9	0	7	0		31	8	9	7	4	4
Total											1	628374.48

**APPENDIX F**

**2009 Brockville WPCC Annual Chemical Summary**

		011 Chemicals					
		D1 Sodium hypochlorite use (kg)	D2 Sodium hypochlorite use (L)	D3 Sodium hypochlorite dose (mg/L)	D4 Sodium hypochlorite residual (mg/L)	D5 Ferric chloride use (kg)	D7 Ferric chloride dose (mg/L)
<b>Totals</b>		51.157	435.014	2.928	0.731	1,922.915	106.184
<b>Average</b>		21.13	180	1	0.05	846.3	47.36
<b>Minimum</b>		90.4	770	6.11	1.81	3217.08	126.07
<b>Maximum</b>		365	365	365	365	365	365
<b>Count</b>		18672.48	158780			701863.98	
<b>Total</b>							

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS****1<sup>st</sup> Quarter (January, February, March)**

1. **Main Pumping Station:**
  - **Pump #3:** The motor burnt out and was removed for refurbishment by an outside contractor. After investigation of the temperature and voltage overload circuits on the existing VFD, it was determined a new unit was required. The new VFD has been installed but we are still waiting on some parts in order to put the pump back in service. The pump can be used in an emergency situation.
  - **Pump #2:** A new pump, motor and VFD has been ordered.
  - **Bypasses:** No bypasses this quarter.
2. **Primary Clarifiers:** Primary Clarifier #2 is out of service for repair until warmer weather arrives.
3. **Centrifuges:** Norterra Organics, a Division of Scott Environmental Group Limited, began removing our sludge cake on January 16<sup>th</sup>, 2009.
4. **Digesters:** Digester #1 pressure test was completed on February 18<sup>th</sup>, 2009. We are still waiting on the delivery of a new safety valve in order to put the digester back on-line.
5. **Rag Removal Screw Conveyors:** Screw conveyor #2 failed. The gear box was rebuilt and a new motor was ordered.
6. **West End Pumping Station:** On January 13<sup>th</sup>, 2009 a broken water main near the station caused water to build-up and flood the dry well with water. The main control panel and motors were partially submerged. Staff had to mobilize temporary removal of wastewater by vactor trucks overnight. Portable diesel pump units and piping were ordered from Toronto to set up overland pumping on January 14<sup>th</sup>, 2009. Staff set up heaters to dry out the station, keep piping warm in sub -20°C weather, allowing electrical, mechanical, instrumentation and other contractors to work on the equipment. A great team effort was required to resolve this serious failure.
  - New PLC and communication was installed and alarm page set up on SCADA
  - Wiring and controls must be replaced in the spring and relocated to higher ground.
  - Diesel generator required some minor repairs and replacement parts.
7. **Georgina Street Pumping Station:** We had two pump blockages this quarter - unusual. A letter was distributed to residents in the Georgina Street Pumping Station collection area requesting their assistance in preventing future blockages.
8. **Elizabeth Street Pumping Station:** We experienced loss of communication with this station for approximately two weeks. Bell installed a temporary line from the pole to the station. Bell changed two wires at the Centre Street switch box and it seems to have resolved the communication issue. This indicates that our equipment is ok and the Bell lines between the various switching boxes appears to be the weak link. City Staff and Bell continue to work on the problem.
9. **Broome Park Pumping Station:** Pump #1 was removed, inspected and reinstalled. Pump #2 has been removed for inspection and rebuild.
10. **Leachate:** The forcemain was pigged and flows have increased.

## APPENDIX G

### **BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

#### 11. Power Outages:

- On January 10<sup>th</sup>, 2009 WPCC Staff were called to the WPCC for a plant power outage due to a transformer failure in Augusta Township.
- On March 10<sup>th</sup>, 2009 there was a brief power outage at Georgina Street Pumping Station. WPCC Staff later discovered that this was a planned outage by Hydro One and each customer was notified in advance via automated phone message. WPCC Staff did not receive this information due to the call coming into the City's automated telephone service. City Staff are working with Hydro One to try and resolve this issue.

#### **2<sup>nd</sup> Quarter (April, May, June)**

##### 1. Main Pumping Station:

- Pump #2: A new pump, motor and VFD has been ordered – delivery expected in July. A detailed scope of work with contingency plan for total station shutdown has been completed by Contractor(s) and City.
- Bypasses: No bypasses this quarter.

##### 2. Centrifuges: Norterra Organics is no longer accepting our sludge cake due to C of A issues. WSI has resumed removing our sludge cake.

##### 3. Land Application Program: Our land application program is on hold until the Heusser Farm C of A has been renewed. A letter has also been sent to the MOE regarding our E coli levels.

##### 4. Digesters: A new safety valve was installed and Digester #1 was put back in operation on June 6<sup>th</sup>, 2009.

##### 5. Power Outages:

- On May 28<sup>th</sup>, 2009 there was a brief power outage at Chelsea Street Pumping Station. WPCC Staff responded with the portable generator and no problems occurred.
- On June 22<sup>nd</sup>, 2009 there was a planned power outage at Riverview Pumping Station. WPCC were notified in advance of this outage.
- On June 26<sup>th</sup>, 2009 there was a power outage at the WPCC and various pumping stations due to a heavy rain/high wind storm. No issues to report.
- On June 29<sup>th</sup>, 2009 WPCC Staff were called to the WPCC for a plant power outage due to a structure fire east of the plant.

##### 6. WPCC Outfall Inspection: Annual outfall inspection completed on May 20<sup>th</sup>, 2009.

#### **3<sup>rd</sup> Quarter (July, August, September)**

##### 1. Main Pumping Station:

- Pump #2: The new pump, motor and VFD have been installed but are not in service. They will be commissioned in October.
- Bypasses: No bypasses this quarter.

## APPENDIX G

### **BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

#### **2. Pumping Stations:**

- Leachate Pumping Station: The new data communication circuit has been tested and verified for use with high speed modems. The new wet well slide system has been completed. All pumps are now installed and wired.
- Thomas Street Pumping Station: On July 5<sup>th</sup>, 2009 there was a loss of communication due to a broken wire and conduit. The necessary repairs were completed.
- Georgina Street Pumping Station: On July 17<sup>th</sup>, 2009 there was a loss of communication due to a loose neutral wire to the electrical panel. The wire was tightened and the station put back in service.
- Wet Well Cleaning: completed at several pumping stations.

3. **Centrifuges:** The bowl and scroll from Centrifuge #301 has been sent out for rebuild and is due back mid-October.

4. **Land Application Program:** Our land application program commenced August 11<sup>th</sup>, 2009 and finished on Sept. 29<sup>th</sup> due to wet weather conditions. We have resumed centrifuging.

#### **5. Power Outages:**

- On July 11<sup>th</sup>, 2009 there was a power outage at the WPCC due to a rain/thunderstorm. No issues to report. On June 26<sup>th</sup>, 2009 there was a power outage at the WPCC and various pumping stations due to a heavy rain/high wind storm. No issues to report.
- On August 26<sup>th</sup>, 2009 there was a planned power outage at Thomas Street Pumping Station from 1:30 pm – 3:30 pm. No issues to report.

### **4<sup>th</sup> Quarter (October, November, December)**

#### **1. Main Pumping Station:**

- HVAC: Mechanical contractor completed a ventilation assessment and are making the necessary repairs, including a new explosion proof heater and a new permanent platform for servicing the equipment in the screen room.
- Pump #2: The new pump, motor and VFD have been commissioned.
- Bar Screen: The bar screen rake arm broke and required emergency repair. A local contractor assisted WPCC staff in the repairs, and the screen was fully functional within two days.
- Bypasses: No bypasses this quarter.

#### **2. Pumping Stations:**

- Thomas Street Pumping Station: During the month of October there were at least four blocked mains in this area due to a severely deteriorated sewer on Thomas Street. The City's Engineering Department arranged for the relining of a portion of the sewer.
- West End Pumping Station: During exercising of the diesel generator there was a problem with the switching mechanism. Operations Staff have recommended we install an emergency transfer switch in order to operate the station with the portable standby generator. This will be addressed through the pumping station upgrades.
- Communication: All pumping stations have been upgraded from BKCS to LDDS circuits except for Elizabeth Street Pumping Station – 2010.

3. **Centrifuges:** The rebuilt bowl and scroll from Centrifuge #301 was returned and has been reinstalled in Centrifuge #302.

## APPENDIX G

### **BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

4. **Land Application Program:** The 2009 Organic Soil Conditioning Report has been submitted to the MOE. A copy was also sent to the landowners and hauling contractor.
5. **Disinfection:** A new degassing system has been installed on Sodium Hypochlorite Pump #2.
6. **TSSA Digester Gas Audit:** On November 10<sup>th</sup>, 2009 TSSA performed an audit on the WPCC digester gas system. Staff are working on 6 Orders, and are preparing a report due back to TSSA by January 28, 2010.
7. **Power Outages:** There were multiple power outages at the WPCC Administration Building, Oxford Avenue Pumping Station and the WPCC to facilitate the changeover of new Hydro and Bell service to the plant.

## APPENDIX H

### 2009 Brockville WPCC Centrifuge Sludge Feed & Cake Disposal Summary

	17 Centrifuge - Sludge Feed - Dig #1	18 Centrifuge - Cake - Dig #1	20 Centrifuge - Sludge Feed - Dig #2	21 Centrifuge - Cake - Dig #2	27 Cake Weight Norberta (kg)	Cake Weight to Compost - LaFerche Environmental (kg)	Cake Weight to Landfill - LaFerche Environmental (kg)
Totals	1.552	53.015	63.404	32.973	53.774	31.836	11,322.500
Average	0.46	47.55	17.28	28.29	47.09	28.14	10,012.000
Minimum	0.46	47.35	10.04	35.42	54.02	34.2	9,310
Maximum	2.09	61.35	108.04	13	36	37	18,670
Count	13	13	71	13	35	210	18,240
Total			4501.7			226450	250300



127 Zion Road.  
Frankford, ON  
K0K 2C0

Tel: (613) 398-0296  
Fax: (613) 398-0294  
cell (416) 779-1456

City of Brockville  
PO Box 5000.  
Brockville Ontario  
K6V 7A5

July 29, 2009

Attention: Barry Fox

**Re: Main P.S. Greylime Flow Meter Calibration**

Flowmetrix thanks you for the opportunity to provide our flow meter calibration services. Mr. Curtis King attended your Brockville PCP facility on July 23, 24 2008 to calibrate your flow meters as directed. Please accept the letter as a summary of the flow meters verified, corresponding results and a brief description of the verification procedures used.

#### **Electromagnetic Flow meters**

The calibration of electromagnetic flow meters is typically verified using the appropriate manufacturer's calibrated flow simulator. The flow simulator when connected to the convertor *in place* of the flow tube delivers a precise signal back to the convertor that simulates a specific, calculable flow condition that is representative of specific flow conditions. The local display and local outputs are checked and documented for accuracy at each specific test point.

#### **Level Instruments, Milltronics & Greylime**

The calibration of ultrasonic level meters is typically verified using a solid level plate and measure ruler. In situations where safety or continuous operations limit direct access to the existing level sensor, the customer's level sensor is removed and a temporary secondary level sensor is attached to the transmitter allowing a ruler and level plate to be used to simulate a specific, calculable liquid level condition. The local display and local outputs are checked and documented for accuracy at each specific test point. These types of instruments are typically associated with a primary device allowing a flow calculation, and it is assumed to be programmed to provide the correct relationship between flow and level.

#### **Calibration Summary**

Instrument	Method	Result	Comment
1 Milltronics Final Effluent	Sec. Transducer	Pass	Recommend Dye Test to verify primary device.
2 E&H Alum & Ferric	Primary Simulator	Pass	None
3 FIT 367 East Poly	Primary Simulator	Pass	none
4 FIT 366 West Poly	Primary Simulator	Pass	none
5 FIT 369 East Sludge Transfer	Primary Simulator	Pass	none
6 FIT 368 West Sludge Transfer	Primary Simulator	Pass	none
7 FIT 511 Raw Sludge #3	Primary Simulator	Pass	none
8 FIT 512 Raw Sludge #4	Primary Simulator	Pass	none
9 Raw Sludge #1	Primary Simulator	Pass	none
10 Raw Sludge #2	Primary Simulator	Pass	none
11 FIT 473 Chlorine Feed	Primary Simulator	Pass	none
12 FIT 370 Phosphorous	Primary Simulator	Pass	Suspected instrument failure.
13 FIT 461 Boiler Effluent	Primary Simulator	Pass	

If you have any questions or require further details or information please do not hesitate to contact me at your convenience.

Kind Regards

Curtis King C.E.T.

**"IF WE DON'T MEASURE IT, HOW DO YOU MANAGE IT?"** Page 32 of 33

## APPENDIX J

### 2009 CAPITAL PROGRAM

<u>PROJECT NAME:</u>	Water Pollution Control Centre Equipment Replacement Program	<u>YEAR PROPOSED:</u> <u>ITEM NO.:</u>	2009 6.2
<u>LOCATION:</u>	Sewage Treatment Plant and Pumping Stations		
<u>HISTORY:</u>	LENGTH OF PROJECT: YEAR FIRST INTRODUCED:	Ongoing - through Sewer Rate Reserve 1997	
<u>SCOPE:</u>	Replacement of Capital Equipment for the Water Pollution Control Centre and associated structures and pumping stations. This is to be accomplished from the Sewer Rate Reserve Fund.		
C4060-WPCE-ARCA	<b>WPCC Building &amp; Property:</b> ARC Flash Assessment - CSA, Regulatory		15,000
C4060-WPCE-SCSL C4060-WPCE-SODR	<b>Screen and Degrift Operations:</b> Screenings Con. - Replace Screw & Liners Odour Control - Media Replacement		9,000 8,000
C4060-WPCE-PC09 C4060-WPCE-PCWR C4060-WPCE-SDBW C4060-WPCE-RSPP	<b>Primary Clarifier/Phos./Disinfection Operations:</b> Replace Cross (4) Chain & Flight Replace Effluent Weir Plates (4 sets) Clarifier Blowers (2) Refurb. Replace Clarifier Raw Sludge Pumps (2)		10,000 15,000 10,000 25,000
C4060-WPCE-DGPP C4060-WPCE-GSEX	<b>Digester Operations:</b> Digested Sludge Transfer Pumps(2) Refurbishment Gas Room Exhaust Fans (2)		20,000 8,000
C4060-WPCE-CP01 C4060-WPCE-CMP9 C4060-WPCE-CCRN C4060-WPCE-SODD	<b>Dewatering Operations:</b> Centrifuges (2) - Scroll Rebuilds & Wear Plates Air Compressor Replacement - Refurb. Overhead Crane - Refurb. ASSESS Odour Control - Media Replacement		60,000 5,000 5,000 15,000
C4060-WPCE-PSFL C4060-WPCE-PSPW C4060-WPCE-MN8V C4060-WPCE-MNOV C4060-WPCE-VFD3 C4060-WPCE-CEPP C4060-WPCE-CEEP C4060-WPCE-GEEV C4060-WPCE-OEEV C4060-WPCE-LPEV	<b>PUMPING STATIONS:</b> PUMP STN - Level & Flow Mon. Program (12) PUMP STN'S - PAVING, ACCESS & GRADING MAIN PS - 8" Bypass Valve Refurbishment MAIN PS - Overland Pumping Piping MAIN PS - Replace Pump #3 VFD (Emergency Item) CENTRAL - Replace (2) Pumps/Motors 5hp CENTRAL PS - Upgrade Electrical Panels GEORGINA PS - Check Valves & Appurtenances OXFORD PS - Check Valves & Appurtenances LEACHATE PS - Wet Well Upgrades		5,000 15,000 12,000 60,000 60,500 15,000 10,000 8,000 5,000 8,000
C4060-WPCE-CONT	<b>CONTINGENCY:</b>		15,000 <hr/> 418,500
<u>WHY REQUIRED:</u> Advantages & Benefits	See the attached 10 Year Plan - Water Pollution Control Centre Capital Needs Routing such purchases through the WPCC Sewer Rate Reserve Fund provides the opportunity to account for all Capital Costs associated with the Water Pollution Control Centre in one place and to finance such work through the Sewer Use Rate User Fee. As well it allows the expenditure to take place while keeping the tax rate smooth.		

PREPARED BY (PROJECT MANAGER):  
DATE:

C. J. Cosgrove  
Revised: February 19, 2009

**February 9, 2010**

**REPORT TO OPERATIONS COMMITTEE – FEBRUARY 17, 2010**

**2010-031-02**

**2009 ANNUAL SUMMARY REPORT  
WATER TREATMENT PLANT**

**C.J. COSGROVE, P.ENG.  
DIRECTOR OF OPERATIONS**

**RECOMMENDATION**

**THAT** the 2009 Annual Summary Report on the City of Brockville's Water Treatment Plant, Attachment 1 to Report 2010-031-02, be received; and

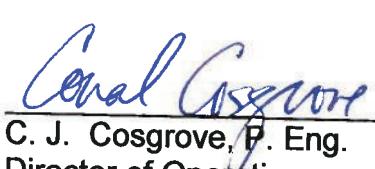
**THAT** the Director of Operations be designated to sign the 2009 Annual Summary Report on the City of Brockville's Drinking Water System.

**ORIGIN**

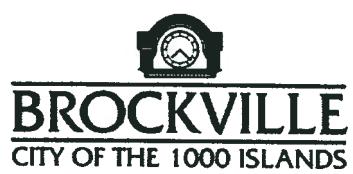
The Safe Water Drinking Water Act, 2002 – Ontario Regulation 170, Schedule 22 requires that members of Council shall be given the annual summary report for the preceding calendar year for their approval no later than March 31<sup>st</sup>. This report covers the period from January 1, 2009 through December 31, 2009.

**ANALYSIS**

Provided is a complete annual summary report summarizing the plant description and design, flow data and water quality parameters. The 2009 annual summary report will be posted on the City's website.

  
C. J. Cosgrove, P. Eng.  
Director of Operations

  
B. Casselman  
for City Manager



## CITY OF BROCKVILLE DRINKING-WATER SYSTEM

---

### 2009 ANNUAL SUMMARY REPORT FOR COUNCIL

C.J. Cosgrove, P. Eng., Director of Operations  
D. Richards, Chief Operator – Water Treatment

DATE: February 12, 2010  
FILE: W03-03

## EXECUTIVE SUMMARY

The City of Brockville's Water Treatment Plant is a Class III Facility located at 20 Rivers Avenue and operates under Certificate of Approval Number 7894-78ZK8P. The Drinking Water System is described in detail in Section 4.1 of the attached Annual Report.

The enclosed 2009 Annual Summary Report is prepared in accordance with the Certificate of Approval (C of A) for the City of Brockville's Water Treatment Plant (WTP) and Ontario Regulation 170/03, Schedule 22. Included with this report are analytical data, plant flow, adverse water quality incidents and corrective action resolutions, as well as a process flow schematic of the facility. Information is also provided on the status of plant and operator certification. In all cases, the City of Brockville's Drinking-Water System's sampling and analysis program met or surpassed the requirements outlined in the various legal instruments. The regulatory testing, sampling and monitoring is quite complex, and the data handled by Operations Staff is quite comprehensive. In addition, all Adverse Water Quality Results must have documented Corrective Actions submitted to the Spills Action Centre, and all within specific timelines. This data has also been included for your review.

The 2009 Operations and Maintenance of the Drinking Water System was a very productive and challenging year, including many challenges and achievements that are of importance to Council. These are summarized as follows:

- The final round of Lead Sampling as prescribed by O. Reg. 170/03 Section 15 was completed in 2009. A summary of the results are found in Appendix F – all sampling met the criteria for reduced sampling and no corrosion control methods are required. The next round of sampling will be performed in 2012.
- Dan White, Senior Drinking Water Inspector with the MOE conducted Annual Inspections on Feb. 4<sup>th</sup> to 6<sup>th</sup> for the City of Brockville's Drinking Water System, and on June 10<sup>th</sup> to 11<sup>th</sup> for the Township of Elizabethtown-Kitley's Water Distribution System. There were no compliance issues noted at either inspection.
- The media replacement (GAC and sand) for both of the filters was completed in the 2<sup>nd</sup> quarter. This was a result of a media condition assessment - the levels of media and sand were not equal in both filters.
- Energy Efficiency Initiatives were also a large part of our Capital projects throughout 2009. These improvements included Induction Lighting on the exterior of buildings, assessment of pumps motors for efficiency ratings, and the installation of a new motor and VFD in Zone 2 Pump 1 at Parkedale Booster Station. See Appendix I Local Authority Services Ltd. (LAS) Brochure featuring Brockville WTP.
- The City of Brockville has developed a Drinking Water Quality Management System (DWQMS) for the Brockville Water Treatment Plant and Distribution System, as documented in the Operational Plan. This DWQMS has been endorsed by the Owner and Top Management. The Operational Plan, along with the application for a Municipal Drinking Water System Licence was submitted by the Oct. 1<sup>st</sup> deadline.
- A new portable generator was commissioned at the WTP to support emergency and standby power requirements. This unit was relied upon for the MCC work at the Low Lift Pumping Station in the Fall.

---

Conal Cosgrove, Director of Operations

---

Don Richards, Chief Operator - WT

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

## TABLE OF CONTENTS

Executive Summary	2
Table of Contents	3
List of Acronyms & Definitions	4
1. INTRODUCTION	5
2. LEGISLATED REQUIREMENTS	6
2.1 Drinking-Water Systems Regulation (O. Reg. 170/03)	
2.2 Summary of Regulatory Requirements	
3. ANNUAL DATA SUMMARY FOR 2009	8
3.1 Water Quality Data	
3.2 Flow Data	
4. CITY OF BROCKVILLE WATER SYSTEM	9
4.1 Water System Description	
4.2 Certificate of Approval	
4.3 Permit to Take Water	
4.4 Operator Certification	
4.5 2009 Flow Summary	
4.6 Adverse Test Results	
4.7 Historical Flow Results	
4.8 Capital Projects and Long Term Planning	
5. TOWNSHIP OF ELIZABETHTOWN-KITLEY WATER DISTRIBUTION SYSTEM	12
5.1 Water System Description	
5.2 Certificate of Approval	
5.3 2009 Flow Summary	
5.4 Adverse Test Results	
5.5 Historical Flow Results	
6. CONCLUSION	13

List of Appendices:

APPENDIX A PROCESS FLOW DIAGRAM – WTP	15
APPENDIX B 2009 BROCKVILLE WATER SYSTEM DATA	
• Flow Data	16
• Historical Pumpage of Raw Water	28
APPENDIX C CERTIFICATE OF APPROVAL – WTP	30
APPENDIX D PERMIT TO TAKE WATER – WTP	43
APPENDIX E OPERATOR LICENSES	51
APPENDIX F OPERATIONAL HIGHLIGHTS	53
APPENDIX G CALIBRATION REPORTS	64
APPENDIX H CAPITAL PROJECTS 2009	65
APPENDIX I LAS BROCHURE FEATURING BROCKVILLE WTP	66

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

**List of Acronyms & Definitions**

Adverse	Adverse water results are listed in Schedule 16, O. Reg. 170/03 Examples of adverse water results: <ul style="list-style-type: none"><li>▪ An analytical result that exceeds a health-based water quality standard (O. Reg. 169/03)</li><li>▪ Any evidence that disinfection may not have been effective</li><li>▪ Low chlorine residuals</li></ul>
C of A	Certificate of Approval
CFU	colony forming units
GUDI	groundwater under the direct influence of surface water
L/s	litres per second
m <sup>3</sup> /d	cubic metres per day
mg/L	milligrams per litre
mL	millilitre
ML/d	Mega (million) litres per day
MOE	Ministry of the Environment (Ontario)
O. Reg.	Ontario Regulation
PTTW	Permit to Take Water
R.R.O.	Revised Regulations Ontario (1990)
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act, 2002
WPP	Water Purification Plant

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

## 1. INTRODUCTION

For the City of Brockville's Drinking-Water System (Water Treatment and Water Distribution), up to two reports are required by the Ontario Ministry of the Environment (MOE) under regulations as shown in Table 1-1 below. The second system requiring a report is the Township of Elizabethtown-Kitley's Drinking-Water System (Water Distribution system only) as the City provides the Drinking Water and also act as the Operating Authority of this system.

**Table 1-1 Drinking-Water System Annual Reports**

Report Name	Description	Legislation or Regulation	Submitted to:
Summary Report for Municipalities (Schedule 22)	<ul style="list-style-type: none"> <li>• Summary of Flows</li> <li>• Description of any failure to meet requirements of an Act, regulations or the system's approval</li> </ul>	O. Reg. 170/03, Schedule 22	Regional Council and available for inspection by the public
Annual Report (Section 11)	<ul style="list-style-type: none"> <li>• Description of system</li> <li>• Water quality test results</li> <li>• Adverse test results and corrective action</li> <li>• Major expenses to repair, replace or install equipment</li> </ul>	O. Reg. 170/03, Schedule 11	Posted on the City of Brockville's website
Water Taking and Transfer Report	<ul style="list-style-type: none"> <li>• Electronic submission of water taking data</li> </ul>	O. Reg. 387/04	Ministry of the Environment
Permit to Take Water Annual Report	<ul style="list-style-type: none"> <li>• Reporting conditions set out in the individual Permits to Take Water</li> <li>• Applies to the WTP only; not to the subsystem supplied water to (Township of Elizabethtown-Kitley)</li> </ul>	Permits to Take Water issued under the <i>Ontario Water Resources Act</i>	Ministry of the Environment

This Annual Flow Summary Report is for the period from January 1<sup>st</sup> to December 31<sup>st</sup>, 2009 and includes reports for both of the municipal drinking-water treatment systems that the City of Brockville owns and/or operates. This report fulfills the reporting requirements of the Drinking-Water System Regulation (O. Reg. 170/03, Schedule 22) made under the *Safe Drinking Water Act, 2002*. The raw water flow data shown in this report will also be submitted to the MOE under the Water Taking and Transfer Regulation (O. Reg. 387/04).

The structure of this report is as follows:

- Section 2 outlines the reporting requirements of O. Reg. 170/03, Schedule 22 as well as listing drinking water related Acts, regulations and system approvals.
- Section 3 provides a description of how data is compiled and analyzed for this report. A summary of the actual volume of water taken daily and the quantities and flow rates of the water supplied during the 2009 calendar year is provided in Appendix for each of the water systems.

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

- Section 4 and 5 describes each of the drinking-water systems, flow data and adverse water quality incidents are summarized in a Table. A copy of each system's Certificate of Approval and Permit to Take Water are included in the corresponding Appendices at the end of the report.
- Conclusions are in Section 6.

## 2. LEGISLATED REQUIREMENTS

### 2.1 Drinking-Water Systems Regulation (O. Reg. 170/03)

Under Schedule 22 of the Drinking-Water Systems Regulation (O. Reg. 170/03), Summary Reports for Municipalities, annual reports to the owners of large municipal residential systems and small municipal systems are required. The summary report must be submitted no later than March 31<sup>st</sup> to members of municipal council. The contents must list the requirements of the *Safe Drinking Water Act, 2002*, the regulations, the system's approval and any order that the system failed to meet at any time during the reporting period covered, specify the duration of the failure, and the measures taken to correct the failure.

In addition, the report must include a summary of the quantities and flow rates of the water supplied during the period covered by the report, including monthly averages, maximum daily flows and daily instantaneous peak flows. The summary must be compared to the rated capacity and flows provided in the system's Certificate of Approval (C of A).

The City of Brockville is the Owner of the Water Treatment Plant, Trunk and Local Water Distribution Systems, and the City is the Operating Authority for the Township of Elizabethtown-Kitley's Water Distribution System.

### 2.2 Summary of Regulatory Requirements

In Ontario, water taking, drinking water treatment and distribution are governed by a number of Acts and Regulations. Table 2-1 below provides a summary of some of the more relevant provincial legislation.

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

**Table 2-1 Summary of Provincial Legislation Significant to Water Operations**

ACT	R.R.O. 1990	O. Reg.	Amendments
<b>ENVIRONMENTAL PROTECTION ACT</b>			
Airborne Contaminant Discharge Monitoring and Reporting		127/01	196/01, 37/06
Air Pollution – Local Air Quality		419/05	605/05
Ambient Air Quality Criteria	337		794/94
Certificate of Approval Exemptions – Air		524/98	505/99, 273/03
Fees – Certificates of Approval		363/98	
Municipal Sewage and Water and Roads Class Environmental Assessment Project	354		
Sewage Systems	358		370/97
Sewage Systems – Exemptions	359		
<b>ONTARIO WATER RESOURCES ACT</b>			
Additional Charges		157/93	
Approval Exemptions		525/98	174/03, 272/03
Fees – Approvals		364/98	
Licensing of Sewage Works Operators		129/04	
Municipal Sewage and Water and Roads Class Environmental Assessment Projects	900		
Sewage Works Subject to Approval under the Environmental Assessment Act		207/97	
Water Taking and Transfer		387/04	
Wells	903		128/03, 389/09
<b>SAFE DRINKING WATER ACT, 2002</b>			
Certification of Drinking-Water System Operators And Water Quality Analysts		128/04	256/05, 415/09
Compliance and Enforcement		242/05	328/08
Definitions of “Deficiency” and “Municipal Drinking-Water System”		172/03	20/04, 257/05, 129/08
Definitions of Words and Expressions Used in The Act		171/03	270/03, 19/04, 324/08
Drinking-Water Systems		170/03	249/03, 269/03, 18/04, 126/04, 165/04, 408/04, 253/05, 247/06, 402/06, 418/09
Drinking-Water Testing Services		248/03	127/04, 254/05, 250/06, 416/09
Ontario Drinking-Water Quality Standards		169/03	268/03, 17/04, 255/05, 248/06, 327/08

Additional legally-binding requirements are imposed on the owner/operator of each waterworks through Certificates of Approval and Permits to Take Water. These individual approvals issued by the MOE are site-specific; meaning the conditions of operation are tailored to a facility's characteristics, circumstances and the local environment.

## 2009 ANNUAL SUMMARY REPORT FOR COUNCIL CITY OF BROCKVILLE DRINKING-WATER SYSTEM

### 3. ANNUAL DATA SUMMARY FOR 2009

The Water Treatment Plant Operations is responsible for the drinking-water systems under O. Reg. 170/03 including the Trunk Water Distribution System (elevated storage, reservoirs, water booster stations). Staff's primary responsibility is water production and treatment in compliance with all applicable legislation and system approvals. Routine water quality testing and continuous monitoring of water quality and quantity is conducted to ensure compliance. All Data from SCADA, process control point data, in-house laboratory results and external laboratory results are all captured in WaterTrax data management system.

#### 3.1 Water Quality Data

Raw and treated water is sampled and tested for chemical, physical and microbiological parameters in accordance with the requirements of O. Reg. 170/03 and individual system approvals. Sampling is also conducted in the distribution system primarily for bacteriological indicators and evidence of sustained chlorine residuals. Enhanced sampling programs are also defined by Water Plant Operations and the Water Distribution Systems Operations, and testing procedures followed and where necessary submitted to external accredited laboratory for analysis. This level of water quality monitoring ensures public health and public confidence in the water supply. Annual reports summarizing the analytical testing for each water system are posted on the City's website for the public to review.

The majority of analysis is conducted by an external accredited laboratory, with some specialized analysis contracted to other accredited laboratories. In accordance with Schedule 16 of O. Reg. 170/03, all required notifications of adverse water quality incidents are provided to the Spills Action Centre and Medical Officer of Health.

A summary of notifications of Adverse Water Quality Incidents is reported to Council on a Quarterly basis, but a Summary is provided in Section 4, Table 4-4. All water quality data is also reported each year in the Drinking Water System Annual Report posted on the City's Website no later than Feb. 28<sup>th</sup> for the previous calendar year. The City's and the Township of Elizabethtown-Kitley's Drinking Water Systems will be posted as required.

#### 3.2 Flow Data

While water quality is of utmost priority, increased attention has also been directed towards flow measurement and data management issues throughout 2009. The City uses continuous monitoring equipment throughout the drinking water system for flow measurement and other parameters, including the rate and volume of taking. The flow measuring devices are monitored by the Supervisory Control and Data Acquisition (SCADA) System and include alarming and other data storage. In addition, the devices are calibrated in accordance with the manufacturer's specification or at a minimum of once per year to ensure reliability of the data generated. The calibration report is included at the end of this Report in Appendix G.

Operations staff monitor the SCADA flow trends and review the flow and volume data for compliance with system approvals. Log book entries confirm this daily compliance check and also note any operational highlights. These operational highlights are included as **Appendix F: 2009 WTP Operational Highlights**.

The MOE is notified if the flow or volume exceeds a system approval, or if a flow monitoring device requires replacement or servicing. This level of interaction with the MOE ensures confidence in the monitoring and operational competency of the drinking water system.

## 2009 ANNUAL SUMMARY REPORT FOR COUNCIL CITY OF BROCKVILLE DRINKING-WATER SYSTEM

This Annual flow report is prepared through retrieval of archived SCADA data, operational information, log sheets, lab data, and lab data transfer from the 3<sup>rd</sup> party Lab Service. This data is archived through our WaterTrax data management service, and then we analyze and compile a summary report for the 2 drinking water systems. A summary of the volume of water taken daily and the flows of water supplied from each system during the 2009 calendar year is provided in **Appendix B: 2009 Brockville Water System Data**.

The raw water flows are compared to the Permit to Take Water (volume of water taken) and the plant treatment capacities in the C of A. The treated water flows are required by the MOE "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" (O. Reg. 170/03, Schedule 22 (22-2 (3)(1))).

## 4. CITY OF BROCKVILLE WATER SYSTEM

### 4.1 Water System Description

The City of Brockville's Water Treatment Plant is a Class III Facility located at 20 Rivers Avenue and operates under Certificate of Approval Number 7894-78ZK8P. The Water Distribution System is separated into a Trunk Water Distribution System and Local Water Distribution System. The Trunk WDS is a Class III System (Certificate #3811) and the Local System is a Class II System (Certificate #2193). The Treatment Plant and Distribution Systems are described as follows:

#### 4.1.1 **Water Treatment Plant**

The City of Brockville Water Treatment plant is a conventional direct filtration plant, located on the St. Lawrence River and serves the City of Brockville (population 22,000), and a portion of the Township of Elizabethtown-Kitley (population 350). A 900 mm raw water intake pipe equipped with zebra mussel control lies on the bottom of the St. Lawrence River extending 300 metres off shore at a depth of 10.5 metres. The treatment process has a Design maximum flow rate of 36.4 ML/d and is composed of a number of sub-units:

- Low Lift pumping station
- coagulation and flocculation using polyaluminum chloride (PAC)
- pre- and post-filter disinfection with chlorine gas;
- two granular activated carbon filters;
- fluoride addition;
- Reservoir and High Lift pumping station
- final treated water UV disinfection;
- process (filter backwash residuals) wastewater treatment.

#### 4.1.2 **Water Distribution System – Trunk and Local Systems**

##### • Parkedale Avenue Reservoir

The Parkedale Avenue Reservoir, Booster Pumping Station and Re-chlorination Facility services two geographical areas which are Zone 1, which is the area South of Highway 401, and Zone 2 which is the area North of Highway 401. It is a 7,600 m<sup>3</sup> capacity reservoir at-grade, single cell, concrete non-baffled, treated water reservoir.

##### • Perth Street Elevated Storage Tank (Water Tower)

The City of Brockville has a 1,900 m<sup>3</sup> overhead storage tank located on Perth St. It is a single cell, steel, non-baffled treated water tank.

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

- **Water Booster Stations**

There are three (3) booster pump stations which are part of the distribution system. The purpose of booster stations is to ensure consistent pressure is maintained throughout the system.

- **Feeder Main & Local WDS**

20" single feeder main from the WTP to the Church St./Perth St. area where flow splits between the Water Tower and the Local and Trunk distribution systems.

#### 4.2 Certificate of Approval

Both the water treatment plant and the water distribution system operate a Certificate of Approval. The Certificates of Approval are shown in Table 4-1.

**Table 4-1 Certificates of Approval – Brockville WTP**

C of A Number	Date
1028-5YRTBP	October 8, 2004
2787-6E7LUJ (replaced 1028-5YRTBP)	July 19, 2005
7894-78ZK8P (replaced 2787-6E7LUJ)	December 6, 2007

A copy of the current C of A for the City of Brockville's WTP is provided in Appendix C. The C of A specifies the maximum flow into individual treatment systems as shown in Table 4-2.

**Table 4-2 Maximum Flow to Treatment System – WTP**

Treatment System/Stage:	Maximum Flow Rate (m <sup>3</sup> /d)
GAC Filters – Flow	19,600 each
UV Disinfection System	36,400

#### 4.3 Permit to Take Water (PTTW)

The City of Brockville's Permit to Take Water Number 8577-5ZCP45 issued June 10, 2004 is valid until June 10, 2014. A copy of the PTTW is included as Appendix D. The permit allows for the water taking outlined in Table 4-3.

**Table 4-3 Maximum Permitted Water Taking – WTP**

Condition:	Maximum Permitted Water Taking
Maximum Amount of Water Taken per Minute	25,278.00 (L/min)
Maximum Amount of Water Taken per Day	36,400,000 (L/day)

#### 4.4 2009 Flow Summary

In 2009, the maximum or Peak Daily raw water taken per minute was 24,310 L/min which occurred on Sept. 15<sup>th</sup>, and was within the permitted maximum amount of 25,278 L/min, or 96.2% of the Permit. In addition in 2009, the annual average daily raw water flow to the WTP was 12,602,287 L/day or 35% of its maximum approved treatment capacity.

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

A summary of the volume of water taken daily and the flows of the water supplied during the 2009 calendar year is provided in **Appendix B: Brockville Water System Data**, and includes a historical graph of past years of pumping at the WTP.

Analysis of the flow summary data indicates that during 2009, the maximum flow rate into the treatment system was not greater than the value specified in the C of A. The review also indicates that the system did not pump flows in contravention of the permitted taking.

#### 4.5 Adverse Test Results

In accordance with Schedule 16 of O. Reg. 170/03, all required notifications of adverse water quality incidents were provided to the Spills Action Centre (SAC) and the Medical Officer of Health (MOH). In 2008 there were a total of four reports filed with SAC as summarized in Table 4-4.

**Table 4-4 Adverse Test Results – Brockville Water System**

Incident Date	Parameter	Result	Corrective Action	Corrective Action Date
May 21, 2009 AWQI 88172	Total Coliform Brockville Distribution	1 CFU/100mL	Flushed and re-sampled	May 27, 2009

**Table 4-5 Water Distribution System Results of Microbiological Testing**

Sample Description:	Number of Samples	Range of E.Coli Or Fecal Results CFU/100ml		Range of Total Coliform Results CFU/100ml		Number of HPC Samples	Range of HPC Results CFU/ml	
		Min.	Max.	Min.	Max.		Min.	Max.
Raw	52	0	20	4	680	52	<10	>2000
Treated	52	0	0	0	0	51	<10	210
Distribution	574	0	0	0	1	368	<10	300

#### 4.6 Operator Certification

The *Certification of Drinking-Water System Operators and Water Quality Analysts* (O. Reg. 128/04) requires owners to ensure that every operator employed in the facility holds a license applicable to that type of facility. The licenses of operators working within the City of Brockville Water Treatment System are outlined in **Appendix E: Operator Licenses**.

O. Reg. 128/04 also requires the designation of an overall responsible operator (ORO) for the facility and that the ORO holds a license applicable to and of the same class as or higher than the class of the facility. Don Richards, Chief Operator is the designated ORO, and Melodie Hobbs, Supervisor WT & WWT Division is the designated alternate ORO. Both Don and Melodie hold Class IV licenses in both water treatment and water distribution.

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

#### 4.7 Historical Flow Results

The historical total annual raw water pumped to the WTP has been graphically displayed in chart and graph format in **Appendix B: Brockville Historical Pumpage of Raw Water to WTP**. This year gave another decrease of 8.1% of the total annual flow from 2008. This information is provided for interest and to evaluate the treatment system trends over time in order to prepare for any future improvements required to meet this demand.

#### 4.8 Capital Projects and Long Term Planning

The Capital Project Sheets for 2009 can be found in **Appendix H** of this Report. All works are subject to annual Budget process and approval by Council. A 10 Year Capital Replacement Equipment Plan has been developed that includes an extensive breakdown of all Capital Equipment that requires allocated funds for refurbishment or replacement. This is not included in the Annual Summary Report this year, but can be made available upon request.

### 5. TOWNSHIP OF ELIZABEHTOWN-KITLEY WATER DISTRIBUTION SYSTEM

#### 5.1 Water System Description

The City of Brockville provides treated water from the Water Treatment Plant to the Water Distribution System (Class 1) owned by the Township of Elizabethtown-Kitley to the west of the City. This is facilitated through a water main that extends along County Road #2 to the Country Club, through a meter chamber and associated appurtenances and services approximately 350 residential customers. This system was installed in 1996 by the Ministry of Transportation and the Ontario Clean Water Agency on behalf of the Township.

The Booster Station at Lily Bay provides for increased pressure only. The Fire Department is aware of this operational constraint and do not use the Distribution System for fire flow testing or filling of tankers for training purposes. A constant flow at the end of the main at Ackerman Rd. is required to maintain a free chlorine residual above the Regulated minimum level of 0.20 mg/L. City Staff operate and maintain this system on behalf of the Township as the "Operating Authority".

#### 5.2 Certificate of Approval

The water distribution system has a number of Certificates of Approval for the different segments of the WDS. The plans and specifications prepared by Ainley Graham and Associates Limited, Consulting Engineers is used as the reference document during the construction and operation phases of this project. The Operations and Maintenance Manual is available for reference at the WTP.

**Table 5-1      Certificates of Approval – Township of Elizabethtown-Kitley**

C of A Number	Date
7-0495-99-006	July 5, 1999
7-0323-98-006 (4 pages)	May 15, 1998
7-0323-98-006 (replaced – 2 pages)	June 10, 1998
7-0323-98-006 (replaced – 2 pages)	July 28, 1998
7-0323-98-006 (replaced – 2 pages)	September 17, 1998
7-0457-98-006	June 23, 1998

2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

The Certificates of Approval are shown in the attached **Appendix G**. The only mention of flow in this document is under the Lily Bay Booster Station where the pump rated capacity is 14.5 L/s at a TDH of 12 m. However, the Booster Station is not operated on a continuous basis – the station is operated on a daily basis to exercise the pumps.

**5.3    Permit to Take Water**

There is no PTTW for the Township's WDS as it is only a Distribution System. The raw water supply is covered off under the Permit to Take Water section (Section 4.3 above) for the City of Brockville's system.

**5.4    Adverse Test Results**

There were no adverse water quality incidents reported to SAC in 2009 for the Elizabethtown-Kitley WDS.

**5.5    Operator Certification**

O. Reg. 128/04 requires the designation of an overall responsible operator (ORO) for the facility and that the ORO holds a license applicable to and of the same class as or higher than the class of the facility. Reid Gaudin, Foreman II is the designated ORO, and Chris Hall, WD Operator is the alternate ORO.

**5.6    Annual Report for Council**

The City of Brockville is also required to prepare a similar report for the Township of Elizabethtown-Kitley's Water Distribution System in accordance with O. Reg. 170/03, Section 22. A copy of this report will be submitted to the Township.

**6.    CONCLUSION**

The City of Brockville serves around 22,000 residents and about 350 residents in the Township of Elizabethtown-Kitley. One of the City's most important responsibilities is to provide its residents with clean, safe drinking water. Routine water quality testing and continuous monitoring of the water quality and quantity is completed by City staff at the water treatment plant and throughout the distribution systems to demonstrate that the City consistently meet or exceeds the standards set by the MOE.

In Ontario, water taking, treatment and distribution are governed by a number of Acts and Regulations. This report fulfills the reporting requirements of the Drinking-Water System Regulation (O. Reg. 170/03) made under the Safe Drinking Water Act for all of the municipal drinking water treatment systems in the City of Brockville and the Township of Elizabethtown-Kitley, and covers the period from January 1<sup>st</sup> to December 31<sup>st</sup> 2009. As required under this same regulation, the report is prepared prior to March 31<sup>st</sup> and is filed for review by municipal council through the Operations Committee and then to the whole of Council. Copies of the report are also on hand at the Public Library, at the Revenue Office at City Hall, and at the Water Treatment Plant at 20 Rivers Avenue, Brockville.

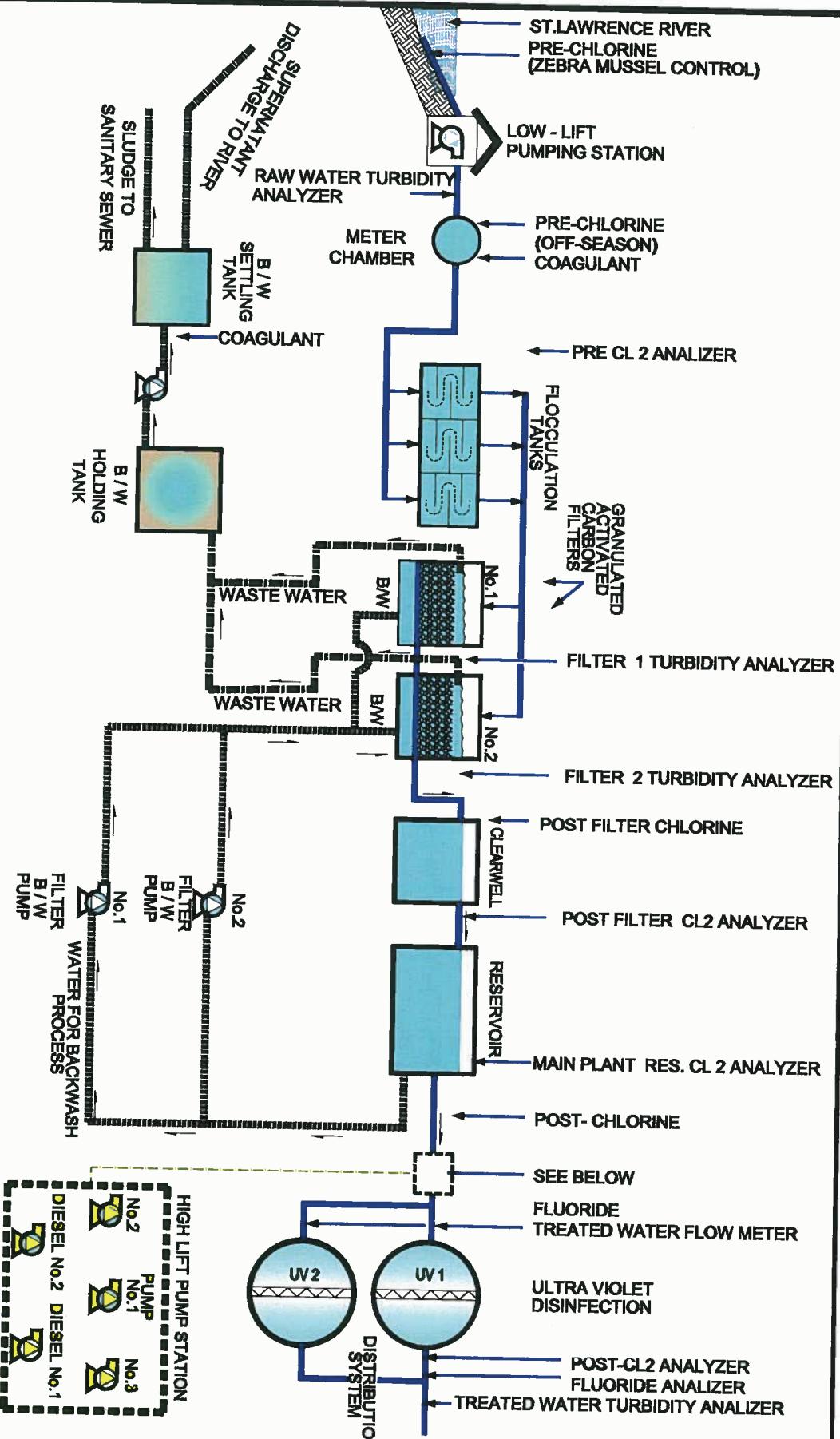
**2009 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM**

The contents of this report highlight the requirements of the Safe Drinking Water Act, the regulations, and the systems' approval including any reportable events and the corresponding corrective actions undertaken in 2009. In addition, the report also includes a summary of the quantities and flow rates of the water supplied during the calendar year, including monthly averages, maximum daily flows, and daily instantaneous peak flow rates. The summaries are compared to the rated capacity and flow rates in the system approvals.

Overall, the 2009 calendar year marked excellent performance at the Brockville's water treatment facilities. Compliance with regulatory requirements, the Certificates of Approvals and Permit to Take Water continues to be monitored through the SCADA system with alarms, professional operations staff and regular reporting mechanisms.

# BROCKVILLE WATER TREATMENT FLOW SCHEMATIC

2009-03-20 D.O.D.  
SK2009-94



**APPENDIX B**

2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TS8		08 Ultraviolet		DW 04 Parkdale Avenue Reservoir		01 Own Meter	
		01 Raw H2O PEAK (TWL)		01 Treated H2O MAX (NTU)		01 Treated H2O MIN (NTU)		01 UV Dose MAX (mJ/cm²)		01 UV Dose MIN (mJ/cm²)		01 Total Daily Flow (m³)	
		0.6778	0.274	11.047	19.75	0.054	0.043	10.197	0.96	52	25	27	19
1	2	0.422	0.233	10.373	18.02	0.054	0.046	9.702	0.25	48	30	27	18
3	4	0.489	0.203	10.834	16.52	0.053	0.043	10.243	0.245	75	23	27	17
5	6	0.682	0.187	13.547	18.73	0.057	0.042	12.761	0.491	49	23	27	18
7	8	0.303	0.167	13.385	17.43	0.056	0.042	12.702	0.491	0	0	34	22
10	11	0.232	0.137	13.208	19.89	0.057	0.041	12.003	0.491	6	73	24	33
12	13	0.232	0.124	12.953	19.69	0.052	0.039	11.625	0.494	71	24	29	19
14	15	0.188	0.118	14.384	19.48	0.052	0.038	13.343	0.493	37	30	34	22
17	18	0.218	0.105	12.637	19.58	0.056	0.038	11.555	0.523	105	0	30	21
19	20	0.143	0.08	12.018	17.71	0.048	0.037	10.764	0.25	69	30	28	18
22	23	0.228	0.106	13.448	18.33	0.042	0.036	12.768	0.242	73	30	34	22
24	25	0.168	0.087	13.407	20.35	0.046	0.038	12.594	0.4	3.277	27	34	22
26	27	0.183	0.1	13.453	20.29	0.058	0.038	12.43	0.494	6	75	25	35
28	29	0.553	0.09	13.517	18.3	0.045	0.04	12.857	0.244	49	30	33	27
30	31	0.128	0.084	14.065	18.45	0.056	0.041	13.004	0.492	100	0	34	23
32	33	0.205	0.084	12.959	19.14	0.047	0.038	11.89	0.493	43	30	28	19
34	35	0.229	0.105	12.736	19.22	0.041	0.036	11.868	0.25	41	30	28	18.8
37	38	0.216	0.103	13.288	19.06	0.041	0.035	12.583	0.242	71	28	33	21
39	40	0.22	0.102	14.618	19.81	0.047	0.036	13.654	0.515	35	25	27	17
42	43	0.155	0.1	14.307	20.19	0.045	0.038	13.344	0.497	11	62	27	33
45	46	0.094	0.094	14.408	19.72	0.059	0.036	13.452	0.495	65	28	34	25
48	49	0.25	0.096	14.228	19.56	0.043	0.037	13.421	0.494	3.200	0	34	25
51	52	0.165	0.11	14	19.93	0.061	0.037	13.056	0.497	61	28	33	24
54	55	0.137	0.108	13.451	19.04	0.051	0.037	12.528	0.495	61	23	32	23
57	58	0.18	0.103	12.72	19.82	0.053	0.037	12.029	0.482	71	28	32	23
60	61	0.154	0.098	14.433	20.08	0.043	0.036	13.598	0.498	39	26	35	25
63	64	0.131	0.098	17.617	20.83	0.044	0.038	16.922	0.48	6	45	28	35
66	67	0.121	0.094	15.7	20.18	0.053	0.035	14.406	0.541	61	23	35	24
69	70	0.159	0.093	15.762	20.06	0.048	0.035	14.826	0.484	38	28	35	25
72	73	0.128	0.095	14.939	20.18	0.052	0.035	13.394	0.485	38	26	35	25
75	76	0.141	0.09	14.408	19.7	0.042	0.036	13.581	0.483	42	28	34	25
		0.244	0.117	13.613	19.349	0.074	0.058	12.704	0.434	8.250	262.128	23.387	19.733
		0.121	0.095	10.373	16.52	0.041	0.035	9.702	0.242	6	0	27	19
		0.878	0.274	17.617	20.63	0.053	0.048	16.822	0.541	11	327	30	0
		31	31	31	31	0.083	0.083	31	0.4	4	31	31	1
		422,004		598,82		31		333,839		13,445		31	
		<b>Average</b>		<b>Minimum</b>		<b>Maximum</b>		<b>Count</b>		<b>Total</b>			

## APPENDIX B

**2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary**

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet Disinfection System		DW 04 Parkdale Avenue Reservoir	
		10 Raw H2O TOTAL	11 Raw H2O PEAK	12 Treated H2O MAX	13 Treated H2O MIN	14 Raw H2O TOTAL	15 Raw H2O MAX	16 Raw H2O MIN	17 Treated H2O MAX	18 Treated H2O MIN	19 Flow TOTAL
February, 2009											
1	0.192	0.091	15.002	19.94	0.042	0.037	0.453	0.453	42	28	34
2	0.186	0.134	16.274	18.8	0.05	0.036	15.685	0.483	38	34	25
3	4.99	0.119	15.128	20.99	0.05	0.036	14.738	0.46	0	0	0
4	0.249	0.105	16.514	20.53	0.053	0.037	15.57	0.465	42	28	25
5	0.138	0.098	15.82	20.52	0.07	0.037	14.823	0.464	38	34	25
6	0.238	0.095	16.107	20.25	0.045	0.038	15.191	0.462	60	0	34
7	0.14	0.097	14.81	20.32	0.044	0.038	13.809	0.466	38	28	24
8	0.154	0.102	15.572	18.37	0.044	0.038	14.487	0.381	38	27	24
9	0.161	0.109	16.052	20.08	0.047	0.038	15.028	0.48	38	26	24
10	0.177	0.103	20.31	0.045	0.037	15.38	0.457	14	38	28	35
11	0.179	0.087	16.018	20.23	0.037	0.037	15.265	0.459	43	37	28
12	0.385	0.107	16.324	20.21	0.058	0.038	15.55	0.458	43	28	33
13	0.823	0.207	16.077	21.13	0.058	0.045	15.26	0.455	44	26	41
14	0.279	0.217	15.509	19.67	0.051	0.043	14.677	0.456	42	26	36
15	0.289	0.233	16.077	20.11	0.053	0.044	15.236	0.457	43	23	39
16	0.711	0.221	16.317544	20.4	0.056	0.045	15.319	0.455	43	29	36
17	0.275	0.218	16.494	20.5	0.054	0.045	15.806	0.455	7	43	29
18	0.291	0.228	17.393	20.64	0.053	0.048	16.386	0.455	43	30	42
19	0.283	0.217	16.456	20.34	0.067	0.045	15.434	0.463	42	28	40
20	0.826	0.204	15.865	19.85	0.063	0.045	15.578	0.456	48	28	38
21	0.343	0.194	15.157	19.98	0.054	0.045	13.881	0.458	42	28	36
22	0.248	0.176	15.051	19.88	0.054	0.043	14.124	0.457	42	29	37
23	0.285	0.167	16.303	20.65	0.052	0.041	15.413	0.457	42	30	36
24	0.603	0.178	15.642	19.75	0.046	0.039	14.77	0.456	13	40	39
25	0.339	0.161	16.152	19.85	0.046	0.037	15.163	0.458	42	27	40
26	0.244	0.15	16.155	20.08	0.053	0.038	15.454	0.458	40	33	40
27	1.828	0.171	13.157	19.85	0.234	0.037	12.331	0.436	151	30	31
28	0.725	0.187	12.271	17.34	0.056	0.041	11.707	0.232	40	33	30
Average		0.166	15.707269	20.056	0.076	0.040	14.055	0.446	10.260	44.250	28.214
Minimum		0.087	12.271	17.34	0.042	0.036	11.707	0.232	7	0	30
Maximum		4.99	0.233	17.383	21.13	0.353	0.048	16.396	0.449	14	151
Count		28	28	28	28	28	28	28	4	28	28
Total			439.80334	561.66			416.94	12.546			

**APPENDIX B**

2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary

Month	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System 1SS		08 Ultraviolet Disinfection System		DW 04 Parliament Avenue Reservoir		Elbowown Meter	
	TOTAL	PEAK	TOTAL	PEAK	TOTAL	PEAK	TOTAL	PEAK	TOTAL	PEAK	TOTAL	PEAK
1	0.587	0.182	12.861	20.07	0.047	0.04	13.416	0.458	72	33	22	0
2	0.476	0.196	14.378	20.29	0.047	0.04	13.108	0.458	39	31	34	0
3	0.343	0.179	13.98	19.85	0.046	0.039	13.048	0.458	40	28	34	0
4	0.306	0.171	12.268	17.85	0.057	0.037	11.571	0.231	55	27	30	0
5	0.266	0.176	13.474	18.29	0.052	0.037	12.926	0.226	40	33	33	0
6	3.88	0.168	12.42	19.69	0.046	0.036	11.407	0.458	68	0	30	0
7	0.627	0.177	10.983	16.56	0.046	0.038	10.261	0.213	40	33	28	0
8	0.528	0.198	11.754	17.43	0.045	0.039	10.882	0.239	36	19	18	0
9	0.428	0.177	12.672	20.07	0.078	0.038	11.77	0.458	40	33	30	0
10	0.428	0.186	14.473	18.33	0.049	0.041	13.838	0.232	6	43	33	0
11	0.937	0.2	11.769	17.75	0.05	0.041	10.973	0.226	55	26	28	0
12	0.487	0.28	12.939	20.85	0.052	0.041	12.163	0.314	41	28	30	0
13	0.659	0.235	12.275	20.98	0.046	0.041	11.254	0.319	72	33	29	0
14	0.362	0.219	11.406	20.4	0.047	0.041	10.543	0.231	72	33	28	0
15	0.341	0.194	12.01	18.28	0.046	0.041	11.339	0.226	37	18	16	0
16	0.427	0.209	13.567	20.42	0.051	0.041	12.466	0.458	40	26	32	0
17	0.99	0.264	13.264	20.05	0.05	0.039	12.325	0.458	9	54	28	0
18	0.14	0.14	11.819	21.37	0.093	0.04	18.713	0.457	86	0	28	0
19	0.508	0.136	13.2	20.08	0.054	0.043	12.285	0.474	39	32	31	0
20	1.24	0.13	13.011	20.78	0.06	0.046	12.028	0.48	39	30	29	0
21	0.206	0.119	11.059	19.19	0.05	0.041	14.91	0.239	39	32	0	0
22	0.22	0.128	10.225	15.67	0.047	0.04	9.519	0.233	51	32	25	0
23	0.22	0.119	12.351	17.16	0.045	0.039	11.684	0.24	10	39	26	0
24	0.198	0.122	12.336	17.24	0.045	0.038	12.627	0.233	53	27	28	0
25	0.843	0.117	11.957	18.7	0.047	0.038	11.374	0.241	40	32	19	0
26	0.301	0.117	13.417	19.67	0.047	0.039	12.557	0.474	53	32	32	0
27	0.468	0.121	12.002	20.14	0.048	0.039	11.258	0.234	40	32	27	0
28	0.294	0.121	11.852	19.86	0.047	0.039	10.912	0.24	43	28	27	0
29	0.462	0.138	12.141	19.73	0.061	0.041	11.307	0.489	60	40	30	0
30	0.566	0.147	11.488	16.47	0.071	0.045	10.778	0.233	100	20	27	0
31	0.206	0.138	11.795	14.45	0.065	0.049	11.254	0.409	8	34	21	0

## APPENDIX B

2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary

Month	Year	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet Disinfection		DW 04 Parkdale Avenue Reservoir		DW 04 Parkdale Avenue Reservoir		
		Raw H2O MAX (MLD)	Raw H2O MIN (MLD)	Treated H2O MAX (MLD)	Treated H2O MIN (MLD)	Backwash Volume (m³/L)	Spent media backwash (m³/L)	UV Doseage (min)	UV Doseage (min)	UV Intensity (mW/cm²)	UV Intensity (mW/cm²)	UV Intensity (mW/cm²)	UV Intensity (mW/cm²)	
April	2009	1 0.473	0.137	11.583	18.67	0.166	0.057	10.528	0.336	36	23	15	95	
	2 0.51	0.148	13.474	19.45	0.106	0.082	13.056	0.534	47	22	25	95		
	3 0.583	0.145	12.432	19.2	0.087	0.062	11.102	0.982	33	22	25	95		
	4 1.563	0.328	12.845	20.97	0.093	0.06	11.55	0.507	100	21	27	95		
	5 0.514	0.234	11.826	15.45	0.075	0.056	11.026	0.248	35	22	28	95		
	6 0.89	0.245	11.847	17.49	0.25	0.054	10.838	0.45	237	22	25	95		
	7 0.928	0.212	12.282	19.35	0.079	0.054	11.679	0.459	41	22	20	95		
	8 0.572	0.221	14.813	18.27	0.086	0.059	13.631	0.623	50	20	24	95		
	9 0.621	0.24	12.073	18.11	0.093	0.067	11.028	0.782	54	22	21	95		
	10 0.667	0.242	12.905	21.13	0.079	0.061	11.751	0.784	28	22	18	95		
	11 0.418	0.24	10.794	17.15	0.087	0.057	9.922	0.265	56	23	27	95		
	12 0.91	0.209	11.504	20.45	0.074	0.052	10.874	0.54	3.277	25	30	95		
	13 0.956	0.211	12.337	19.76	0.06	0.049	11.32	0.566	54	32	30	95		
	14 0.456	0.206	13.329	19.95	0.072	0.047	12.423	0.541	6	25	30	95		
	15 0.51	0.207	13.619	18.67	0.082	0.046	12.619	0.541	100	0	31	95		
	16 0.307	0.2	12.514	18.77	0.056	0.044	11.548	0.532	37	32	29	95		
	17 0.409	0.211	11.15837	19.47	0.056	0.044	12.08	0.534	39	25	29	95		
	18 0.358	0.153	10.38	20.38	0.052	0.044	11.284	0.533	38	32	29	95		
	19 0.428	0.264	10.682	16.43	0.055	0.047	9.803	0.533	37	32	30	95		
	20 0.382	0.247	12.357	20.2	0.062	0.049	11.627	0.534	78	32	30	95		
	21 0.402	0.243	13.979	19.92	0.076	0.052	13.197	0.533	37	31	29	95		
	22 0.504	0.224	12.213	20.44	0.068	0.054	11.389	0.532	7	24	28	95		
	23 0.285	0.24	11.985	20.16	0.065	0.05	11.445	0.538	36	30	28	95		
	24 0.374	0.218	13.452	19.75	0.075	0.052	12.813	0.532	36	30	28	95		
	25 0.324	0.222	11.294	20.32	0.065	0.051	10.427	0.533	37	24	28	95		
	26 0.269	0.186	12.229	20.15	0.064	0.05	11.434	0.533	51	31	28	95		
	27 0.247	0.159	12.087	20.35	0.19	0.049	11.179	0.533	51	24	28	95		
	28 0.207	0.142	13.494	19.52	0.06	0.049	12.689	0.533	7	36	24	95		
	29 1.43	0.147	12.352	20.28	0.056	0.048	11.595	0.538	37	31	28	95		
	30 1.089	0.225	13.498	19.49	0.066	0.051	12.729	0.534	100	22	23	95		
Average		0.560	0.210	12.47776	19.490	0.095	0.053	11.592	0.539	6,760	26,867	17,830	0.0000	
Minimum		0.207	0.137	10.682	15.65	0.052	0.044	9.803	0.248	6	18	12	0.0000	
Maximum		1.563	0.328	14.613	21.13	0.25	0.087	13.631	0.982	7	3277	32	0.0482	
Count		30	30	30	30	30	30	30	30	4	30	30	0.0482	
Total				374,333.37	584.7			347,745	16,171		1	30	30	146,525

## APPENDIX B

**2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary**

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System 188		08 Ultraviolet Disinfection		DW 04 Parkdale Avenue Reservoir	
		Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)
		0.626	0.317	12.107	0.06	20.02	0.05	11.301	0.512	41	29
1	0.57	0.288	11.533	16.22	0.113	0.048	10.683	0.534	52	31	18
2	1.573	0.235	11.444	19.95	0.075	0.048	10.595	0.534	52	24	18
3	0.752	0.219	13.272	19.89	0.063	0.048	12.427	0.539	53	24	18
4	0.46	0.226	12.282	20.05	0.068	0.046	11.425	0.542	7	52	30
5	0.796	0.213	13.125	20.31	0.062	0.045	12.277	0.541	52	24	17
6	0.505	0.222	11.774	20.24	0.063	0.047	10.948	0.54	51	24	18
7	0.525	0.22	12.379	20.38	0.061	0.048	11.617	0.537	38	31	29
8	0.401	0.229	11.559	19.08	0.082	0.051	10.796	0.533	52	31	17
9	1.374	0.251	11.9	20.17	0.069	0.051	11.043	0.549	75	24	28
10	0.634	0.23	12.59	18.23	0.065	0.052	11.758	0.546	75	24	17
11	0.608	0.227	13.144	20.04	0.078	0.051	12.288	0.542	5	56	23
12	0.713	0.214	13.114	19.86	0.08	0.051	12.268	0.544	50	23	17
13	0.264	0.178	11.782	20.13	0.07	0.052	10.95	0.548	50	23	17
14	0.999	0.267	11.654	19.78	0.073	0.056	10.803	0.55	50	30	28
15	0.799	0.264	11.264	20.04	0.071	0.055	10.454	0.546	50	31	28
16	0.766	0.281	11.836	19.73	0.069	0.054	11.014	0.538	50	24	28
17	0.987	0.262	12.934	20.39	0.069	0.053	12.047	0.547	51	23	28
18	0.857	0.253	13.663	20.48	0.071	0.051	12.802	0.55	3	50	23
19	0.271	0.173	11.912	19.78	0.066	0.056	11.069	0.549	49	23	27
20	0.926	0.248	13.806	21.34	0.07	0.054	13.012	0.488	48	23	17
21	0.582	0.252	12.579	20.27	0.072	0.048	11.716	0.549	46	24	28
22	0.373	0.219	12.103	20.37	0.06	0.047	11.231	0.548	49	23	27
23	0.838	0.238	0.23	12.753	0.062	0.046	11.871	0.546	149	23	16
24	0.732	0.23	12.536	20.16	0.052	0.043	11.708	0.549	38	24	28
25	0.452	0.254	13.877	21.19	0.098	0.043	13.175	0.801	<2	31	23
26	0.686	0.266	13.226	21.14	0.092	0.043	12.365	0.798	NR	NR	17
27	0.437	0.226	13.25	21.4	0.04	0.038	13.242	0.647	NR	NR	0
28	0.744	0.254	14.1	20.04	0.06	0.045	9.744	0.525	NR	NR	0
29	4.899	0.284	10.486	19.04	0.09	0.045	11.285	0.718	NR	NR	0
30	0.643	0.31	12.327	20.28	0.059	0.04	12.285	0.718	NR	NR	0
31	0.693	0.276	13.85	10.497	0.056	0.044	9.738	0.28	NR	NR	0

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System 188		08 Ultraviolet Disinfection		DW 04 Parkdale Avenue Reservoir	
		Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)	Flow (L/min)	UV Dose (mg/L)
Average	0.907	0.250	12.372	18.767	0.070	0.048	11.538	0.556	5,000	64,231	25,462
Minimum	0.373	0.213	10.486	13.85	0.052	0.038	9.738	0.28	<2	31	23
Maximum	4.999	0.317	14.1	21.34	0.113	0.058	13.242	0.801	7	149	31
Count	31	31	31	31	31	31	31	4	28	31	31
Total	383,543	612,79		367,863	17,251					0	150,505

## APPENDIX B

**2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary**

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet		DW 04 Particulate Avenue Reservoir								
Month	Year	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	Flow (m³)	
1	2009	0.886	0.29	13,054	18.2	0.058	0.045	12,214	0.533	NR	NR	NR	NR	NR	NR	NR	NR	
2		4.98	0.29	12,797	20.28	0.262	0.049	11,97	0.533	3	NR	NR	NR	NR	NR	NR	95	
3		2.04	0.26	11,411	19.97	0.316	0.044	10,543	0.533	NR	NR	NR	NR	NR	NR	95	0	
4		0.785	0.275	13,846	19.99	0.07	0.052	12,771	0.534	NR	NR	NR	NR	NR	NR	95	0	
5		0.77	0.284	13,411	20.12	0.059	0.049	12,84	0.456	NR	NR	NR	NR	NR	NR	95	0	
6		0.687	0.276	11,228	20.3	0.063	0.048	10,47	0.458	NR	NR	NR	NR	NR	NR	95	0	
7		0.758	0.282	12,135	19.71	0.063	0.047	11,449	0.456	NR	NR	NR	NR	NR	NR	95	0	
8		0.729	0.35	12,705	19.96	0.058	0.047	11,517	0.289	NR	NR	NR	NR	NR	NR	95	0	
9		0.681	0.352	13,157	18.07	0.069	0.047	12,518	0.41	8	NR	NR	NR	NR	NR	NR	95	0
10		0.86	0.308	12,635	19.55	0.061	0.046	11,831	0.41	NR	NR	NR	NR	NR	NR	95	0	
11		0.819	0.309	12,848	19.82	0.083	0.045	12,111	0.432	NR	NR	NR	NR	NR	NR	95	0	
12		2.6	0.324	11,637	18.59	0.06	0.046	10,88	0.458	NR	NR	NR	NR	NR	NR	95	0	
13		0.97	0.281	11,012	20.25	0.097	0.047	10,301	0.439	0	0	0	0	0	0	95	0	
14		0.933	0.277	12,781	20.1	0.059	0.046	12,089	0.44	NR	NR	NR	NR	NR	NR	95	0	
15		0.598	0.338	12,178	19.14	0.058	0.045	11,494	0.439	NR	NR	NR	NR	NR	NR	95	0	
16		0.524	0.357	14,227	19.4	0.063	0.046	13,508	0.438	10	NR	NR	NR	NR	NR	NR	95	0
17		2.372	0.34	13,434	19.94	0.194	0.045	12,757	0.437	NR	NR	NR	NR	NR	NR	95	0	
18		0.795	0.343	11,448	20.4	0.058	0.045	10,832	0.436	NR	NR	NR	NR	NR	NR	95	0	
19		0.78	0.387	11,443	16.37	0.06	0.044	10,823	0.437	NR	NR	NR	NR	NR	NR	95	0	
20		0.686	0.325	11,428	20.18	0.058	0.042	10,771	0.437	NR	NR	NR	NR	NR	NR	95	0	
21		0.924	0.344	12,174	18.15	0.053	0.042	11,442	0.437	NR	NR	NR	NR	NR	NR	95	0	
22		0.573	0.376	12,859	19.88	0.049	0.041	12,205	0.438	NR	NR	NR	NR	NR	NR	95	0	
23		2.3	0.375	15,343	20.35	0.056	0.042	14,451	0.701	4	NR	NR	NR	NR	NR	NR	95	0
24		0.621	0.391	15,052	20.23	0.054	0.043	14,183	0.635	NR	NR	NR	NR	NR	NR	95	0	
25		0.986	0.384	14,571	19.88	0.076	0.032	13,89	0.438	NR	NR	NR	NR	NR	NR	95	0	
26		1.4	0.07	11,933	21.23	0.09	0.038	11,23	0.43	NR	NR	NR	NR	NR	NR	95	0	
27		3.749	0.424	11,978	17.1	0.053	0.037	11,488	0.852	NR	NR	NR	NR	NR	NR	95	0	
28		0.919	0.36	13,205	20.18	0.046	0.037	12,407	0.631	NR	NR	NR	NR	NR	NR	95	0	
29		0.863	0.398	12,652	20.48	0.053	0.036	11,551	0.544	6	NR	NR	NR	NR	NR	NR	95	0
30		1.061	0.45	14,488	20.59	0.061	0.043	13,879	0.541	NR	NR	NR	NR	NR	NR	95	0	
<b>Average</b>		<b>1.246</b>	<b>0.337</b>	<b>12,760</b>	<b>19,684</b>	<b>0.062</b>	<b>0.044</b>	<b>11,988</b>	<b>0.461</b>	<b>6,200</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>96,000</b>	<b>5,217</b>	
<b>Minimum</b>		<b>0.524</b>	<b>0.07</b>	<b>11,012</b>	<b>17.1</b>	<b>0.048</b>	<b>0.032</b>	<b>10,301</b>	<b>0.268</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>95</b>	<b>0.178</b>	
<b>Maximum</b>		<b>4.98</b>	<b>0.45</b>	<b>16,343</b>	<b>21.23</b>	<b>0.316</b>	<b>0.082</b>	<b>14,451</b>	<b>0.701</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>95</b>	<b>0.08</b>	
<b>Total</b>		<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>30</b>	<b>0</b>	

## APPENDIX B

**2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary**

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		DW 04 Parkdale Avenue Reservoir		DW 04 Parkdale Avenue Reservoir		
		01 Raw H2O PEAK		10 Raw H2O TOTAL		05 Raw H2O TOTAL		DW 04 Flow TOTAL		DW 04 Flow TOTAL		
		01 Raw H2O MAX		10 Raw H2O MIN		05 Raw H2O MAX		01 Raw H2O MAX		05 Raw H2O MIN		
		10 Raw H2O MAX	10 Raw H2O MIN	01 Treated H2O MAX	01 Treated H2O MIN	05 Treated H2O MAX	05 Treated H2O MIN	01 Raw H2O MAX	01 Raw H2O MIN	05 Raw H2O MAX	05 Raw H2O MIN	
		1,052	0,408	11,386	20,2	0,085	0,042	10,575	0,542	NR	NR	
1	2	0,971	0,473	12,584	20,44	0,204	0,049	11,777	0,543	NR	NR	
3	3	2,188	0,514	14,286	21,27	0,083	0,048	13,452	0,544	NR	NR	
4	4	1,229	0,451	10,868	20,25	0,057	0,046	10,07	0,543	NR	NR	
5	5	0,893	0,449	11,118	20,2	0,06	0,048	10,307	0,545	NR	NR	
6	6	1,029	0,536	13,92	19,8	0,084	0,051	13,057	0,544	NR	NR	
7	7	1,72	0,484	12,633	20,08	0,08	0,047	12,798	0,528	NR	NR	
8	8	1,233	0,541	13,652	19,81	0,068	0,047	12,827	0,527	NR	NR	
9	9	1,204	0,194	14,225	20,27	0,082	0,047	13,196	0,634	NR	NR	
10	10	1,17	0,502	12,416	20,62	0,071	0,048	11,687	0,444	NR	0	
11	11	4,98	0,4	11,321	20,1	0,137	0,059	10,568	0,545	NR	NR	
12	12	2,087	0,457	12,302	20,05	0,074	0,053	11,477	0,543	NR	NR	
13	13	1,232	0,477	11,532	20,1	0,067	0,051	10,718	0,543	NR	0	
14	14	1,265	0,549	14,539	20,27	0,071	0,051	13,699	0,544	NR	NR	
15	15	0,887	0,572	14,389	20,03	0,07	0,05	13,545	0,545	NR	NR	
16	16	1,122	0,528	12,115	20,42	0,087	0,051	11,286	0,542	NR	NR	
17	17	1,068	0,56	12,69	20,62	0,069	0,052	11,845	0,545	NR	NR	
18	18	1,522	0,497	11,841	20,58	0,067	0,052	10,884	0,544	NR	NR	
19	19	1,131	0,492	12,551	20,56	0,066	0,051	11,776	0,546	NR	NR	
20	20	0,876	0,528	12,132	20,41	0,072	0,049	11,357	0,544	NR	NR	
21	21	0,835	0,526	12,133	19,91	0,063	0,051	11,44	0,547	NR	NR	
22	22	0,969	0,51	12,308	20,03	0,067	0,049	11,422	0,545	NR	NR	
23	23	1,233	0,47	11,905	20,21	0,067	0,042	11,06	0,543	NR	NR	
24	24	1,628	0,404	12,237	20,52	0,052	0,038	11,573	0,544	NR	NR	
25	25	1,643	0,359	10,811	20,08	0,083	0,037	10,084	0,543	NR	NR	
26	26	2,6	0,424	12,188	20,21	0,058	0,038	11,35	0,543	NR	NR	
27	27	1,497	0,416	11,591	20,01	0,044	0,037	10,857	0,545	NR	NR	
28	28	1,214	0,386	12,693	20,16	0,053	0,038	12,088	0,544	5	NR	
29	29	1,04	0,06	11,302	20,45	0,048	0,037	10,503	0,545	NR	NR	
30	30	0,875	0,464	12,58	20,6	0,076	0,038	11,782	0,544	NR	NR	
31	31	1,205	0,368	11,752	20,66	0,063	0,038	10,967	0,544	NR	NR	
		Average	1,986	0,462	12,393	20,287	0,079	0,046	11,681	0,543	6,750	0,000
		Minimum	0,693	0,194	10,811	18,8	0,044	0,037	10,07	0,444	5	0,000
		Maximum	4,99	0,572	14,539	21,27	0,276	0,059	13,699	0,634	NR	0,000
		Count	31	31	31	31	31	31	31	31	1	1
		Total										168,846

## APPENDIX B

**2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary**

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet		DW 04 Parkdale Avenue Reservoir		Flow TOTAL	
		Raw H2O PEAK		Treated H2O PEAK		Treated H2O MIN		Raw Design MAX		Treated Design MAX		Raw Design MIN	
		Raw H2O MAX		Treated H2O MAX		Treated H2O MIN		Raw Design MAX		Treated Design MAX		Raw Design MIN	
August, 2009		0.365	11.546	20.62	0.054	0.04	10.804	0.542	NR	NR	NR	95	4.573
1	1.151	0.351	11.155	20.38	0.052	0.04	10.441	0.545	NR	NR	NR	95	4.191
2	1.407	0.404	12.395	20.6	0.052	0.04	11.637	0.543	NR	NR	NR	95	4.132
3	1.143	0.369	12.437	20.03	0.056	0.041	11.845	0.543	5	NR	NR	95	3.92
4	1.184	0.369	13.456	20.07	0.052	0.041	12.866	0.545	NR	NR	NR	95	3.246
5	0.672	0.401	12.671	20.53	0.051	0.041	11.854	0.544	NR	NR	NR	95	5.317
6	0.719	0.408	12.583	20.46	0.053	0.042	12.179	0.545	NR	NR	NR	95	0.296
7	0.746	0.378	12.163	20.32	0.052	0.043	11.345	0.545	NR	NR	NR	95	5.819
8	0.707	0.381	12.417	20.36	0.057	0.043	11.862	0.543	NR	NR	NR	95	0.098
9	1.172	0.337	12.833	21.17	0.067	0.041	12.098	0.545	NR	NR	NR	95	4.812
10	1.857	0.404	13.783	20.13	0.094	0.043	13.05	0.581	10	0	0	95	0.135
11	1.07	0.378	12.987	20.17	0.061	0.041	12.211	0.566	0	0	0	95	4.751
12	1.357	0.341	12.987	20.17	0.061	0.041	12.211	0.566	NR	NR	NR	95	0.141
13	1.032	0.342	14.102	20.02	0.299	0.041	13.315	0.546	NR	NR	NR	95	5.231
14	1.029	0.309	12.8402	20.19	0.052	0.039	10.015	0.545	0	0	0	95	0.137
15	0.563	0.303	12.1788	20.46	0.051	0.043	11.335	0.545	NR	NR	NR	95	0.272
16	0.733	0.306	13.84	20.46	0.062	0.046	13.006	0.544	NR	NR	NR	95	4.901
17	0.51	0.288	12.961	17.93	0.066	0.045	12.166	0.543	NR	NR	NR	95	0.197
18	0.48	0.285	15.185	20.12	0.066	0.045	14.403	0.571	5	NR	NR	95	0.214
19	1.1	0.273	14.688	19.99	0.07	0.044	14.005	0.527	NR	NR	NR	95	6.197
20	0.573	0.283	14.534	20	0.066	0.045	13.769	0.527	NR	NR	NR	95	0.323
21	0.765	0.282	13.026	20.08	0.087	0.046	12.224	0.528	NR	NR	NR	95	6.2
22	0.638	0.314	12.011	20.34	0.056	0.045	11.315	0.528	NR	NR	NR	95	0.196
23	1.091	0.291	12.914	20.17	0.063	0.048	12.12	0.526	NR	NR	NR	95	5.885
24	1.053	0.306	12.598	15.54	0.055	0.045	11.925	0.529	NR	NR	NR	95	5.413
25	0.639	0.304	14.605	20.08	0.065	0.049	13.807	0.529	NR	NR	NR	95	4.842
26	0.6	0.301	14.059	20.28	0.058	0.048	13.348	0.527	NR	NR	NR	95	0.222
27	0.849	0.321	13.867	20.19	0.061	0.049	13.214	0.533	NR	NR	NR	95	4.938
28	0.708	0.349	12.435	18.8	0.076	0.046	11.864	0.526	NR	NR	NR	95	0.05
29	1.109	0.27	11.214	20.47	0.068	0.044	10.479	0.528	NR	NR	NR	95	4.398
30	1.016	0.276	12.449	20.48	0.054	0.043	11.713	0.528	NR	NR	NR	95	0.078
31	0.607	0.307	13.021	20.81	0.055	0.042	12.296	0.531	NR	NR	0	95	0.117
													5.165

## APPENDIX B

**2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary**

	September, 2009	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet		DW 04 Parkdale Avenue Reservoir		Own Meter Flow			
		TW 1 Raw H2O TOTAL (m³)	TW 1 Raw H2O PEAK (m³)	TW 1 Raw H2O MAX (m³)	TW 1 Raw H2O MIN (m³)	Treated H2O TOTAL (m³)	Treated H2O PEAK (m³)	Treated H2O MAX (m³)	Treated H2O MIN (m³)	UV Doseage MAX (mlgs/cm)	UV Doseage MIN (mlgs/cm)	UV Intensity Btu/hr ft² (BTU/m²)	UV Intensity Btu/hr ft² (BTU/m²)	UV Transmission (%)	UV Transmission (%)
1	0.593	0.304	14,203	19.3	0.061	0.047	13,47	0.529	6	NR	NR	NR	NR	95	5,128
2	1.34	0.298	13,224	20.36	0.06	0.046	12,484	0.538	6	NR	NR	NR	NR	95	5,168
3	0.568	0.284	12,193	20.17	0.061	0.053	11,572	0.471	6	NR	NR	NR	NR	95	5,403
4	4.94	0.276	13,392	18.4	0.078	0.053	12,885	0.528	6	NR	NR	NR	NR	95	5,009
5	0.513	0.237	11,756	20.26	0.072	0.051	10,987	0.578	6	NR	NR	NR	NR	95	4,675
6	0.631	0.286	11,321	20.19	0.064	0.049	10,551	0.529	6	NR	NR	NR	NR	95	4,333
7	0.772	0.245	12,799	19.94	0.06	0.048	12,032	0.531	6	NR	NR	NR	NR	95	4,226
8	4.73	0.285	12,516	20.23	0.067	0.049	11,758	0.531	6	NR	NR	NR	NR	95	5,238
9	0.441	0.257	12,813	19.82	0.061	0.048	12,057	0.528	6	NR	NR	NR	NR	95	3,395
10	0.421	0.247	11,07	20.2	0.065	0.047	10,282	0.527	6	NR	NR	NR	NR	95	5,102
11	0.593	0.267	10,986	18.8	0.061	0.049	10,073	0.53	6	NR	NR	NR	NR	95	5,488
12	0.775	0.242	9,784	15.68	0.064	0.051	8,983	0.528	6	NR	NR	NR	NR	95	5,149
13	0.319	0.257	12,331	20.59	0.062	0.049	11,652	0.524	6	NR	NR	NR	NR	95	4,695
14	0.803	0.3	15,753	20.07	0.058	0.046	14,857	0.528	6	NR	NR	NR	NR	95	4,833
15	4.99	0.232	17,02	24.31	0.1	0.045	16,234	0.524	6	NR	NR	NR	NR	95	0.158
16	0.317	0.219	15,984	20.34	0.072	0.045	15,149	0.528	6	NR	NR	NR	NR	95	4,851
17	0.452	0.213	14,094	20.09	0.038	0.046	13.3	0.524	6	NR	NR	NR	NR	95	0.037
18	1.318	0.209	12,064	19.34	0.057	0.048	11,113	0.526	6	NR	NR	NR	NR	95	5,541
19	0.61	0.205	12,257	19.89	0.054	0.044	11,49	0.528	6	NR	NR	NR	NR	95	0.107
20	0.542	0.226	12,369	17.83	0.055	0.044	11,636	0.53	6	NR	NR	NR	NR	95	4,742
21	0.528	0.214	12,138	19.74	0.053	0.045	11,148	0.498	6	NR	NR	NR	NR	95	4,384
22	0.362	0.191	13,415	19.66	0.056	0.044	12,882	0.529	3	NR	NR	NR	NR	95	4,913
23	0.728	0.171	14,156	19.45	0.051	0.04	12,869	0.52	3	NR	NR	NR	NR	95	5,147
24	0.349	0.237	12,684	19.92	0.048	0.039	12,435	0.527	6	NR	NR	NR	NR	95	0.075
25	0.439	0.245	11,479	19.89	0.055	0.041	11,382	0.528	6	NR	NR	NR	NR	95	5,353
26	0.629	0.278	10,388	19.72	0.065	0.042	10,442	0.527	6	NR	NR	NR	NR	95	5,145
27	0.812	0.269	9,786	20.16	0.069	0.041	9,981	0.527	6	NR	NR	NR	NR	95	4,252
28	0.497	0.32	11,66	19.16	0.054	0.04	11,525	0.527	6	NR	NR	NR	NR	95	4,657
29	0.657	0.281	12,978	19.82	0.052	0.04	12,055	0.495	6	NR	NR	NR	NR	95	0.086
30	1.168	0.209	11,977	20.62	0.051	0.038	10,882	0.453	6	NR	NR	NR	NR	95	4,518
															0.059
Average	0.903	0.247	12,621	19,828	0.061	0.045	11,956	0.525	6	NR	NR	NR	NR	95	4,881
Minimum	0.317	0.171	9,784	15,88	0.036	0.038	8,893	0.453	3	NR	NR	NR	NR	95	3,845
Maximum	4.98	0.32	17,02	24,31	0.1	0.063	16,234	0.588	3	NR	NR	NR	NR	95	0.04
Count	30	30	30	30	30	30	30	30	5	0	0	0	5	30	0
Total			378,638	694,63			368,677	16,743						0	146,431
															3,871

## APPENDIX B

2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary

Date/Per. 2009	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet		DW 04 Paradise Avenue Reservoir		DW 04 Paradise Avenue Reservoir			
	01 Raw H2O PEAK (m³/d)	01 Raw H2O TOTAL (m³/d)	01 Raw H2O MAX (m³/d)	01 Raw H2O MIN (m³/d)	01 Treated H2O MAX (m³/d)	01 Treated H2O MIN (m³/d)	01 Treated H2O TOTAL (m³/d)	01 Treated H2O PEAK (m³/d)	01 UV Doseage MAX (m³/day/cm)	01 UV Doseage MIN (m³/day/cm)	01 UV Intensity Bult 28 (m³/day/cm)	01 UV Intensity Bult 28 (m³/day/cm)	01 UV Transmittance Bult 28 (m³/day/cm)	01 UV Transmittance Bult 28 (m³/day/cm)
1	0.747	0.268	12,095	20,46	0.079	0.038	11,487	0.456	NR	NR	NR	NR	NR	NR
2	0.476	0.283	12,197	18,74	0.091	0.037	11,526	0.491	NR	NR	NR	NR	NR	NR
3	0.882	0.286	10,205	20,1	0.045	0.036	9,883	0.467	NR	NR	0	0	0	0.056
4	0.69	0.24	10,015	13,47	0.052	0.038	9,731	0.486	NR	NR	NR	NR	NR	0.33
5	0.65	0.224	10,809	16,35	0.088	0.038	10,785	0.718	NR	NR	NR	NR	NR	4.028
6	0.756	0.244	13,884	20,53	0.052	0.036	12,908	0.659	10	NR	NR	NR	NR	0.086
7	0.687	0.232	11,382	20,61	0.062	0.036	10,87	0.533	NR	NR	NR	NR	NR	4.132
8	0.653	0.237	12,455	20,46	0.057	0.038	11,774	0.517	NR	NR	NR	NR	NR	4.542
9	0.324	0.237	11,382	20,14	0.052	0.035	11,388	0.484	NR	NR	NR	NR	NR	0.072
10	0.873	0.235	10,483	20,07	0.053	0.034	10,187	0.261	NR	NR	NR	NR	NR	4.595
11	0.817	0.223	10,334	18,92	0.051	0.034	9,971	0.521	NR	NR	NR	NR	NR	0.084
12	0.549	0.211	10,756	19,98	0.044	0.034	10,15	0.553	NR	NR	NR	NR	NR	4.558
13	0.475	0.186	10,468	17,73	0.048	0.038	10,057	0.514	9	NR	NR	NR	NR	0.084
14	0.454	0.177	12,389	20,49	0.05	0.033	11,889	0.532	NR	NR	NR	NR	NR	4.775
15	0.045	0.033	10,988	18,25	0.431	0.184	10,52	0.52	NR	NR	NR	NR	NR	0.084
16	0.17	0.017	11,781	20,04	0.04	0.031	11,113	0.519	NR	NR	NR	NR	NR	0.086
17	0.387	0.152	11,288	20,09	0.041	0.03	10,868	0.518	NR	NR	NR	NR	NR	4.315
18	0.339	0.149	11,574	20,31	0.046	0.031	10,753	0.518	NR	NR	NR	NR	NR	0.084
19	0.309	0.149	11,344	19,84	0.046	0.031	10,753	0.518	NR	NR	NR	NR	NR	4.315
20	0.398	0.147	13,488	20,46	0.044	0.031	12,808	0.519	6	NR	NR	NR	NR	0.12
21	0.284	0.144	13,127	18,4	0.039	0.03	12,257	0.515	NR	NR	NR	NR	NR	4.315
22	0.319	0.135	10,755	20,3	0.045	0.032	10,272	0.519	NR	NR	NR	NR	NR	4.315
23	0.333	0.15	11,502	20,17	0.044	0.032	10,906	0.521	NR	NR	NR	NR	NR	4.315
24	0.515	0.137	10,723	20,54	0.048	0.031	10,222	0.519	NR	NR	NR	NR	NR	4.315
25	0.387	0.148	10,582	20,25	0.045	0.031	10,031	0.519	NR	NR	NR	NR	NR	4.315
26	0.868	0.145	11,766	20,68	0.038	0.031	11,063	0.502	NR	NR	NR	NR	NR	4.315
27	0.262	0.147	13,692	19,75	0.038	0.03	12,964	0.514	12	NR	NR	NR	NR	4.315
28	0.6	0.133	11,556	18,55	0.096	0.03	10,828	0.517	NR	NR	NR	NR	NR	4.315
29	0.237	0.161	12,68	18,98	0.049	0.03	11,812	0.514	54	NR	NR	NR	NR	6.362
30	0.332	0.143	11,814	20,07	0.039	0.03	11,039	0.513	36	22	29	19	NR	0.136
31	0.412	0.134	10,765	20,08	0.04	0.03	10,263	0.517	36	20	30	19	NR	0.206
<b>Average</b>	<b>0.461</b>	<b>0.177</b>	<b>11,677</b>	<b>19,826</b>	<b>0.084</b>	<b>0.038</b>	<b>10,970</b>	<b>0.514</b>	<b>21,116</b>	<b>13,640</b>	<b>0.000</b>	<b>96,000</b>	<b>4,382</b>	
<b>Minimum</b>	<b>0.046</b>	<b>0.017</b>	<b>10,015</b>	<b>13,47</b>	<b>0.038</b>	<b>0.03</b>	<b>8,731</b>	<b>0.261</b>	<b>6</b>	<b>36</b>	<b>0</b>	<b>95</b>	<b>4,478</b>	
<b>Maximum</b>	<b>0.892</b>	<b>0.283</b>	<b>13,884</b>	<b>20,88</b>	<b>0.431</b>	<b>0.184</b>	<b>12,809</b>	<b>0.718</b>	<b>12</b>	<b>64</b>	<b>30</b>	<b>1</b>	<b>4,542</b>	
<b>Count</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>31</b>	<b>4</b>	
<b>Total</b>			<b>368,883</b>	<b>608,41</b>			<b>340,061</b>	<b>15,94</b>			<b>1</b>	<b>135,83</b>	<b>3,612</b>	

## APPENDIX B

2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary

November, 2009	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WWT 1 Backwash System TSS		08 Ultraviolet		DW 04 Parkdale Avenue Reservoir		Own Meter Flow (m³)	
	10 Raw H2O MAX	10 Raw H2O MIN	10 Raw H2O PEAK	10 Raw H2O TOTAL	10 Treated H2O MAX	10 Treated H2O MIN	10 Treated H2O PEAK	10 Treated H2O TOTAL	05 UV Dose (mg/L)	05 Suspended Solids (mg/L)	05 UV Dose (mg/L)	05 Suspended Solids (mg/L)
1	0.776	0.179	12.742	20.22	0.045	0.03	12.237	0.518	80	22	25	17
2	0.96	0.15	12.132	20.32	0.042	0.03	11.644	0.512	37	22	21	13
3	0.506	0.137	12.163	20.21	0.043	0.038	11.568	0.514	53	22	20	13
4	0.881	0.148	10.897	20.6	0.04	0.029	10.283	0.515	45	17	17	11
5	0.32	0.134	12.014	20.2	0.056	0.029	11.219	0.512	39	22	17	11
6	0.881	0.148	11.392	18.84	0.05	0.028	10.773	0.51	88	0	17	11
7	0.287	0.129	10.821	16.15	0.104	0.033	10.052	0.513	53	22	22	17
8	0.216	0.138	10.487	14.61	0.046	0.034	9.809	0.512	53	22	17	11
9	0.407	0.137	13.573	19.86	0.043	0.034	12.739	0.513	37	22	21	13
10	0.267	0.14	12.573	19.47	0.047	0.034	11.884	0.51	7	54	21	22
11	0.881	0.141	11.471	20.22	0.043	0.036	10.675	0.51	88	0	17	11
12	0.328	0.138	11.468	19.78	0.053	0.035	11.651	0.512	60	0	26	16
13	0.881	0.143	11.846	20.21	0.051	0.035	10.962	0.51	51	30	27	16
14	0.44	0.137	11.301	19.94	0.046	0.034	10.547	0.509	49	30	27	16
15	0.385	0.147	11.121	19.59	0.044	0.035	10.341	0.51	49	30	27	16
16	0.323	0.14	12.523	20.4	0.051	0.035	11.944	0.51	49	23	27	18
17	0.326	0.169	13.02	20.03	0.052	0.032	12.176	0.507	9	49	23	27
18	0.454	0.184	10.783	19.67	0.046	0.036	10.163	0.498	43	22	16	10
19	0.66	0.192	12.841	19.92	0.049	0.036	12.088	0.508	43	23	21	13
20	0.534	0.183	11.009	19.8	0.2	0.036	10.241	0.511	37	23	18.6	11.8
21	0.785	0.215	10.759	20.16	0.051	0.036	10.118	0.51	55	22	17.72	11.02
22	0.772	0.206	10.226	20.29	0.054	0.037	9.862	0.509	22	17	10	0
23	0.628	0.201	10.835	19.85	0.046	0.033	10.13	0.498	54	22	17	11
24	0.357	0.2	13.988	19.9	0.054	0.033	13.385	0.756	11	37	23	27
25	0.983	0.183	10.932	21.05	0.052	0.034	9.859	0.254	36	22	27	18
26	0.423	0.192	11.208	19.87	0.062	0.037	10.465	0.51	38	22	17	11
27	0.632	0.216	12.198	19.85	0.069	0.033	11.43	0.509	55	22	21	14
28	0.527	0.217	10.489	19.63	0.065	0.032	9.887	0.583	90	0	18	11
29	0.682	0.229	9.181	20.35	0.061	0.041	8.328	0.438	53	21	14	9
30	0.432	0.218	11.108	20.25	0.07	0.042	10.455	0.504	37	22	17	11
Average	0.526	0.170	11.564	19.745	0.056	0.034	10.854	0.509	51,500	19,800	20,877	13,021
Minimum	0.216	0.129	9.181	21.06	0.04	0.028	8.328	0.254	7	36	14	9
Maximum	0.983	0.229	13.988	20.35	0.2	0.042	13.385	0.756	11	90	30	0
Count	30	30	346,923	592,34	30	30	30	30	4	30	30	0
Total												

## APPENDIX B

2009 City of Brockville Water Treatment Plant Section 22 Annual Flow Summary

	01 SW 1 Raw Water Main Intake	10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		DW 04 Parkdale Avenue Reservoir		DW 04 Parkdale Avenue Reservoir	
		Total Flow (L/min)	UV Daily Flow (L)	Total Suspended Solids (mg/L)	UV Doseage MAX (ml/mg)	Total Dissolved Solids (mg/L)	UV Doseage MIN (ml/mg)	Total Dissolved Solids (mg/L)	UV Doseage MAX (ml/mg)
<b>December, 2009</b>									
1	0.929	0.21	12,861	19.88	0.076	0.041	12,154	0.282	4
2	0.798	0.201	10,733	19.75	0.27	0.039	10,007	0.509	4
3	0.847	0.267	11,677	19.68	0.064	0.041	11,085	0.255	37
4	0.806	0.257	10,958	20.32	0.055	0.04	10,481	0.252	55
5	0.417	0.254	10,926	16.85	0.084	0.042	10,103	0.256	58
6	0.563	0.264	12,417	19.96	0.087	0.043	11,586	0.508	38
7	0.327	0.283	10,77	14.62	0.056	0.043	9,888	0.508	54
8	0.613	0.264	11,275	20.08	0.06	0.044	10,806	0.252	5
9	0.838	0.283	13,598	19.95	0.061	0.043	12,861	0.721	61
10	0.658	0.325	11,046	20.53	0.053	0.045	9,495	0.281	56
11	1.531	0.558	11,717	17.03	0.058	0.042	10,768	0.286	48
12	0.734	0.446	11,317	15.6	0.052	0.041	10,477	0.253	48
13	0.527	0.38	11,042	12.88	0.083	0.041	10,137	0.255	48
14	0.766	0.298	11,927	20.37	0.05	0.038	11,053	0.505	35
15	0.735	0.266	10,154	18.44	0.052	0.037	10,085	0.251	5
16	0.377	0.249	10,007	14,271	0.053	0.036	11,459	0.504	35
17	0.424	0.201	12,371	19.43	0.048	0.034	11,593	0.508	48
18	0.237	0.168	10,121	20.29	0.055	0.027	9,441	0.508	3,277
19	0.288	0.148	9,947	20.53	0.047	0.027	9,597	0.255	0
20	0.197	0.139	10,574	19.58	0.044	0.023	9,924	0.504	48
21	0.208	0.127	10,907	19.53	0.052	0.023	10,014	0.507	8
22	0.839	0.129	10,825	19.53	0.042	0.032	10,234	0.197	40
23	0.333	0.126	11,215	19.47	0.049	0.032	10,215	0.558	40
24	0.258	0.141	10,088	14.54	0.051	0.033	9,578	0.326	55
25	0.877	0.165	9,359	14.16	0.088	0.033	9,422	0.185	40
26	0.98	0.219	8,693	20.21	0.053	0.034	8,756	0.438	41
27	0.542	0.203	9,693	19.43	0.053	0.034	9,818	0.258	53
28	0.763	0.175	9,779	19.83	0.062	0.035	9,701	0.252	39
29	0.654	0.16	9,793	20.12	0.047	0.034	9,451	0.508	42
30	0.502	0.162	9,328	19.87	0.048	0.035	9,082	0.508	47
31	0.293	0.158	11,494	17,47	0.045	0.035	11,231	0.507	39
Average	0.566	0.232	10,987	18.720	0.065	0.036	10,306	0.382	6,200
Minimum	0.197	0.128	8,908	12.88	0.042	0.023	6,786	0.186	4,422
Maximum	1.531	0.658	14,271	20.63	0.27	0.045	13,459	0.762	9,762
Count	31	31	31	31	31	31	31	31	31
Total			340,589	560,33			322,043	11,526	5,576

	01 SW 1 Raw Water Main Intake	10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		DW 04 Parkdale Avenue Reservoir		DW 04 Parkdale Avenue Reservoir	
		Total Flow (L/min)	UV Daily Flow (L)	Total Suspended Solids (mg/L)	UV Doseage MAX (ml/mg)	Total Dissolved Solids (mg/L)	UV Doseage MIN (ml/mg)	Total Dissolved Solids (mg/L)	UV Doseage MAX (ml/mg)
<b>December, 2009</b>									
Totals		0.7861	0.238	12,602,287	19,828	0.070	0.042	11,869	0.483
Average	0.046	0.017	8,908	12.88	0.036	0.023	6,328	0.185	<2
Minimum	5	0.572	17,617	24.31	0.63	0.184	18,713	0.982	14
Maximum	366	386	286	366	366	366	52	214	211
Count	31	31	31	31	31	31	31	31	31
Total		469,633.49	7,164,18	4332,102	176,347				

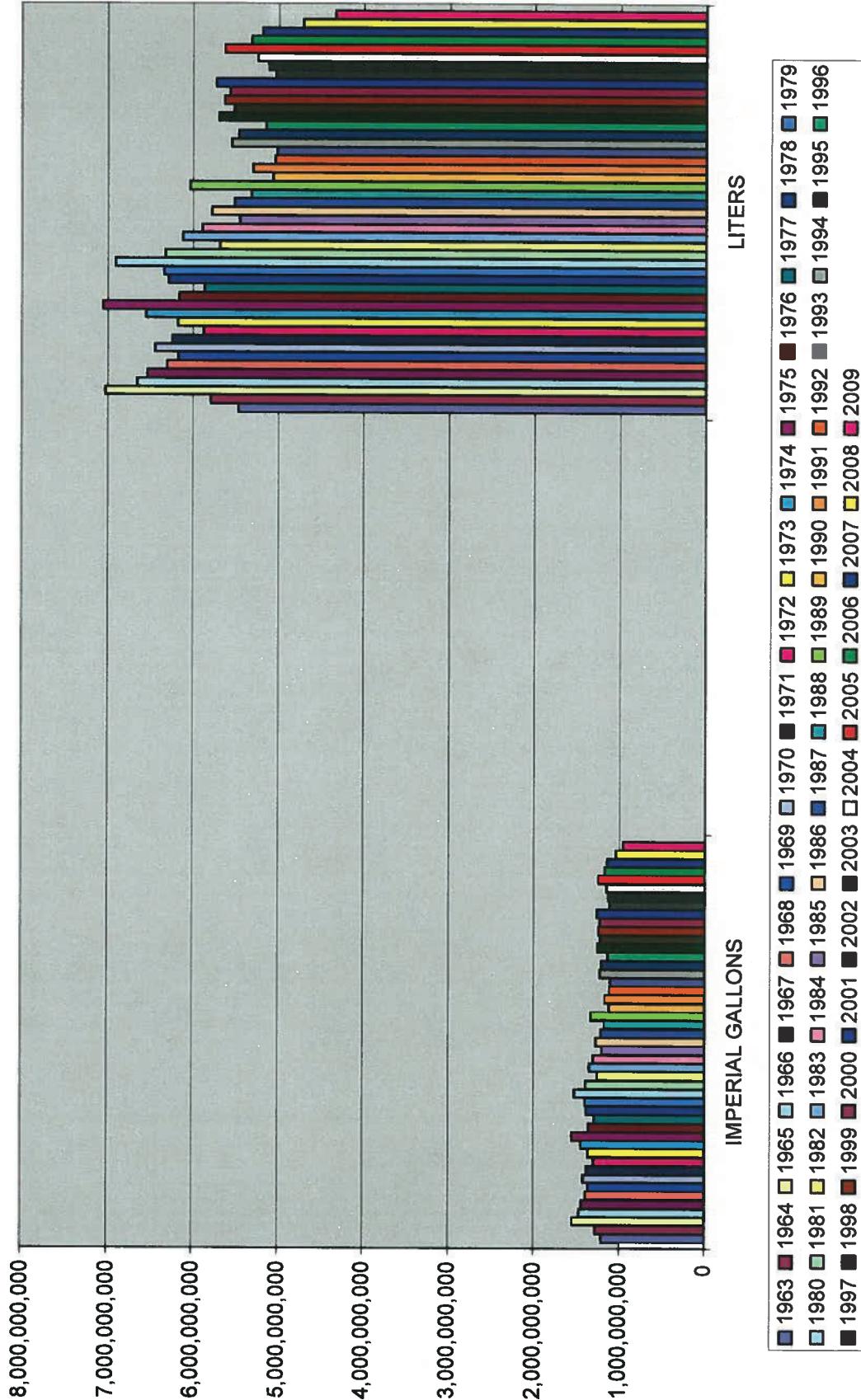
## APPENDIX B

**Brockville Water Treatment Plant**

PUMPAGE	YEAR	IMPERIAL GALLONS	LITERS
	1963	1,202,844,000	5,468,128,824
	1964	1,274,210,000	5,792,558,660
	1965	1,545,555,000	7,026,093,030
	1966	1,463,269,000	6,652,020,874
	1967	1,436,808,000	6,531,729,168
	1968	1,386,472,000	6,302,901,712
	1969	1,358,121,000	6,174,018,066
	1970	1,418,385,000	6,447,978,210
	1971	1,373,982,000	6,246,122,172
	1972	1,292,760,000	5,876,886,960
	1973	1,359,383,000	6,179,755,118
	1974	1,441,401,000	6,552,608,946
	1975	1,550,775,000	7,049,823,150
	1976	1,354,462,000	6,157,384,252
	1977	1,289,516,000	5,862,139,736
	1978	1,382,185,000	6,283,413,010
	1979	1,394,657,000	6,340,110,722
	1980	1,519,137,000	6,905,996,802
	1981	1,391,333,000	6,324,999,818
	1982	1,250,769,000	5,685,995,874
	1983	1,346,238,000	6,119,997,948
	1984	1,296,744,000	5,894,998,224
	1985	1,199,296,000	5,451,999,616
	1986	1,271,667,000	5,780,998,182
	1987	1,213,374,000	5,515,998,204
	1988	1,170,259,000	5,319,997,414
	1989	1,327,421,000	6,034,455,866
	1990	1,114,116,000	5,064,771,336
	1991	1,165,221,000	5,297,094,666
	1992	1,108,227,000	5,037,999,942
	1993	1,102,732,000	5,013,019,672
	1994	1,220,470,000	5,548,256,620
	1995	1,202,596,000	5,467,001,416
	1996	1,132,499,000	5,148,340,454
	1997	1,253,514,000	5,698,474,644
	1998	1,214,069,000	5,519,157,674
	1999	1,238,721,000	5,631,225,666
	2000	1,224,331,000	5,565,808,726
	2001	1,259,659,041	5,726,410,000
	2002	1,107,017,100	5,032,500,000
	2003	1,125,767,700	5,117,740,000
	2004	1,152,263,500	5,238,190,000
	2005	1,237,542,657	5,625,869,000
	2006	1,167,795,848	5,308,800,000
	2007	1,141,625,800	5,189,831,000
	2008	1,037,200,800	4,715,116,000
	2009	952,948,086	4,332,102,000
AVERAGE		1,269,560,416	5,771,421,689

## APPENDIX B

### Yearly Pumpage



## APPENDIX C



Ontario

Ministry  
of the  
Environment

Ministère  
de  
l'Environnement

AMENDED CERTIFICATE OF APPROVAL  
MUNICIPAL DRINKING WATER SYSTEMS  
NUMBER 7894-78ZK8P  
Issue Date: December 7, 2007

The Corporation of the City of Brockville  
Post Office Box, No. 5000  
Brockville, Ontario  
K6V 7A5

Site Location: Brockville Water Treatment Plant  
20 Rivers Ave  
Brockville City, United Counties of Leeds and Grenville

*Pursuant to the Safe Drinking Water Act, 2002, S.O. 2002, c. 32, and the regulations made thereunder and subject to the limitations thereof, this approval is issued under Part V of the Safe Drinking Water Act, 2002, S.O. 2002, c. 32 to:*

The Corporation of the City of Brockville  
PO Box 5000  
Brockville, Ontario  
K6V 7A5

### PART 1 - DRINKING-WATER SYSTEM DESCRIPTION

1.1 for a surface water drinking-water system serving the City of Brockville located at [NAD 27 Zone 18 444500.00 E 4936150.00 N] 20 Rivers Avenue, Brockville, rated as set out in Part 4, consisting of the following:

#### **Existing Water Works**

##### Intake Structure

consisting of an intake crib fitted with a chlorine diffuser, 294 m into the St. Lawrence River and connected through a 900mm pipe to the wet well at the Low Lift Pumping Station;

##### Low Lift Pumping Station

consisting of a screen chamber and a wet well equipped with three (3) raw water pumps as follows:

- two (2) pumps, each rated at  $18,200 \text{ m}^3/\text{d}$  at 23.2 m total dynamic head (TDH),

## APPENDIX C

- one of the 18,200 m<sup>3</sup>/d pump equipped with a dual electric/diesel engine drive;
- one (1) pump rated at 22,700 m<sup>3</sup>/d at 23.2 m TDH;

### Meter Chamber

housing a venturi meter, primary coagulant dosage point, chlorine injection point and discharge lines to the flocculation tanks.

### Flocculation Tanks

three (3) two-cells-in-series spiral up-flow flocculation tanks with each cell 4.0m x 4.0m x 6.0 m side water depth equipped with baffles, flow control valves and a common overflow collection channel to the filtration units;

### Filtration Units

two (2) dual media (granular activated carbon/sand) filters each having a capacity of 19,600 m<sup>3</sup>/d based on a filtration rate of 18 m/hr equipped with two (2) (one duty and one standby) backwash pumps each rated at 45,400 m<sup>3</sup>/d and a filter effluent conduit to the Clearwell;

### Clearwell

a 300 m<sup>3</sup> well with an overflow structure and discharge line to the reservoir;

### Reservoir

a 3,500 m<sup>3</sup> in-ground reservoir equipped with inlet baffles walls with a pipe connection to the wet well of the high lift pumping station;

### High Lift Pumping Station

equipped with five (5) pumps with one (1) capable of delivering 6,800 m<sup>3</sup>/d at 54.9m TDH, one (1) capable of delivering 11,350 m<sup>3</sup>/d at 54.9m TDH, one (1) capable of delivering 15,900 m<sup>3</sup>/d at 54.9m TDH, two (2) diesel motor driven pumps each capable of delivering 18,200 m<sup>3</sup>/d at 70m TDH and a common discharge header to the distribution feeder main;

### Chlorination

a chlorine gas system consisting of two units with each having up to six chlorine cylinders and a vacuum regulator for supplying chlorine solution as follows:

- Zebra Mussel Control : by means of two (2) 50mm feed lines to a diffuser at the Intake Structure,

## APPENDIX C

- to an injection point at the Raw water Meter Chamber,
- to a post-filter injection point in the clearwell,
- to an injection point on the suction side of the High Lift Pumps,

a sodium hypochlorite system consisting of a 300 L storage tank, a chemical feeder pump capable of delivering 20 L/hr and injector at the existing Parkedale Avenue Reservoir;

### UV Disinfection System

two (2) (one duty and one standby) ultraviolet disinfection units with rated design capacity of 40 mJ/cm<sup>2</sup> to apply a minimum UV dosage of 20 mJ/cm<sup>2</sup> at a design flow rate of 36,400 m<sup>3</sup>/d and with flow rate pacing and adjustable ultraviolet light intensity. The UV system is intended to be used as a backup for disinfection with chlorination, or continuously as a multi-barrier disinfection system;

UV system equipped with UV intensity sensors, automated cleaning system and portable UV transmittance measuring device;

### Chemical Feed Systems

a primary coagulation feed system consisting of a 30,000 L solution tank, one day tank and two chemical feed pumps each capable of delivering 80 L/hr through solution feed lines to the Meter Chamber;

a hydrofluosilicic acid chemical feed system from 170 L drums, a chemical feed pump capable of delivering 20 L/hr and a feed line to an injection point on the suction side of the high lift pump suction;

### Stand-by Power Facility

a 100 kW diesel engine stand-by power generator set and associated equipment;

### Residue Management Facility

consisting of a 400 m<sup>3</sup> holding tank, two transfer pumps and a 84 m<sup>3</sup> settling tank with a supernatant overflow to the St. Lawrence River and settled sludge discharge to sanitary sewer using one (1) sludge transfer pump;

coagulant feed system including a 7 L/hr. chemical metering pump and 280 L day tank.

together with all associated piping, electrical and mechanical equipment, ventilation, monitoring, control, metering, and alarm systems, and instrumentation;

all in accordance with the applications and plans and other supporting documents listed in Schedule "A", and all other Schedules, which are attached to, and form part of this approval,

## APPENDIX C

except as specified in the conditions contained herein.

### **PART 2 - DEFINITIONS AND INFORMATION**

- 2.1 Words and phrases not defined in this approval shall be given the same meaning as those set out in the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 and any regulations made in accordance with that act, unless the context requires otherwise.
- 2.2 In this approval

"adverse effect", "contaminant", "impairment" and "natural environment" shall have the same meanings as in the *Environmental Protection Act*, R.S.O.1990, c. E.19 and the *Ontario Water Resources Act*, R.S.O.1990, c. O.40;

"approval" means this entire approval document, issued in accordance with section 36 of the *SDWA*, and includes any schedules to it;

"Director" means a Director appointed pursuant to s. 6 of the *SDWA* for the purposes of Part V of the *SDWA* ;

"drinking-water system" includes the works set out in Part 1;

"operating authority" and "owner" mean, in addition to the respective meanings given in the Act, The Corporation of the City of Brockville;

"provincial officer" means a provincial officer appointed pursuant to s. 8 of the *SDWA* ;

"rated capacity" means the maximum flow rate of water which can be treated when operating the drinking-water system under design conditions;

"*SDWA*" means the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32, as amended.

### **PART 3 - GENERAL**

#### **Compliance**

- 3.1 The owner and operating authority shall operate the drinking-water system in accordance with the *SDWA*, any applicable regulations made thereunder, and this approval.
- 3.2 Despite any condition of this approval to the contrary, the owner and operating authority set out in Part 2 are jointly and severally liable to comply with all conditions of this approval.
- 3.3 The owner and operating authority shall ensure that any person authorized to carry out work on or operate any aspect of the drinking-water system has been informed of the *SDWA*, all

## APPENDIX C

applicable regulations made in accordance with that act, and this approval and shall take all reasonable measures to ensure any such person complies with the same.

- 3.4 A copy of this approval shall be kept in a conspicuous place so that it is available for reference by all persons responsible for all or part of the operation of the drinking-water system.

### **Build, etc. in Accordance**

- 3.5 Except as otherwise provided by this approval, the drinking-water system shall be designed, developed, built, operated and maintained in accordance with Part 1 above and the documentation listed in Schedule "A".

### **Interpretation**

- 3.6 Where there is a conflict between the provisions of this approval and any other document, the following hierarchy shall be used to determine the provision that takes precedence:
- i. The *SDWA* ;
  - ii. a condition imposed in this approval in accordance with s. 38 of the *SDWA* ;
  - iii. any regulation made under the *SDWA* ;
  - iv. this approval;
  - v. any application documents listed in Schedule "A" from most recent to earliest; and
  - vi. all other documents listed in Schedule "A" from most recent to earliest.
- 3.7 The requirements of this approval are severable. If any requirement of this approval, or the application of any requirement of this approval to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this approval shall not be affected thereby.
- 3.8 Nothing in this approval shall be read to provide relief from the need for strict compliance with the *Environmental Assessment Act*, R.S.O. 1990, c E.18.

### **Other Legal Obligations**

- 3.9 The issuance of, and compliance with the conditions of, this approval does not:
- i. relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
  - ii. limit in any way the authority of the Ministry to require certain steps be taken or to

## APPENDIX C

require the owner to furnish any further information related to compliance with this approval.

- 3.10 For greater clarity, nothing in this approval shall be read to provide relief from regulatory requirements in accordance with section 38 of the *SDWA*, except as provided in Part 9.

### Adverse Effects

- 3.11 Nothing in this approval shall be read as to permit: i) the discharge of a contaminant into the natural environment that causes or is likely to cause an adverse effect; or ii) the discharge of any material of any kind into or in any waters or on any shore or bank thereof or into or in any place that may impair the quality of the water of any waters.
- 3.12 All reasonable steps shall be taken to minimize and ameliorate any adverse effect on the natural environment or impairment of the quality of water of any waters resulting from the operation of the drinking-water system including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.
- 3.13 Fulfillment of one or more conditions imposed by this approval does not eliminate the requirement to fulfill any other condition of this approval or the requirements of any applicable statute, regulation, or other legal requirement resulting from any act or omission that causes or is likely to cause an adverse effect on the natural environment or the impairment of water quality.

### Change of Owner

- 3.14 The owner or the operating authority, as the case may be, shall notify the Director, in writing, of any of the following changes within 30 days of the change occurring:
- i. change of owner or operating authority;
  - ii. change of address;
  - iii. change of partners where the owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B17; or
  - iv. change of name of the corporation where the owner or operating authority is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39.
- 3.15 In the event of any change in ownership of the drinking-water system, other than change to a successor municipality, the owner shall notify the successor of and provide the successor with a copy of this approval, and the owner shall provide a copy of the notification to the district manager of the local office of the Ministry and the Director.

### Inspections

## APPENDIX C

- 3.16 No person shall hinder or obstruct a provincial officer in the performance of his or her duties, including any and all inspections authorized by the *SDWA*.

### Information

- 3.17 Any information requested, by the Ministry, concerning the drinking-water system and its operation under this approval, including but not limited to any records required to be kept by this approval shall be provided to the Ministry, upon request.
- 3.18 Records required by or created in accordance with this approval, unless specifically referenced in s. 12 of O. Reg. 170/03, shall be retained for at least 5 years in a location where a provincial officer who is inspecting the treatment system can conveniently view them.

## PART 4 - PERFORMANCE

### Rated Capacity

- 4.1 The drinking-water system shall not be operated to exceed the rated capacity for the maximum flow rate into the distribution system of 36,400 m<sup>3</sup>/d.

### Increase to Rated Capacity

- 4.2 Despite condition 4.1, the drinking water system may be operated at a rate above the rated capacity set out in condition 4.1 where necessary for:
- fighting a large fire; or
  - the maintenance of the drinking-water system.

- 4.3 Condition 4.2 shall not be construed to allow drinking-water to be supplied that does not meet all other applicable standards and legal requirements.

### Management of Residue

- 4.4 The annual average concentration of suspended solids in the effluent discharged from the backwash wastewater facilities to the St. Lawrence River shall not exceed 25 mg/L.

### Performance of UV Disinfection Equipment (when operational)

- 4.5 The UV disinfection equipment shall be installed and operated such that a continuous pass-through dose of at least 20 mJ/cm<sup>2</sup> is maintained throughout the life time of the UV lamps.

## APPENDIX C

### **PART 5 - MONITORING AND RECORDING**

#### **Flow measuring devices**

- 5.1 Install a sufficient number of flow-measuring devices within the drinking-water system to permit continuous measurement and recording of:
  - i. the flow rate and daily volume of water conveyed into the treatment system; and
  - ii. the flow rate and daily volume of water conveyed from the treatment system to the distribution system.
- 5.2 Records shall be maintained that set out the parameters recorded in accordance with condition 5.1, and where a measured flow rate into the distribution system exceeds the maximum flow rate set out for that treatment system, in Part 4, the amount & date, of the exceedence shall also be recorded.

#### **Calibration of flow measuring devices**

- 5.3 All flow measuring devices must be checked and calibrated in accordance with the manufacturer's instructions.
- 5.4 If the manufacturer's instructions do not indicate how often to check and calibrate the flow measuring devices, the equipment must be checked and calibrated at least once every year during which the drinking-water system is in operation.

#### **UV monitoring (when operational)**

- 5.5 In addition of any other sampling, analysis and recording that may be required, continuous monitoring and recording with a minimum testing/reading and recording frequency of every four (4) hours, unless otherwise specified, shall be carried out for the following parameters related to the performance of UV disinfection equipment:
  - i. UV intensity
  - ii. Calculated UV dose
  - iii. Flow rate
  - iv. lamp status
  - v. UV transmittance (monitoring and recording frequency daily using a portable device)

#### **Additional Sampling - Management of Residue**

- 5.6 In addition to any other sampling and analysis that may be required, sampling and analysis shall be undertaken for the parameters listed in **Table 5.1** at the listed frequencies and locations.

## APPENDIX C

**Table 5.1 Management of Residue Sampling**

<u>Item</u>	<u>Parameter</u>	<u>Frequency</u>	<u>Location</u>
1.	Suspended Solids (composite)	Monthly	Point of discharge

- 5.7 For the purposes of **Table 5.1**, composite means the mean of three samples taken during the discharge event, with at least one sample taken immediately following the commencement of the discharge, one sample taken approximately at the mid-point of the discharge event and one sample taken immediately before the discharge ceases.

## **PART 6 - OPERATIONS AND MAINTENANCE**

### **Chemical standards**

- 6.1 All chemicals and materials used in the operation of the drinking-water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60 and NSF/61.
- 6.2 The most current chemical and material product registration documentation from a testing institution accredited by either the Standards Council of Canada or by the American National Standards Institution shall be available at all times for each chemical and material used in the operation of the drinking-water system that comes into contact with water within the system.
- 6.3 Condition 6.2 does not apply in the context of any particular chemical or material where the Owner has written documentation signed by the Director that indicates that the Ministry is satisfied that the chemical or material is acceptable for use within the drinking-water system and that chemical or material is only used as permitted by the documentation.

### **Operations manual**

- 6.4 An up-to-date operations manual shall be maintained and available for reference by all persons responsible for all or part of the operation of the drinking-water system.
- 6.5 The operations manual shall include at a minimum:
- i. the requirements of this approval and associated procedures;
  - ii. the operation and maintenance recommendations from the most recent engineers' report;
  - iii. procedures for the monitoring and recording of in-process parameters necessary for the control of the treatment system and assessing the performance of the drinking-water system;

## APPENDIX C

- iv. procedures for the operation and maintenance of monitoring equipment;
  - v. contingency plans and procedures for the provision of adequate equipment and material to deal with emergencies, upset and equipment breakdown;
  - vi. procedures for the dealing with complaints related to the drinking-water system, including the recording of the nature of the complaint and any investigation and corrective action taken in respect of the complaint;
- 6.6 Procedures necessary to the operation of any physical alterations of the drinking-water system shall be incorporated into the operations manual prior to the alterations coming into operation.

### Drawings

- 6.7 Up-to-date Process Flow Diagrams (PFD) and Process and Instrumentation Diagrams (P&ID) for the treatment system shall be kept on site at the drinking water system.
- 6.8 All drawings and diagrams in the possession of the owner or operating authority that show the treatment system as constructed shall be retained.
- 6.9 An alteration to the treatment system shall be incorporated into Process Flow Diagrams (PFD), Process and Instrumentation Diagrams (P&ID), and record drawings and diagrams within one year of the substantial completion of the alteration and shall be retained and shall be made readily available for inspection by Ministry staff.

## PART 7 - FUTURE ALTERATIONS

### Approved future alterations

- 7.1 *Not Applicable*

### Certificate of compliance

- 7.2 *Not Applicable*

## PART 8 - STUDIES AND UPGRADES REQUIRED

- 8.1 *Not applicable*

### Requirement not an approval

## APPENDIX C

8.2 *Not applicable*

### **PART 9 - RELIEF FROM REGULATORY REQUIREMENTS**

#### **Relief from regulatory requirements**

9.1 *Not Applicable*

#### **Conditions in exchange for relief from regulatory requirements**

9.2 *Not Applicable*

### **SCHEDULE - A**

The following supporting documents form part of this approval.

1. Application for Approval dated August 24, 2007
  - Correspondence dated August 21, 2007 from The City of Brockville
  - Email dated November 28 & December 4, 2007 from Peter Raabe of the City of Brockville.
2. Application for Air Approval (Air) dated May 13, 2005
  - Correspondence dated May 13, 2005 from The City of Brockville
  - Dispersion Modelling Report prepared by Simcoe Engineering dated April 2005
3. Application for Approval dated April 26, 2004
  - Correspondence from CH2MHILL to MOE dated April 29, 2004 and August 6, 2004
4. Application for Approval dated January 29, 2003
  - Final Plans and Specifications prepared by CH2MHILL.
5. The original applications for approval, including design calculations, engineering drawings and reports, and other supporting documents prepared in support of any previous certificate(s) of approval issued for any works now approved and replaced by this approval, unless this approval states otherwise.

**This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 2787-6E7LUJ issued on July 20, 2005**

*All or part of this decision may be reviewable in accordance with the provisions of Part X of the SDWA. In accordance with Section 129(1) of the Safe Drinking Water Act, Chapter 32 Statutes of Ontario, 2002, as*

## APPENDIX C

*amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 129(2) sets out a procedure upon which the 15 days may be extended by the Tribunal. Section 129(3) of the Safe Drinking Water Act, Chapter 32 Statutes of Ontario, 2002, provides that the Notice requiring the hearing shall state:*

1. The aspect of the decision, including the portion of the permit, licence, approval, order or notice of administrative penalty in respect of which the hearing is required; and
2. The grounds for review to be relied on by the person at the hearing

Except with leave of the Tribunal, a person requiring a hearing in relation to a reviewable decision is not entitled to,  
(a) a review of an aspect of the decision other than that stated in the notice requiring the hearing or  
(b) a review of the decision other than on the grounds stated in the notice

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
2300 Yonge St., Suite 1700  
P.O. Box 2382  
Toronto, Ontario  
M4P 1E4

AND

The Director  
Part V, *Safe Drinking Water Act, 2002*  
Ministry of the Environment  
2 St. Clair Avenue West, Floor 12A  
Toronto, Ontario  
M4V 1L5

\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)

*The above noted water works are approved under Part V of the Safe Drinking Water Act.*

DATED AT TORONTO this 7th day of December, 2007



Aziz Ahmed, P.Eng.

## APPENDIX C

Director  
Part V *of the Safe Drinking Water Act,*  
2002

NS/

c: District Manager, MOE Kingston - District  
Drinking Water Supervisor, MOE, Kingston  
Peter Raabe, The Corporation of the City of Brockville

**APPENDIX D**

*Permit to Take Water*

**8577-5ZCP45**

*June 10, 2004*

FROM :

PHONE NO. 613-548-6908  
APPENDIX D

003/009

Jul. 19 2004 12:42PM P2

Ministry of the Environment  
Eastern Region  
Technical Support Section  
Water Resources  
133 Dalton Ave  
Kingston ON K7L 4X6  
Fax: (613) 548-6908  
Telephone: (613) 549-4000 Ext. 2624

Ministère de l'Environnement  
Direction régionale de l'Est  
Section du Soutien Technique  
Ressources en eau  
133 av Dalton  
Kingston ON K7L 4X6  
Télécopieur: (613) 548-6908  
Téléphone : (613) 549-4000 Ext. 2624



Ontario

June 10, 2004

The Corporation of the City of Brockville  
1 King Street West, P. O. Box 5000  
Leeds and the Thousand Islands, ON K6V 7A5  
Canada

GJC/CZ  
MTH. HUN - Co.,  
DR - Co. Y

RECEIVED  
JUN 16 2004  
RECORDED  
CLERK

RE: Permit To Take Water No. 8577-SZCP45  
City of Brockville Water Treatment Plant  
20 Rivers Avenue, Brockville, Ontario K6V 5R9  
Reference Number 1318-SVFQQ8

Dear Sir/Madam:

Please find attached a Permit to Take Water issued to the City of Brockville, which authorizes the withdrawal of water in accordance with the application for Permit to Take Water from the St. Lawrence River to supply the municipal waterworks system.

This permit expires on June 10, 2014 and shall be kept available at all times for inspection by Ontario Ministry of Environment staff.

Take notice that in issuing this Permit to Take Water, terms and conditions pertaining to the taking of water and to the results of the taking have been imposed. The terms and conditions have been designed to allow for the development of water resources, while providing reasonable protection to existing water uses and users.

Please note that it is the responsibility of the Permit Holder to ensure that all other approvals required by law are obtained for this project.

Yours truly,

A handwritten signature in black ink that reads "Clyde Hammond".

Clyde Hammond  
Director, Section 34, OWRA  
Eastern Region

File Storage Number: SI

Page 44 of 73

FROM :

PHONE NO. 6133456163  
APPENDIX D

004/009

Jul. 19 2004 12:43PM P3



Ministry of the  
Environment

Ministère de  
l'Environnement

AMENDED PERMIT TO TAKE WATER  
Surface Water  
NUMBER 8577-5ZCP45

Pursuant to Section 34 of the Ontario Water Resources Act, R.S.O. 1990 this Permit To Take Water is hereby issued to:

The Corporation of the City of Brockville  
1 King Street West, P. O. Box 5000  
Leeds and the Thousand Islands, Ontario, K6V 7AS  
Canada

For the water taking from: The St. Lawrence River

Located at: 20 Rivers Avenue  
Brockville, United Counties of Leeds and Grenville

For the purposes of this Permit, and the terms and conditions specified below, the following definitions apply:

#### DEFINITIONS

- (a) "Director" means any person appointed in writing as a Director pursuant to section 5 of the OWRA for the purposes of section 34, OWRA.
- (b) "Provincial Officer" means any person designated in writing by the Minister as a Provincial Officer pursuant to section 5 of the OWRA.
- (c) "Ministry" means Ontario Ministry of the Environment.
- (d) "District Office" means the Kingston District Office.
- (e) "Permit" means this Permit to Take Water No. 8577-5ZCP45 including its Schedules, if any, issued in accordance with Section 34 of the OWRA.
- (f) "Permit Holder" means The Corporation of the City of Brockville.
- (g) "OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O. 40, as amended.

FROM :

PHONE NO. 6133456163  
APPENDIX D

005/009

Jul. 19 2004 12:43PM P4

You are hereby notified that this Permit is issued subject to the terms and conditions outlined below:

## TERMS AND CONDITIONS

### 1. Compliance with Permit

- 1.1 Except where modified by this Permit, the water taking shall be in accordance with the application for this Permit To Take Water, dated January 9, 2004 and signed by Peter Raabe, and all Schedules included in this Permit.
- 1.2 The Permit Holder shall ensure that any person authorized by the Permit Holder to take water under this Permit is provided with a copy of this Permit and shall take all reasonable measures to ensure that any such person complies with the conditions of this Permit.
- 1.3 Any person authorized by the Permit Holder to take water under this Permit shall comply with the conditions of this Permit.
- 1.4 This Permit is not transferable to another person.
- 1.5 This Permit provides the Permit Holder with permission to take water in accordance with the conditions of this Permit, up to the date of the expiry of this Permit. This Permit does not constitute a legal right, vested or otherwise, to a water allocation, and the issuance of this Permit does not guarantee that, upon its expiry, it will be renewed.
- 1.6 The Permit Holder shall keep this Permit available at all times at or near the site of the taking, and shall produce this Permit immediately for inspection by a Provincial Officer upon his or her request.
- 1.7 The Permit Holder shall report any changes of address to the Director within thirty days of any such change. The Permit Holder shall report any change of ownership of the property for which this Permit is issued within thirty days of any such change. A change in ownership in the property shall cause this Permit to be cancelled.

### 2. General Conditions and Interpretation

#### 2.1 Inspections

The Permit Holder must forthwith, upon presentation of credentials, permit a Provincial Officer to carry out any and all inspections authorized by the OWRA, the Environmental Protection Act, R.S.O. 1990, the Pesticides Act, R.S.O. 1990, or the Safe Drinking Water Act, S. O. 2002.

## 2.2 Other Approvals

The issuance of, and compliance with this Permit, does not:

- (a) relieve the Permit Holder or any other person from any obligation to comply with any other applicable legal requirements, including the provisions of the *Ontario Water Resources Act*, and the *Environmental Protection Act*, and any regulations made thereunder; or
- (b) limit in any way the authority of the Director or a Provincial Officer to require certain steps be taken or to require the Permit Holder to furnish any further information related to this Permit.

## 2.3 Information

The receipt of any information by the Ministry, the failure of the Ministry to take any action or require any person to take any action in relation to the information, or the failure of a Provincial Officer to prosecute any person in relation to the information, shall not be construed as:

- (a) an approval, waiver or justification by the Ministry of any act or omission of any person that contravenes this Permit or other legal requirement; or
- (b) acceptance by the Ministry of the information's completeness or accuracy.

## 2.4 Rights of Action

The issuance of, and compliance with this Permit shall not be construed as precluding or limiting any legal claims or rights of action that any person, including the Crown in right of Ontario or any agency thereof, has or may have against the Permit Holder, its officers, employees, agents, and contractors.

## 2.5 Severability

The requirements of this Permit are severable. If any requirements of this Permit, or the application of any requirements of this Permit to any circumstance, is held invalid or unenforceable, the application of such requirements to other circumstances and the remainder of this Permit shall not be affected thereby.

## 2.6 Conflicts

Where there is a conflict between a provision of any submitted document referred to in this Permit, including its Schedules, and the conditions of this Permit, the conditions in this Permit shall take precedence.

## 3. Water Takings Authorized by This Permit

### 3.1 Expiry

This Permit expires on June 10, 2014. No water shall be taken under authority of this Permit after the expiry date.

FROM :

007/009

PHONE NO. 6133456163  
APPENDIX D

Jul. 19 2004 12:45PM PG

### 3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

Source Name	Source Description	Water Taking Specific Purpose	Net Water Taking (L/min)	Max. Number of Days Taken per Year	Max. Water Taken per Day (Litres)	Max. Number of Days Taken per Year	Max. Water Taken per Year (Litres)	Zonal Easting	Northings
1. St. Lawrence River	Municipal	Water Supply	25278.00	24.00	36400000.00	365.00	18	44663	4936276
				Total Taking:	36400000.00				

### 4. Monitoring

- 4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request.

### 5. Impacts of the Water Taking

#### 5.1 Notification

The Permit Holder shall immediately notify the local District Office of any complaint arising from the taking of water authorized under this Permit and shall report any action which has been taken or is proposed with regard to such complaint. The Permit Holder shall immediately notify the local District Office if the taking of water is observed to have any significant impact on the surrounding waters. After hours, calls shall be directed to the Ministry's Spills Action Centre at 1-800-268-6060.

#### 5.2 For Surface-Water Takings

The taking of water (including the taking of water into storage and the subsequent or simultaneous withdrawal from storage) shall be carried out in such a manner that streamflow is not stopped and is not reduced to a rate that will cause interference with downstream uses of water or with the natural functions of the stream.

### 6. Director May Amend Permit

The Director may amend this Permit by letter requiring the Permit Holder to suspend or reduce the taking to an amount or threshold specified by the Director. NUMBER 86935284 or  
Page 48 of 73

FROM :

PHONE NO. : 6133456163  
APPENDIX D

Jul. 19 2004 12:45PM P7

40000/009

reduction in taking shall be effective immediately and may be revoked at any time upon notification by the Director. This condition does not affect your right to appeal the suspension or reduction in taking to the Environmental Review Tribunal under the *Ontario Water Resources Act*, Section 100 (3).

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition 1 is included to ensure that the conditions in this Permit are complied with and can be enforced.
2. Condition 2 is included to clarify the legal interpretation of aspects of this Permit.
3. Conditions 3 through 6 are included to protect the quality of the natural environment so as to safeguard the ecosystem and human health and foster efficient use and conservation of waters. These conditions allow for the beneficial use of waters while ensuring the fair sharing, conservation and sustainable use of the waters of Ontario. The conditions also specify the water takings that are authorized by this Permit and the scope of this Permit.

FROM :

PHONE NO. : 6133456163  
APPENDIX D

009/009

JUL. 19 2004 12:46PM PB

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, you may by written notice served upon me, the Environmental Review Tribunal and the Environmental Commissioner, require a hearing by the Tribunal. The Environmental Commissioner will place notice of your appeal on the Environmental Registry. Section 101 of the Ontario Water Resources Act, as amended provides that the Notice requiring a hearing shall state:

1. The portions of the Permit or each term or condition in the Permit in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

In addition to these legal requirements, the Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Permit to Take Water number;
6. The date of the Permit to Take Water;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This notice must be served upon:

The Secretary  
Environmental Review Tribunal  
2300 Yonge Street, 12th Floor  
Toronto, Ontario M4P 1E4

AND

The Environmental Commissioner  
1075 Bay Street  
6th Floor, Suite 605  
Toronto, Ontario M5S 2W5

AND

The Director, Section 34  
Ontario Water Resources Act,  
RSO 1990,  
Ministry of Environment  
133 Dalton Ave  
Kingston ON K7L 4X6  
Fax: (613)548-6908

Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal:

by telephone at (416) 314-4600

by fax at (416) 314-4506

by e-mail at [www.ert.gov.on.ca](http://www.ert.gov.on.ca)

This instrument is subject to Section 38 of the Environmental Bill of Rights that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek to appeal for 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry, you can determine when the leave to appeal period ends.

This Permit cancels and replaces Permit Number 94-P-4033, issued on 1994/06/30.

Dated at Kingston this 10th day of June, 2004.

Clyde Hammond

Clyde Hammond  
Director, Section 34  
Ontario Water Resources Act, R.S.O. 1990

Page 6 - NUMBER 8577-S2CP45  
Page 50 of 73

APPENDIX E

**PLANT OPERATING STAFF LICENSES**

**FACILITY: BROCKVILLE WATER TREATMENT PLANT**

<u>NAME AND LICENSE TYPE</u>	<u>LIC. CLASS</u>	<u>LIC. #</u>	<u>EXPIRY</u>
<b>BARLOW, JASON</b> Water Treatment Water Distribution	<b>OPERATOR/INST. TECH. I</b>		
	Class 4	15005	04/30/11
	Class 3	16740	06/30/11
<b>BURNS, RICK</b> Water Treatment Water Distribution	<b>OPERATOR I</b>		
	Class 3	685	11/30/10
	Class 1		
<b>HANLEY, MIKE</b> Water Treatment Water Distribution	<b>OPERATOR I</b>		
	Class 3	697	11/30/10
	Class 1		
<b>HOBBS, MELODIE</b> Water Treatment Water Distribution	<b>SUPERVISOR, WTP</b>		
	Class 4	16929	12/31/11
	Class 4	17339	09/30/11
<b>JENSEN, DOUG</b> Water Treatment Water Distribution	<b>OPERATOR III</b>		
	Class 2	58157	05/31/12
	Class 3	18268	05/31/12
<b>RICHARDS, DON</b> Water Treatment Water Distribution	<b>CHIEF OPERATOR, WTP</b>		
	Class 4	9006	12/31/10
	Class 4	50628	04/30/11

APPENDIX E

**WATER DISTRIBUTION STAFF LICENSES**

**PUBLIC WORKS DIVISION**

<b><u>NAME AND LICENSE TYPE</u></b>	<b><u>LIC. CLASS</u></b>	<b><u>LIC. #</u></b>	<b><u>EXPIRY</u></b>
<b>BEACH, RICHARD</b> Water Distribution Subsystem	<b>OPERATOR I</b> Class 2	<b>16696</b>	<b>07/31/11</b>
<b>FRASER, RUSS</b> Water Distribution Subsystem	<b>PUBLIC WORKS SUPERVISOR</b> Class 1	<b>17056</b>	<b>07/31/11</b>
<b>GAUDIN, REID</b> Water Distribution Subsystem	<b>WD FOREMAN</b> Class 2	<b>17962</b>	<b>11/30/12</b>
<b>HALL, CHRIS</b> Water Distribution & Supply Subsystem	<b>WD SUBFOREMAN</b> Class 3	<b>8595</b>	<b>01/31/13</b>
<b>MALLORY, DWAYNE</b> Water Distribution Subsystem	<b>OPERATOR 1</b> Class 2	<b>18348</b>	<b>05/31/10</b>
<b>STERRITT, BILL</b> Water Distribution Subsystem	<b>OPERATOR 1</b> Class 2	<b>54781</b>	<b>12/31/12</b>

**BROCKVILLE WTP & TRUNK WATER DISTRIBUTION SYSTEM OPERATIONAL HIGHLIGHTS****1<sup>st</sup> Quarter (January, February, March)****1. Main Plant**

- A new 125 HP electric motor was installed on backwash Pump #1.
- Annual servicing completed on UV Reactors, filter surface wash agitators and chlorinators.

**2. Parkdale Booster Station & Reservoir:**

- MCC upgrade to Zone 1, Pumps #1 and #2 completed, commissioned and inspected by ESA.
- Installation of 1 inch corporation stops were installed on discharge piping of Zone 1 pumps (3). This allows staff to safely bleed the lines before performing any maintenance work.
- Zone 1, Pump #1 had excessive vibration while in operation. The motor and drive shaft was removed for service by an outside contractor and is now back in operation. Review of capital program for replacement in 2010.
- Zone 2, Pump #1 motor requires replacement. The tolerance ring in the drive end is causing bearing noise. This motor was installed in the 1970's and has been refurbished several times – staff are investigating Hydro incentive programs to cover a portion of the cost.

**3. Filters: Granular Activated Carbon (GAC) and sand filter media replacement work plan in progress with contractors and suppliers.****4. Overhead Tank: Installation of a radio broadcast system and Police communication system was completed.****5. Elizabethtown-Kitley Distribution System:**

- Heater installed in the Country Club panel due to communication issues during the colder temperatures.
- New 2" flush valves installed at Ackerman Road and Butternut Bay sample stations. Increased HPC counts in bacti samples required staff to seek alternative methods of flushing the system other than using a  $\frac{3}{4}$ " sample tap.
- Communication was lost at Lily Bay booster station, Bell Canada repaired the line.

**6. Low Lift Pump Station: New check valves were installed on Pumps #1 and #2. All pumps have been inspected and repacked.****7. Lead Sampling: Round #3 was completed within MOE compliance guidelines.****8. MOE Inspection: Dan White (DW Inspector – MOE) conducted the Annual Inspection for the City of Brockville's Drinking Water System (Water Treatment and Distribution) on Feb. 4<sup>th</sup> to Feb. 6<sup>th</sup>, 2009. A report will follow.****2<sup>nd</sup> Quarter (April, May, June)****1. Main Plant**

- UV Reactors have been shutdown for the season.
- Zebra Mussel control system in service for the season.
- Algae event in May caused filter loading issues and increased backwashing. Operations Staff were scheduled after hours to backwash the filters.

**2. Filters: Granular Activated Carbon (GAC) and sand filter media replacement completed.****3. Elizabethtown-Kitley Distribution System:**

- April 24<sup>th</sup>, 2009 Dan White from the MOE contacted the Water Treatment ORO to advise of a water main break at the trailer park on Oxford Avenue. Water Distribution was notified and isolated services in order for the contractor to repair the 2" service.
- MOE inspection was conducted by Dan White on June 10<sup>th</sup> and 11<sup>th</sup>, 2009.

Page 53 of 73

**BROCKVILLE WTP & TRUNK WATER DISTRIBUTION SYSTEM OPERATIONAL HIGHLIGHTS**

4. **Low Lift Pump Station:**
  - Annual intake inspection completed on May 20<sup>th</sup>, 2009.
  - Video inspection of suction piping for pumps 1, 2, & 3 completed for CH2M Hill to determine interior pipe condition and check valve operation.
  - Bell Canada performed testing of data lines from main plant to Low Lift.
5. **Lead Sampling:** Round #4 in Elizabethtown-Kitley was completed on June 26<sup>th</sup>, 2009. Round #4 in Brockville will commence in July.
9. **MOE Inspection:** Dan White (DW Inspector – MOE) conducted the Annual Inspection for the City of Brockville's Drinking Water System (Water Treatment and Distribution) from Feb. 4<sup>th</sup> to Feb. 6<sup>th</sup>, 2009 and we received his report on April 20<sup>th</sup>, 2009. In addition, the City of Brockville's Drinking-Water System received another 100% Inspection Result

**3<sup>rd</sup> Quarter (July, August, September)**

1. **Main Plant**
  - Annual flow meter calibrations completed.
  - Emergency power connection for backwash motor number 2 completed.
  - New portable diesel generator received and commissioned.
  - Aluminum coagulant supplier performed plant jar testing with a new coagulant to help lower aluminum residuals.
  - New pressure transmitters were installed and calibrated for Filter #1 and #2 flow, backwash flow, raw water flow and overhead tank level.
  - Maintenance/repairs/replacement of flash mixer motor in raw water meter chamber, main plant diesel engine battery charging system, main plant reservoir chlorine analyzer, and fluoride analyzer.
2. **Elizabethtown-Kitley Distribution System:**
  - Annual flow meter calibration completed.
  - The system was flushed with both Lily Bay Booster pumps in operation.
  - Paul Road distribution system was flushed.
3. **Low Lift Pump Station:**
  - The vacuum pump was leaking oil and had to be rebuilt.
4. **Lead Sampling:** Round #4 in Brockville was completed in August 19<sup>th</sup>. Part of Zone 5 and all of Zone 6 in Brockville was completed in September. There was one lead exceedance at 149 King Street East.
5. **Parkdale Reservoir:**
  - Annual flow meter calibration completed.
  - Repairs were made to the diesel engine gearbox due to vibration issues.
  - New energy efficient electric motors installed on three pumps.
  - Electrical repairs were made to lighting and Zone 2 exhaust ventilation equipment.
  - Reservoir was drained, cleaned, inspected and disinfected by outside contractor and WT/WD Staff. Further investigation is required by engineering staff regarding the replacement of corking in the expansion joints that is falling out.
6. **Drinking Water Quality Management System:**
  - Drinking Water Quality Management System (DWQMS) implemented and initial internal audit completed. DWQMS submitted to the MOE prior to the October 1<sup>st</sup> deadline along with application for the new Municipal Drinking Water System Licence.

**BROCKVILLE WTP & TRUNK WATER DISTRIBUTION SYSTEM OPERATIONAL HIGHLIGHTS****4<sup>th</sup> Quarter (October, November, December)****1. Main Plant**

- Fluoride analyzer, treated water pH probe, UV reactor 201 repaired/replaced.
- High Lift PLC expansion completed by ISI Controls. PLC will be energized and programmed once new High Lift pump isolation valves and actuators are installed.
- Main Plant Pump #1 and #2 check and isolation valves replaced. Work completed by WT/WD Staff. Electrical connection and SCADA programming of actuator will be scheduled once Council approves 2010 Capital Budget.
- Energy efficient induction lighting installed on the exterior of the main plant and in main office areas under 2009 Capital Budget.
- New 3" sump pump installed in filter building.
- Problem with standby portable generator – no power to 120/240 volt panel. A new transformer ordered - replacement is scheduled for the first week of January 2010.
- All 2009 Capital projects completed.

**2. Township of Elizabethtown-Kitley Distribution System:**

- Repairs to flush cabinets were completed.

**3. Trunk Water Distribution System:**

- Water Tower: The water tower was drained, cleaned, inspected and disinfected – work completed by contractor. Twenty-four hour coverage was required during the isolation. The water tower cleaning report indicates interior painting will be required. Exterior touch-up painting was completed in November.
- First Avenue Booster Station: East pump and motor removed from service and mechanical seal replaced due to failure of the old seal. The station security alarming was connected to the PLC to allow alarms to communicate to the SCADA at the WTP.
- Ferguson Drive: WD/Engineering reviewed the new Pressure Relief Valve (PRV) operation to ensure no adverse effects on water quality in the Ferguson Drive area, Zone 2 Pumps and overhead tank which would result from water re-circulating from Zone 2 to Zone 1.
- Lead Sampling: Lead sampling was completed and all reports submitted to the MOE. Review of the sample results indicate that Brockville and Elizabethtown-Kitley qualify for reduced sampling and no corrosion controls measures are required (see attached memos from J. Buckland).
- Parkedale Reservoir: VFD installation for Zone 2 Pump 1 completed. PLC programmed and the VFD is in service. With the VFD in operation the motor operates on average at 75% of total load, therefore it is estimated the power consumption at this station should be reduced by 15% to 25% per month or approximately \$750.00 - \$1,000.00 in energy savings per month. WT Staff also adjusted the settings on the actuator for Zone 2 Pump 2 to alleviate water hammer in the Zone 2 system.

**4. Low Lift Pump Station:**

- Energy efficient induction lighting installed on the exterior of the Low Lift.
- New MCC unit installed and change over completed.
- Zebra control system drained and isolated; ready for spring season.

**5. Drinking Water Quality Management System:**

- Initial DWQMS internal audit was conducted. Areas for improvement have been identified and implementation will be conducted throughout 2010.

**Interoffice  
MEMORANDUM**

**WATER & WASTEWATER TREATMENT  
OPERATIONS DEPARTMENT**

---

**Date:** 2009-11-06

**To:** Don Richards, Chief Operator – Water Treatment

**From:** Jill Buckland, Abatement/Lab Technician

**Subject: CITY OF BROCKVILLE – LEAD SAMPLING RESULT  
EVALUATION – ROUND #4**

---

**Lead Sampling Result Summary for the City of Brockville**

**Round #1 (Dec 15<sup>th</sup> 2007 – April 15<sup>th</sup> 2008):**

Total # of Plumbing Samples: **68**

Residential – 62 sampling locations  
Commercial – 6 sampling locations

Total # of sampling locations with a result over the Lead Standard of 10ug/l: **4**

Therefore: **5.9%** of samples were over the Lead standard of 10ug/l

**Round #2 (June 15<sup>th</sup> 2008 – October 15<sup>th</sup> 2008):**

Total # of Plumbing Samples: **69**

Residential – 63 sampling locations  
Commercial – 6 sampling locations

Total # of sampling locations with a result over the Lead Standard of 10ug/l: **4**

Therefore: **5.8%** of samples were over the Lead standard of 10ug/l

## City of Brockville Lead Sampling Result Evaluation – Round #4

---

Page 2 of 4**Round #3 (December 15<sup>th</sup> 2008 – April 15<sup>th</sup> 2009):**

Total # of Plumbing Samples: **66**

Residential – 60 sampling locations

Commercial – 6 sampling locations

Total # of sampling locations with a result over the Lead Standard of 10ug/l: **0**

Therefore: **0%** of samples were over the Lead standard of 10ug/l

**Round #4 (June 15<sup>th</sup> 2009 – October 15<sup>th</sup> 2009):**

Total # of Plumbing Samples: **66**

Residential – 60 sampling locations

Commercial – 6 sampling locations

Total # of sampling locations with a result over the Lead Standard of 10ug/l: **2**

Therefore: **3.0%** of samples were over the Lead standard of 10ug/l

**Lead Sampling Result Evaluation**

From SOP # 1410.4:

- 2.0 Once a total of two years of **STANDARD LEAD SAMPLING** is completed the Lead results can again be evaluated to determine if reduced sampling applies.

**Condition 1:** If in each of four consecutive periods (2 years) not more than 10 percent of all the samples taken from plumbing and tested for Lead exceeded the standard (10ug/l).

## City of Brockville Lead Sampling Result Evaluation – Round #4

---

Page 3 of 4

- 2.1 If condition 1 is met then the **REDUCED SAMPLING SCHEDULE** applies. See the REDUCED SAMPLING section for the schedule.
- 2.2 If condition 1 is not met then **STANDARD LEAD SAMPLING** continues as described above for another two consecutive periods (1 year). Again after the completion of another year of sampling the Lead results can be evaluated using the above **Condition 1** to determine if reduced sampling applies.

**Conclusion:**

Based on the lead sampling result summary for the last four rounds, Condition 1 was met. An evaluation of each round of lead results shows that not more than 10 percent, of all the samples taken from plumbing and tested for Lead, exceeded the Lead Standard of 10ug/l.

**Therefore, the REDUCED SAMPLING SCHEDULE applies.**

See the REDUCED SAMPLING SCHEDULE that follows.

**SAMPLING POINTS REQUIRED UNDER REDUCED SAMPLING SCHEDULE:**

Water System	Pop. Served by drinking water system	No. of sampling points that serve private residences	No. of sampling points that DO NOT serve private residences	No. of sampling points in Distribution System
EZK	100-499	5	1	1
Brockville	10,000-49,000	30	3	4

**Frequency:** Under the reduced sampling schedule the frequency of sampling events is reduced to two sampling events every third 12-month period after the last set of samples were taken (every 3 years).

The samples required must be taken during each of the following periods in the relevant 12-month period:

1. The period from December 15<sup>th</sup> to April 15<sup>th</sup>.
2. The period from June 15<sup>th</sup> to October 15<sup>th</sup>.

**The next round of lead sampling, at the reduced number of sampling locations, will need to take place during the periods of December 15<sup>th</sup>, 2011 – April 15<sup>th</sup>, 2012 and June 15<sup>th</sup>, 2012 – October 15<sup>th</sup>, 2012.**

Page 58 of 73

## **Corrosion Control Evaluation**

From SOP # 1410.4:

Corrosion Control applies to a large Municipal residential system if,

- Condition 1:** In two of the three most recent periods more than 10 percent of all samples taken from plumbing and tested for Lead exceed the Standard for Lead (10ug/l); and
- Condition 2:** In each of the two periods mentioned above the number of samples that exceed the standard for Lead (10ug/l) is at least two.

### **Summary:**

Round #2 (June 15<sup>th</sup> 2008 – October 15<sup>th</sup> 2008): **5.8%** of samples were over the Lead standard of 10ug/l

Round #3 (December 15<sup>th</sup> 2008 – April 15<sup>th</sup> 2009): **0%** of samples were over the Lead standard of 10ug/l

Round #4 (June 15<sup>th</sup> 2009 – October 15<sup>th</sup> 2009): **3.0%** of samples were over the Lead standard of 10ug/l

### **Conclusion:**

**Corrosion control measures are not necessary.** In no instance did any two of the three most recent periods have more than 10% of all samples taken from the plumbing and tested for Lead exceed the standard of 10ug/l.

**Interoffice  
MEMORANDUM****WATER & WASTEWATER TREATMENT  
OPERATIONS DEPARTMENT****Date:** 2009-11-06**To:** Don Richards, Chief Operator – Water Treatment**From:** Jill Buckland, Abatement/Lab Technician**Subject:** **Elizabethtown-Kitley – LEAD SAMPLING RESULT  
EVALUATION - ROUND #4****Lead Sampling Result Summary for Elizabethtown-Kitley****Round #1 (Dec 15<sup>th</sup> 2007 – April 15<sup>th</sup> 2008):**Total # of Plumbing Samples: **11**Residential – 10 sampling locations  
Commercial – 1 sampling locationsTotal # of sampling locations with a result over the Lead Standard of 10ug/l: **0**Therefore: **0%** of samples were over the Lead standard of 10ug/l**Round #2 (June 15<sup>th</sup> 2008 – October 15<sup>th</sup> 2008):**Total # of Plumbing Samples: **11**Residential – 10 sampling locations  
Commercial – 1 sampling locationsTotal # of sampling locations with a result over the Lead Standard of 10ug/l: **1**Therefore: **9.1%** of samples were over the Lead standard of 10ug/l

## Elizabethtown-Kitley Lead Sampling Result Evaluation – Round #4

---

Page 2 of 4**Round #3 (December 15<sup>th</sup> 2008 – April 15<sup>th</sup> 2009):**

Total # of Plumbing Samples: **12**

Residential – 11 sampling locations

Commercial – 1 sampling locations

Total # of sampling locations with a result over the Lead Standard of 10ug/l: **0**

Therefore: **0%** of samples were over the Lead standard of 10ug/l

**Round #4 (June 15<sup>th</sup> 2009 – October 15<sup>th</sup> 2009):**

Total # of Plumbing Samples: **11**

Residential – 10 sampling locations

Commercial – 1 sampling locations

Total # of sampling locations with a result over the Lead Standard of 10ug/l: **0**

Therefore: **0%** of samples were over the Lead standard of 10ug/l

**Lead Sampling Result Evaluation**

From SOP # 1410.4:

- 2.0 Once a total of two years of **STANDARD LEAD SAMPLING** is completed the Lead results can again be evaluated to determine if reduced sampling applies.

**Condition 1:** If in each of four consecutive periods (2 years) not more than 10 percent of all the samples taken from plumbing and tested for Lead exceeded the standard (10ug/l).

## Elizabethtown-Kitley Lead Sampling Result Evaluation – Round #4

---

Page 3 of 4

- 2.1 If condition 1 is met then the **REDUCED SAMPLING SCHEDULE** applies. See the REDUCED SAMPLING section for the schedule.
- 2.2 If condition 1 is not met then **STANDARD LEAD SAMPLING** continues as described above for another two consecutive periods (1 year). Again after the completion of another year of sampling the Lead results can be evaluated using the above Condition 1 to determine if reduced sampling applies.

**Conclusion:**

Based on the lead sampling result summary for the last four rounds, Condition 1 was met. An evaluation of each round of lead results shows that not more than 10 percent, of all the samples taken from plumbing and tested for Lead, exceeded the Lead Standard of 10ug/l.

Therefore, the **REDUCED SAMPLING SCHEDULE** applies.

See the REDUCED SAMPLING SCHEDULE that follows.

**SAMPLING POINTS REQUIRED UNDER REDUCED SAMPLING SCHEDULE:**

Water System	Pop. Served by drinking water system	No. of sampling points that serve private residences	No. of sampling points that DO NOT serve private residences	No. of sampling points in Distribution System
EZK	100-499	5	1	1
Brockville	10,000-49,000	30	3	4

**Frequency:** Under the reduced sampling schedule the frequency of sampling events is reduced to two sampling events every third 12-month period after the last set of samples were taken (every 3 years).

The samples required must be taken during each of the following periods in the relevant 12-month period:

1. The period from December 15<sup>th</sup> to April 15<sup>th</sup>.
2. The period from June 15<sup>th</sup> to October 15<sup>th</sup>.

**The next round of lead sampling, at the reduced number of sampling locations, will need to take place during the periods of December 15<sup>th</sup>, 2011 – April 15<sup>th</sup>, 2012 and June 15<sup>th</sup>, 2012 – October 15<sup>th</sup>, 2012.**

---

Page 62 of 73

## **Corrosion Control Evaluation**

From SOP # 1410.4:

Corrosion Control applies to a large Municipal residential system if,

**Condition 1:** In two of the three most recent periods more than 10 percent of all samples taken from plumbing and tested for Lead exceed the Standard for Lead (10ug/l); and

**Condition 2:** In each of the two periods mentioned above the number of samples that exceed the standard for Lead (10ug/l) is at least two.

### **Summary:**

Round #2 (June 15<sup>th</sup> 2008 – October 15<sup>th</sup> 2008): **9.1%** of samples were over the Lead standard of 10ug/l

Round #3 (December 15<sup>th</sup> 2008 – April 15<sup>th</sup> 2009): **0%** of samples were over the Lead standard of 10ug/l

Round #4 (June 15<sup>th</sup> 2009 – October 15<sup>th</sup> 2009): **0%** of samples were over the Lead standard of 10ug/l

### **Conclusion:**

Corrosion control measures are not necessary. In no instance did any two of the three most recent periods have more than 10% of all samples taken from the plumbing and tested for Lead exceed the standard of 10ug/l.



**BROCKVILLE**  
CITY OF THE 1000 ISLANDS

City of Brockville  
Victoria Building, One King Street West, P.O. Box 5000  
Brockville, Ontario, Canada K6V 7A5  
tel.: (613) 342-8772 fax: (613) 342-8780

## PURCHASE ORDER

### APPENDIX G

G.S.T.# R106983968

PURCHASE ORDER NO.

No. 91331

This Number Must Appear On All Pkg's,  
Invoices & Correspondence

VENDOR: <i>V. Nowik</i>	705-440-7331	SHIP TO: CITY OF BROCKVILLE <i>Water Treatment</i> <i>20 Rivers</i>	UNIT PRICE	TOTAL COST
ITEM	QUAN.	DESCRIPTION		
		Instrumentation Calibration (Main Plant, Low Lift, Parkdale Res.)		2,753.60
			LST	137.68
			TOTAL	2,891.28
<p style="text-align: center;"><i>Instrumentation Calibration (Main Plant, Low Lift, Parkdale Reservoir - 2009)</i></p>				
W-4601-1450-3010				
TODAY'S DATE <i>July 23/09</i>	DATE REQUIRED <i>July 15/09</i>	PROV. TAX -	G.S.T. <i>Applies</i>	TERMS <i>30 Days</i>
PURCH. AUTHORITY BUDGET: <input type="checkbox"/>	DOCUMENTATION-ATTACH COPY			ACCOUNT NO. <i>W-4601-1450-3010</i>
COUNCIL RESOL. NO.:	TENDER <input type="checkbox"/>	WRITTEN QUOTE <input type="checkbox"/>	QUALIFIED SUPPLIER <input type="checkbox"/>	PURCHASING AGENT <i>[Signature]</i>
MAIL INVOICE TO: ACCOUNT PAYABLE-TREASURY DEPARTMENT, VICTORIA BUILDING KING ST. WEST, P.O. BOX 5000, BROCKVILLE, ONTARIO K6V 7A5 • PHONE (613) 342-8772 FAX (613) 342-8780				
DELIVERY ACKNOWLEDGEMENT, SIGN AND FORWARD TO ACCOUNTS PAYABLE TREASURY WHEN GOODS RECEIVED IN GOOD ORDER			DATE <i>July 23/09</i>	SIGNATURE <i>[Signature]</i>

ORIGINATOR'S COPY

## APPENDIX H

### 2009 CAPITAL PROGRAM

<u>PROJECT NAME:</u>	Water Equipment/Construction	<u>YEAR PROPOSED:</u> ITEM:	2009 6.8
<u>LOCATION:</u>	Brockville Water Treatment Plant and Distribution System		
<u>HISTORY:</u>	LENGTH OF PROJECT: YEAR FIRST INTRODUCED:	Ongoing 2001	
<u>SCOPE:</u>	Provides for the capital needs of the Water Treatment Plant and Water Distribution system. Funding is provided through water revenues.		
<b><u>WATER TREATMENT: BLDG. &amp; PROPERTY MNTCE:</u></b>			
C4030-WTPW-ROF9	Roof main plant admin area	70,000	
C4030-WTPW-LGHT	Energy conservation lighting replacement	10,000	
<b><u>WATER TREATMENT PLANT:</u></b>			
C4030-WTPW-FLE9	PLC upgrades expand High Lift PLC	15,000	
C4030-WTPW-LBE9	Lab Equipment and Analyzers	5,000	
C4030-WTPW-STB9	Standby Generator backwash pump / Parkedale Zone 2 pumps (200 KW portable)	85,000	
C4030-WTPW-HLV9	WTP Check/Discharge Valve Replace (5) + FAB. (Main plant #2)	30,000	
C4030-WTPW-SWS9	Transfer Switch Standby Power Backwash Motor	10,000	
<b><u>PARKEDALE BOOSTER STN. &amp; RESERVOIR:</u></b>			
C4030-WTPW-SPS9	Standby generator transfer switch Zone 2	10,000	
<b><u>LOW LIFT STATION</u></b>			
C4030-WTPW-MCL9	MCC Replacement	60,000	
<b><u>CONTINGENCY:</u></b>		25,000	
			<b><u>320,000</u></b>
<u>WHY REQUIRED:</u> Advantages & Benefits	Allows for coordinated planning of the Capital Requirements required to meet the needs of the Water Treatment system through the Water Distribution Reserve. This also ensures that all costs are being captured and financed through the water rates.		

PREPARED BY (PROJECT MANAGER):

C.J. COSGROVE

DATE:

OCTOBER 30, 2008

# Audit++ PROGRAM

ENERGY EFFICIENCY SOLUTIONS FOR MUNICIPALITIES

The Energy Services Division is able to offer the Audit++ Program as a result of its partnership with the Ministries of Energy and Public Infrastructure Renewal under the Province of Ontario's Municipal Eco-Challenge Fund. We believe the greenhouse gas reductions and financial savings achieved from the projects undertaken as a result of the Audit++ Program will be multiplied many times over. These projects will act as the cornerstone of a long term, sustainable and integrated energy management system that will allow Ontario municipalities to collectively benefit and leverage each others' strengths and best practices.

## City of Brockville – Water Treatment Plant

2010-031-02 2009 Annual Summary Report Water  
Treatment Plant



*The LAS Energy Services Division,  
offers a number of services designed  
to help municipalities save money,  
energy, and the natural environment.  
Page 66 of 73*

# Audit<sup>++</sup>

PROGRAM

APPENDIX I

ENERGY EFFICIENCY SOLUTIONS FOR MUNICIPALITIES

2

*Local Authority Services Ltd. (LAS) was created in 1992 by the Association of Municipalities of Ontario (AMO) and is a wholly owned subsidiary company of AMO. LAS is mandated to work with municipalities, their agencies, boards and commissions, as well as other organizations of Ontario's broader public sector, to assist them in reducing the cost of their expenditures and in increasing their levels of revenues through the principles of economies-of-scale and co-operative procurement efforts. The LAS Energy Services Division offers a number of services designed to help municipalities save money, energy and the natural environment.*



## ABOUT AUDIT++

The Audit++ Program was developed to assist our member's efforts to develop integrated energy management programs, and was made possible as a result of a partnership with the Ministries of Energy and Public Infrastructure Renewal under the Province of Ontario's Municipal Eco-Challenge Fund (MECF).

The Audit++ Program was initiated in January 2008 and was delivered to 42 municipal facilities across Ontario, including recreational facilities, administrative offices, fire halls, police stations, city/town halls and water/wastewater plants.

**The Audit++ Program combined a number of valuable services for each participating facility, including:**

- pre-audit communications and information collection with local staff
- introductory meeting with local stakeholders to provide overview of energy issues
- full day assessment of facility and equipment focusing on energy impacts
- interaction with facilities personnel to understand local operating and management practices
- metering and load profiling of key equipment
- development of a RETScreen profile and related assessment of current performance and opportunities for energy efficiency retrofits, as well as recommendations to improve operating practices
- evaluation of applicability of retrofit projects for federal, provincial and utility funding
- full day post audit classroom session on energy management and review of improvement plans
- update of reports to include feedback from classroom sessions

---

*LAS wishes to acknowledge that the success of the Audit++ Program at all 42 sites was the result of the collaborative efforts of our service providers (the I.B. Storey Consortium) and our municipal member participants at all locations.*

Contact information for the I.B. Storey Consortium is found on the back cover of this booklet.

The local staff contact for this Audit++ location is found on page 3 of this booklet.

# Water Treatment Plant

## *City of Brockville*

APPENDIX I



### The Municipality

**History:** Brockville is one of the oldest settlements in Ontario and is named after the British General Sir Isaac Brock. This area of Ontario was first settled in 1785 by hundreds of United Empire Loyalists. It became a local centre for shipbuilding and other industries before becoming Ontario's first incorporated self-governing village in 1832. Over the years the industrial base grew to include major manufacturing facilities and Brockville became a City in 1962.

**Related Municipalities:** The City of Brockville is a Separated Single Tier Municipality located within the boundaries of the County of Leeds and Grenville.

**Population:** 21,957 (2006 Census)

**Location:** Brockville is located in the Thousand Islands region on the St. Lawrence River in Eastern Ontario, about half-way between Cornwall and Kingston.

**Land Uses:** Brockville is the home to several large industrial manufacturers and is the main administrative, health-care and commercial centre for Leeds & Grenville County. It is also a base for exploring the Thousand Islands area and other local recreational areas.

**Number of Heating Degree Days below 18°C:** 4,096

**Project Location:** Brockville Waterworks (Filtration) Plant, 20 Rivers Avenue, Brockville Ontario

**Project Contact:** Project Contact: Lesley White, Director of Community Services, City of Brockville, 613-342-8772, lwhite@brockville.com

### FACILITY OVERVIEW

3

**Year of construction:** 1958 (main plant),  
1978 (filter building)

**Primary Heating Source:** Electricity



### KEY PHYSICAL FEATURES

The facility is a direct filtration plant, located beside the St. Lawrence River and is 16,694 ft<sup>2</sup> in size. The treatment process is composed of a low-lift station, coagulation and flocculation, pre and post filter disinfection by chlorine gas, activated carbon filtration, and UV disinfection.

### KEY ENERGY CONSUMING USES

- **Facility HVAC and Heaters** – including electric heaters and exhaust fans
- **Lighting** – both interior and exterior
- **Facility Service** – including computer equipment, appliances, and other electrical equipment
- **Process Pumps** – pumps associated with the water treatment process
- **Process UV** – energy consumption associated with the Ultraviolet disinfection system

# Audit

PROGRAM

APPENDIX I

ENERGY EFFICIENCY SOLUTIONS FOR MUNICIPALITIES

4

The current annual energy intensity benchmarks for this facility have been compared to similar, but not identical facilities, presented in  $ekWh/ft^2$ , a unit of measurement that converts electrical and thermal energy into equivalent kilowatt hours and divides the total by the square footage of the building.

## Current State Energy Performance

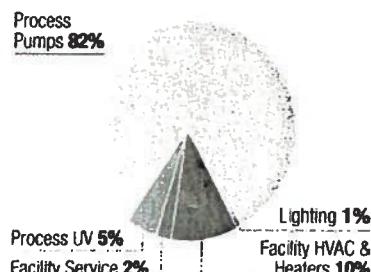
All energy for this facility is supplied by electricity. Energy consumption data for this entire facility was retrieved from utility invoices and analyzed for the period from January 2007 to December 2007. Energy usage breakdowns by equipment type were determined by cataloging all energy using equipment and applying appropriate operating profile estimates which were reconciled to the entire facility consumption. Key equipment operating profiles were further verified where possible using operating records and by sampling loads with temporary meters.

## Annual Energy Use Intensity ( $ekWh/ft^2$ )



The facility does not use any fossil fuels for heating. The pie chart below summarizes the breakdown of electricity consumption by equipment type. The bar chart provides a depiction of the average daily consumption levels of electricity on a month-to-month basis.

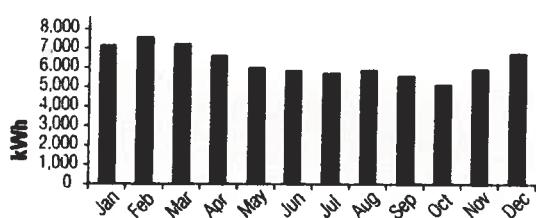
### Brockville Water Treatment Plant Electricity Breakdown



2007 Prorated Annual Consumption:  
2,283,271 kWh

HVAC = Heating , Ventilation and Air Conditioning  
DHW = Domestic Hot Water Heating

## Average Daily Consumption (Electricity)



# Water Treatment Plant

## City of Brockville

### APPENDIX I



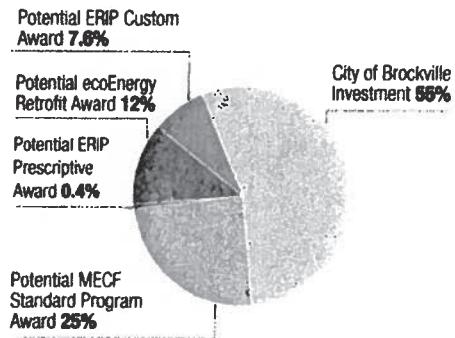
#### Future State

5

*The Audit++ Report identified 8 energy savings opportunities for the water treatment plant. The opportunities focus on operational improvements, system controls, and equipment optimization. Based on further financial analysis and feedback from the Municipality, an Audit++ Implementation Plan for 7 retrofit projects was developed. The other opportunity was deferred for future consideration.*

Simple payback periods have been calculated using the full estimated cost of each retrofit project. However, the City of Brockville may be eligible for funding under the following programs:

- **Municipal Eco-Challenge Fund – Standard Program** for retrofit projects that reduce greenhouse gas emissions.
- **Municipal Eco-Challenge Fund – Showcase Program** for innovative energy efficient technologies that are not commonly implemented.
- **ecoEnergy Retrofit** – Natural Resources Canada's incentive for small and medium sized organizations.
- The Ontario Power Authority's **Electricity Retrofit Incentive Program**.
- Union Gas and Enbridge Gas are partnering with LAS on the Audit++ Program by providing increased incentives.



A **shared auditing** approach was used throughout the Audit++ Program to stress the importance of engaging the people in the organization along with technological changes to achieve lasting energy saving results. A study by the "Carbon Trust" found that engaging both people and technology changes into an energy plan resulted in energy savings of 23%. This compared with energy savings of only 16% when plans did not include technological changes and negligible savings or even cost increases when technology changes alone did not appropriately engage the people in the organization.

reference: Good Practice Guide 84 Managing and Motivating Staff to Save Energy  
[www.carbontrust.co.uk](http://www.carbontrust.co.uk)

#### EXAMPLES OF INVOLVING PEOPLE FOR THIS TYPE OF FACILITY

Establish an Energy Awareness Program

Create awareness as to the cost of operating procedures and practices so that improvements can be promoted

Increase awareness/understanding of demand charges so that any applicable operating procedures can be adjusted more easily

# Audit

PROGRAM

APPENDIX L

## ENERGY EFFICIENCY SOLUTIONS FOR MUNICIPALITIES

6

### Proposed Retrofit

Opportunity	Annual Energy Savings Elec. (kWh)	Annual Energy Savings Thermal (ekWh)	Annual GHG Savings (tonnes CO <sub>2</sub> )	Savings per year (\$)	Cost of Project (\$)	Simple Payback (years)
Load Rolling for Electric Heaters	0	0	0.0	\$945	\$4,500	4.8
Automate Control of Disinfection Systems	51,700	0	11.4	\$4,674	\$11,500	2.5
Outside Air Temperature Lockout for Electric Heaters	28,600	0	6.3	\$2,231	\$6,000	2.7
Occupancy Sensor Control for Lighting	7,900	0	1.7	\$616	\$2,500	4.1
Hi-Lift Pump Re-Sequencing and VSD	186,000	0	40.9	\$15,932	\$17,000	1.1
Lighting Retrofit T12 to T8 Fluorescent Fixtures	3,250	0	0.7	\$348	\$3,000	8.6
Water-Source Heat Pump	137,000	0	30.2	\$13,049	\$85,000	6.5
<b>TOTALS</b>	<b>414,450</b>	<b>0</b>	<b>91.2</b>	<b>\$37,795</b>	<b>\$129,500</b>	<b>3.4</b>

Each savings value represents the savings for each individual opportunity. Some savings are interrelated, which may have a positive or negative financial impact on each respective opportunity. This impact must be evaluated separately prior to implementation to ensure accurate financial projections.

### Select Retrofit Descriptions

#### Load Rolling for Electric Heaters

The electric baseboard heaters throughout the building currently operate independently based on thermostats within specific rooms or areas. This tends to result in "peaks and valleys" of facility-wide electricity demand. There is an opportunity to level the electricity demand associated with baseboard heaters by using controls to limit the number of heaters that can operate simultaneously while still maintaining comfort levels. This "load rolling" strategy can significantly reduce peak demands and associated demand charges.

#### Occupancy Sensors Control for Lighting

There is an opportunity to install occupancy sensors to save energy by automatically turning off the lights in unoccupied areas.

#### T12 Fluorescent Fixtures To T8

As is commonly found in similar buildings, the majority of lighting is provided by T12 fluorescent light fixtures. An opportunity exists to upgrade existing T12 fluorescent fixtures to T8 fixtures with electronic ballasts. T8 fixtures typically use 33% less electricity than T12 fixtures and as a result, could contribute to a significant reduction in electrical consumption for fluorescent lighting.

#### Water-Source Heat Pump

There is an opportunity to use water as a heat source for a heat pump system to meet the needs of the facility heating load. A heat pump simply moves heat from one location to another and boosts the temperature using a refrigeration cycle. A heat pump is capable of providing heating at significantly greater efficiencies than existing equipment at the facility.



PENDIX I

DETAILS AND CONTACT INFORMATION FOR THE I.B. STOREY CONSORTIUM TEAM ARE PROVIDED BELOW

COMPANY	WEBSITE	KEY CONTACT
I.B. Storey Professional Energy Solutions	<a href="http://www.ibstorey.ca">www.ibstorey.ca</a>	Ian B. Storey
TdS Dixon Inc.	<a href="http://www.knowenergy.com">www.knowenergy.com</a>	Stephen Dixon
Qui Tunc Inc.	<a href="http://www.knowenergy.com">www.knowenergy.com</a>	Garth White
Canadian Institute for Energy Training	<a href="http://www.cietcanada.com">www.cietcanada.com</a>	Doug Tripp
Andrea Dwight & Associates	<a href="http://www.adwight.com">www.adwight.com</a>	Andrea Dwight



200 University Avenue, Suite 801  
Toronto, Ontario M5H 3C6

Tel: 416-971-9856  
Toll Free: 1-877-426-6527  
Web Site: [www.las.on.ca](http://www.las.on.ca) Page 73 of 73

February 9, 2010

## **REPORT TO OPERATIONS COMMITTEE – FEBRUARY 17, 2010**

**2010-032-02  
REQUEST TO ENDORSE POLICY  
FRAMEWORK ON AFFORDABLE ACCESS  
TO RECREATION FOR ONTARIANS**

**V. HARVEY  
ACTING DIRECTOR OF  
PARKS & RECREATION**

### **RECOMMENDATION**

THAT Council formally endorse the policy framework on Affordable Access to Recreation for Ontarians; and,

THAT a copy of the resolution endorsing the policy framework be sent to the Association of Municipalities of Ontario.

### **PURPOSE**

To seek Council's formal endorsement of the policy framework on Affordable Access to Recreation for Ontarians.

### **BACKGROUND**

Over the past few years the Ontario Task Group on Access to Recreation has worked to develop a vision supported by policy objectives and strategic considerations to guide decision makers in creating and promoting local access policies that promote the understanding that everyone should have access to affordable recreation in their community in order to enjoy the health and social benefits, and to improve their prospects for a better future<sup>1</sup>. On December 1, 2009, the Association of Municipalities of Ontario (AMO) Board of Directors supported this policy framework.

AMO is also encouraging municipalities to develop a Council-approved policy on affordable access to recreation or to strengthen policies already in place.

AMO realizes that municipalities cannot provide this important service on their own and is asking all Ontario municipalities to support this commitment and formally endorse the framework through Council resolution. AMO will then seek provincial and federal support through formal policies and funding.

---

<sup>1</sup> AMO Member Communication, Alert N°: 09/083, December 1, 2009

## **ANALYSIS**

*Access to recreation is vital. Recreation connects residents to the broader community and builds resiliency, particularly in youth at risk, children living in poverty, and families who are disengaged. In addition to the physical health benefits, recreation services can foster life skills, reduce risky behaviour, improve self-esteem, and create positive relationships. This in turn can help to break the cycle of poverty and reduce health and social service costs.*

*Unfortunately, low-income families often miss out on the substantial benefits that recreation provides. This can be due to user fees, complex or stigmatizing fee subsidy programs, equipment costs, lack of transportation, or simply not knowing about the value of recreation or where to find affordable programs. Municipalities and community service providers face challenges in providing affordable recreation due to cost pressures, competing priorities, insufficient infrastructure and affordable spaces, and the lack of sustainable funding<sup>2</sup>.*

By endorsing this framework, Brockville will be demonstrating their agreement with the vision for affordable access to recreation and the desire to make it a reality in our community through collaboration and long-range planning.

## **POLICY IMPLICATIONS**

There are no policy implications at this time.

## **FINANCIAL CONSIDERATIONS**

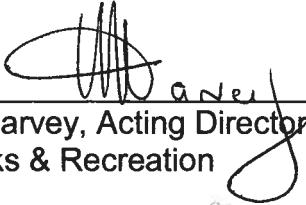
There are no financial considerations at this time.

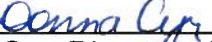
## **CONCLUSION**

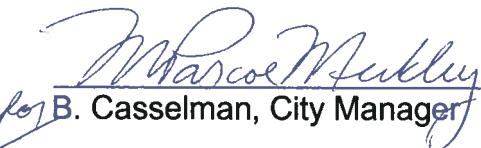
Recreation improves mental and physical health leading to greater financial independence and benefits to the taxpayer. Council endorsement is encouraged.

---

<sup>2</sup> Howie Dayton, Chair, Ontario Task Group on Affordable Access to Recreation

  
V. Harvey, Acting Director of  
Parks & Recreation

  
D. Cyr, Director of Finance

  
Marco Mukley  
for B. Casselman, City Manager

## MEMBER COMMUNICATION

ALERT N°: 09/083

**To the attention of the Clerk and Council**  
December 1, 2009

FOR MORE INFORMATION CONTACT:  
Petra Wolfbeiss, AMO Senior Policy Advisor  
(416) 971-9856 ext 329

### AMO Recognizes the Need for Affordable Access to Recreation for Ontarians

**Issue:**

At their recent meeting, the AMO Board of Directors supported the recommendations of the Policy Framework for Affordable Access to Recreation for Ontarians. AMO will now seek commitment from the provincial and federal governments to move this important policy ahead.

**Background:**

AMO is supporting what many Ontarian's identify as one of the highest valued services delivered by municipalities -- recreation.

Building on research demonstrating the benefits of recreation for low income families, the Ontario Task Group on Access to Recreation developed a policy framework and approach to creating local access policies that reflect both community need and capacity.

The Task Group, comprised of numerous stakeholder groups and government representatives, developed a vision supported by policy objectives and strategic considerations to guide decision makers in creating and promoting local access policies that promote the understanding that everyone should have access to affordable recreation in their community in order to enjoy the health and social benefits, and to improve their prospects for a better future.

Municipal engagement in providing access to recreation for low income families can also benefit the taxpayer. Research clearly demonstrates that recreation improves the prospects of a person's mental and physical health, which leads to greater financial independence and benefits to the taxpayer. Local communities are encouraged to implement access policies in a manner that responds to both local needs and capacities.

But municipalities cannot go it alone in providing this important service. AMO's advocacy goal is for the provincial and federal governments to assist communities and citizens through formal policies and funding.

**Action:** AMO will advise the provincial government of its support for affordable access policies and seek provincial support and commitment to moving forward on this policy. AMO will also request a commitment from the federal government to increase access to recreation for Ontarians.

*This information is available in the Policy Issues section of the AMO website at [www.amo.on.ca](http://www.amo.on.ca).*

**TO THE ATTENTION OF: Mayors, Municipal Councils and Recreation Directors**

**RE: Request to endorse Policy Framework on Affordable Access to Recreation for Ontarians**

---

We are pleased to provide you with the recently created *Policy Framework on Affordable Access to Recreation for Ontarians* which on December 1, 2009, received support by the AMO Board of Directors. In so doing, AMO recognized that recreation is a highly valued and needed service for quality of life in communities across Ontario. We are asking all municipalities to support this commitment by AMO and formally endorse the Framework through Council resolution. By endorsing the framework, you will be demonstrating your agreement with the vision for affordable access to recreation and your desire to make it a reality in your community.

In addition, building on the Framework objectives and strategies, we are encouraging all municipalities to develop a Council-approved policy on affordable access to recreation, or to strengthen policies already in place. We recognize that given the current fiscal climate, municipalities may need to take an incremental approach. The Task Group encourages collaboration and long-range planning in order to achieve the broad goals.

Access to recreation is vital. Recreation connects residents to the broader community and builds resiliency, particularly in youth at risk, children living in poverty, and families who are disengaged. In addition to the physical health benefits, recreation services can foster life skills, reduce risky behaviour, improve self-esteem, and create positive relationships. This in turn can help to break the cycle of poverty and reduce health and social service costs.

Unfortunately, low-income families often miss out on the substantial benefits that recreation provides. This can be due to user fees, complex or stigmatizing fee subsidy programs, equipment costs, lack of transportation, or simply not knowing about the value of recreation or where to find affordable programs. Municipalities and community service providers face challenges in providing affordable recreation due to cost pressures, competing priorities, insufficient infrastructure and affordable spaces, and the lack of sustainable funding.

Over the past few years, the Ontario Task Group on Affordable Access to Recreation has commissioned studies, collected best practices, hosted a symposium and discussion forums, and ultimately created the Policy Framework. The goal was to create a responsive framework to provide a shared vision for Ontario that can build community action and galvanize all levels of government and allied organizations.

The Task Group has also published articles, evidence-based research, promising practices and policy and program templates to help municipalities implement access policies. Staff in your Recreation or Community Services Department can access these documents at [www.prontario.org](http://www.prontario.org). In addition, workshops will be scheduled in March 2010 to assist those communities ready to champion Affordable Access to Recreation.

I have included highlights from the Policy Framework on the reverse side of this letter in addition to the full document which is enclosed.

We thank you in advance for your commitment to affordable access to recreation.

Sincerely,



Howie Dayton,  
Chair, Ontario Task Group on Affordable Access to Recreation

## **ADDITIONAL INFORMATION**

### **Highlights from Policy Framework on Affordable Access to Recreation for Ontarians**

**The Access Policy Framework recommends policy objectives and strategies that municipalities can use to remove barriers to participation for low-income residents. The Task Group recognizes that every community is unique and the objectives and strategies are meant as a benchmark for excellence. Municipalities can implement these in various ways, with a wide range of partners.**

#### **VISION**

**Everyone has access to affordable recreation in their community in order to enjoy health and social benefits and to improve their prospects for a better future.**

#### **GUIDING PRINCIPLES**

**Affordability · Places to play · Awareness · Inclusion · Capacity · Collaboration · Accountability**

#### **FUNDAMENTAL POLICY OBJECTIVES**

1. Municipal and community delivery organizations establish Affordable Access Policies
2. Communities identify a core set of free, universal programs

#### **POLICY STRATEGIES**

1. Community access to community space for formal and informal recreation activities
2. Partnership & collaboration to determine how to make affordable access to recreation a reality in communities
3. Targeted community outreach and engagement to build awareness among marginalized populations of recreation benefits and opportunities

The full Policy Framework and background documents are available online at:  
[www.prontario.org](http://www.prontario.org)

#### **Members of Ontario Task Group on Affordable Access to Recreation**

- Association of Municipalities of Ontario
- Canadian Tire Jump Start
- Canadian Parks and Recreation Association
- Hamilton Roundtable for Poverty Reduction
- Ontario Municipal Social Services Association
- Ontario Public Health Association
- Parks and Recreation Ontario
  - In association with: Heart and Stroke Foundation; YMCA; United Way; Ministries of Health Promotion; Children and Youth Services, and Education.

Parks and Recreation Ontario also serves as the Task Group's secretariat with funding from the Ontario Ministry of Health Promotion.

e: [access@prontario.org](mailto:access@prontario.org)

w: [www.prontario.org](http://www.prontario.org)



December 16, 2009

**TO THE ATTENTION OF: Mayors, Municipal Councils and Recreation Directors**  
**FROM: Larry Ketcheson, CEO, Parks and Recreation Ontario**

---

Parks and Recreation Ontario is very pleased to have been closely involved with the development of the Affordable Access to Recreation Policy Framework. Parks and Recreation Ontario is the secretariat for the Ontario Task Group on Affordable Access to Recreation and we are very proud of the work that the Task Group has completed over the past two years, culminating in this important policy document.

Parks and Recreation Ontario has also completed two other projects that support the Policy Framework: the 2009 report on the *Use and Benefits of Local Government Recreation and Parks Services* and the *Charter for Recreation and Parks in Ontario*. Both of these are also enclosed in this package.

The *Use and Benefits* report summarizes the results of a survey of Ontario residents that explores people's attitudes toward parks and recreation services in their community. This study provides valuable information for everyone working or volunteering in parks and recreation. For example:

- 98% of Ontarians agree that recreation and parks are essential to community vitality;
- 93% agree that recreation participation contributes to an individual's health and well-being;

The research contained in the report validates the importance and benefits of recreation to all members of the community and should be used by decision-makers in planning. The report also highlights that more needs to be done to reach low-income citizens who are, according to survey results, less likely to have access to programs and facilities.

The *Charter* is a powerful statement of the Rights of Ontarians in relation to parks and recreation and directly supports the Access Policy Framework. As well, it outlines the responsibilities for communities to ensure that citizens enjoy the health and social benefits of recreation.

I thank you for taking the time to review these documents and for considering how your municipality can utilize the information.

Sincerely,

A handwritten signature in black ink that reads "Larry Ketcheson".

Larry Ketcheson, CEO, Parks and Recreation Ontario

1 Concorde Gate, Suite 302, Toronto, ON M3C 3N6  
TEL 416.426.7142 FAX 416.426.7371 Website [www.prontario.org](http://www.prontario.org)

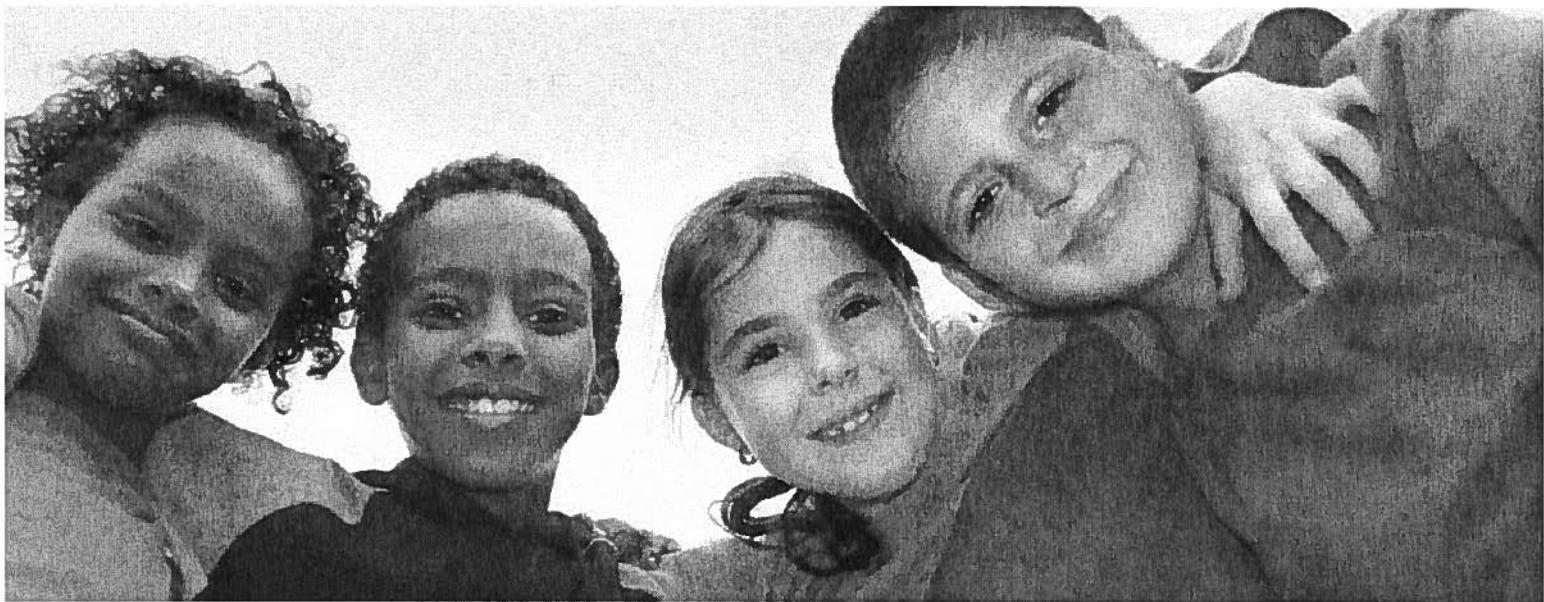
# AFFORDABLE ACCESS TO RECREATION FOR ONTARIANS

## POLICY FRAMEWORK



Every One Plays

Prepared by the Ontario Task Group on Access to Recreation for Low-Income Families, supported by Parks and Recreation Ontario with funding from the Ontario Ministry of Health Promotion



The Ontario Task Group on Access to Recreation for Low-Income Families was established by Parks and Recreation Ontario in 2006. Its goal is to work collaboratively to influence policy development in Ontario to increase access to recreation for low-income Ontarians.

#### **Task Group Members**

Association of Municipalities of Ontario  
Canadian Tire Jumpstart  
Canadian Parks and Recreation Association  
Hamilton Roundtable for Poverty Reduction  
Ontario Municipal Social Services Association  
Ontario Public Health Association  
Parks and Recreation Ontario

#### **This Policy Framework was developed by the Task Group in collaboration with:**

The Ontario Ministry of Health Promotion  
The Heart and Stroke Foundation Ontario  
The Ontario Ministry of Children and Youth Services  
The Ontario Ministry of Education  
City of Mississauga  
City of Toronto  
Peel Region  
YMCA



The Task Group wishes to thank Naomi Alboim and Karen Cohl for their guidance and assistance with this project.

This framework is available online at the Lifestyle Information Network website: <http://lin.ca/access-to-recreation>



# Contents

<b>INTRODUCTION .....</b>	<b>4</b>
Purpose	
What is recreation?	
Why is recreation important?	
What are the barriers to affordable recreation?	
Why do we need a policy framework?	
Who will use the policy framework?	
<b>VISION .....</b>	<b>8</b>
<b>OBJECTIVES .....</b>	<b>8</b>
Affordability	
Places to Play	
Awareness	
Inclusion	
Capacity	
Collaboration	
Accountability	
<b>FUNDAMENTAL POLICY OBJECTIVES .....</b>	<b>10</b>
1) Access Policies	
2) Core Set of Free, Universal Programs	
<b>POLICY STRATEGIES .....</b>	<b>11</b>
1) Community Access to Community Space	
2) Partnership and Collaboration	
3) Targeted Community Outreach and Engagement	
<b>CHAMPIONS FOR SUCCESS .....</b>	<b>12</b>
Government	
Community Organizations	
<b>TAKING ACTION .....</b>	<b>14</b>
<b>CONCLUSION .....</b>	<b>14</b>
<b>RESOURCE LINKS .....</b>	<b>15</b>

# Introduction



## PURPOSE

This Policy Framework promotes access to recreation for low-income Ontarians. It was created by the Ontario Task Group on Access to Recreation for Low-Income Families in consultation with many others committed to affordable access. It draws on a growing body of work that documents the health, social and economic benefits that affordable access to recreation can provide, and supports the rights of Ontarians outlined in the *Charter for Recreation and Parks in Ontario, 2009* (see Resource Links).

The framework sets out a vision, objectives and strategic directions to guide those who develop public policy, make funding decisions, offer recreation programs, or build and maintain facilities or open spaces. It is a call to action for all involved to work together in a systematic way to make affordable access to recreation a reality in Ontario.

### WHY DO WE NEED A POLICY FRAMEWORK?

The recreation sector in Ontario has come a long way in identifying the benefits of recreation and the barriers to participation that exist for low-income Ontarians. Without a framework for action, solutions tend to occur in a "patchwork" way. A compelling framework can help to galvanize communities, the private sector and all levels of government, based on a shared vision for affordable recreation.

The Task Group hopes that all organizations with a role to play in affordable recreation will endorse the framework and collaborate on ways to achieve the vision.

## WHAT IS RECREATION?

Dictionaries define recreation as activities, such as play, that divert, amuse or stimulate. It comes from the Latin recreare which means to refresh. In that sense, recreation has a positive or therapeutic effect that renews or revitalizes one's body or mind.

Recreation is voluntarily pursued during leisure time when one is free from work, school and other duties. Unlike more passive leisure-time activities (like reading or watching television), recreation is active. Some define recreation as "active leisure".

Recreation includes a wide variety of physical activity, but not elite sport. It can also be an artistic, intellectual or social activity. Formal recreation usually requires special equipment, facilities, and planning. Informal recreation requires little planning and can often be done on the spur of the moment.

For the purpose of this framework, we define recreation as follows:

**RECREATION IS** an active, leisure-time pursuit that enriches the individual by improving health, developing a skill, or building self-esteem.

## WHY IS RECREATION IMPORTANT?

The benefits of recreation and its importance for low-income individuals and families are well documented and summarized below.

### ***Recreation has physical health benefits.***

Recreation that includes physical activity lowers the incidence of illness and obesity.

### ***Recreation has psycho-social benefits.***

Recreation can foster life skills for success at school, work and home; reduce emotional problems and risky behaviour; improve self-esteem; create positive peer and family relationships; and increase opportunities for fun and enjoyment.

### ***Recreation can help to break the cycle of poverty.***

Being excluded from community-based recreation programs is both a result of and a contributor to cyclical and generational poverty. Regular involvement by children and youth in structured, skill building recreational activities that develop self-esteem helps to build resilience and protect against the risks of low success in school and the labour market.

### ***Recreation is a wise financial investment.***

In achieving the benefits described above, access to recreation results in savings in health, social service and justice costs. In addition, savings have been found in the tax system when people exit welfare and gain employment.

**"If no cost recreation was proactively arranged for a majority of Ontario Works families, significant savings would result from increased independence and exits from welfare rolls."**

— Dr. Mark Totten, *The Health, Social and Economic Benefits of Increasing Access to Recreation for Low-Income families: Research Summary Report*  
– Nov 2007, citing Browne et al.



### ***Affordable access to recreation supports public policy priorities.***

Enhancing access to recreation can help to further objectives common to provincial and federal governments, such as:

- Helping children and youth to have opportunities to succeed and reach their full potential
- Providing better opportunities for low-income Ontarians to break the cycle of poverty
- Promoting healthy and active living and reducing obesity
- Building safer, stronger communities and reducing behaviour that can lead to violence
- Making best use of schools and other community spaces

**"Our goal is simple. We want to ensure the healthy development of children, youth, individuals and families in Ontario, through play."**

— Howie Dayton, Task Group Chair

## WHAT ARE THE BARRIERS TO AFFORDABLE RECREATION?

The barriers to affordable recreation are evident from research and consultation done in Ontario and at the national level over the past several years. Barriers can be grouped into two broad categories:

1. Barriers faced by low-income Ontarians in gaining access to recreation programs and facilities ("demand side").
2. Barriers faced by municipalities and local organizations in providing affordable access to recreation programs and facilities ("supply side").

	<b>"DEMAND SIDE"</b> <b>Barriers faced by low-income Ontarians</b>	<b>"SUPPLY SIDE"</b> <b>Barriers faced by municipal and community providers</b>
<b>PROGRAMS</b>	<ul style="list-style-type: none"> <li>• Low awareness of programs and the importance of recreation</li> <li>• Parental mistrust</li> <li>• Lack of structured, culturally sensitive and accessible programs</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity to engage communities and create responsive programs</li> <li>• Shortage of support and training for quality coaches, mentors and volunteers</li> <li>• Lack of structured, culturally sensitive and accessible programs</li> </ul>
<b>FACILITIES</b>	<ul style="list-style-type: none"> <li>• Lack of transportation and community-based infrastructure</li> <li>• Lack of places for both informal recreation and structured programs</li> </ul>	<ul style="list-style-type: none"> <li>• Affordable access to community spaces</li> <li>• Maintaining infrastructure and facilities to meet current and future demands</li> </ul>
<b>AFFORDABILITY</b>	<ul style="list-style-type: none"> <li>• User fees</li> <li>• Stigma and complexity of fee subsidies</li> <li>• Transportation and equipment costs</li> </ul>	<ul style="list-style-type: none"> <li>• Need for sustainable funding</li> <li>• Cost pressures and competing priorities</li> </ul>
<b>CAPACITY</b>	<ul style="list-style-type: none"> <li>• Lack of voice for low-income Ontarians</li> <li>• Lack of program integration and coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Access policy expertise, coordination and frameworks</li> <li>• The will to take action</li> </ul>
<b>ACCOUNTABILITY</b>		<ul style="list-style-type: none"> <li>• Ways to measure success</li> <li>• Incentives and consequences</li> </ul>

## WHY DO WE NEED A POLICY FRAMEWORK?

Community recreation began as a grassroots movement to increase access for low-income families. Over time it has become inaccessible to many of the people it was intended to serve. We need to find ways to reverse this trend.

The recreation sector in Ontario has come a long way in identifying the benefits of recreation, the barriers to access for low-income Ontarians, and creative solutions. Many promising policies, programs, and facilities exist, but without a framework they tend to occur in a "patchwork" way. This limits opportunities to evaluate their effectiveness and maximize benefits across the province.

A compelling policy framework can help to galvanize community organizations, the private sector, and all levels of government to action, based on a shared vision for affordable recreation. It will also serve as a vehicle for reaching out to those who may not traditionally see themselves as aligned with access to recreation.

**IN NOVEMBER 2007,** 100 academics, researchers, community organizations, and provincial and municipal officials, representing over 80 organizations, attended an Ontario symposium on access to recreation for low-income families. Their commitment demonstrated that access to recreation is a vital public policy issue.



By articulating a vision and strategic directions for affordable access to recreation, the policy framework aims to:

- Inspire action by governments, communities, educators, and the private sector toward a common goal;
- Promote collaboration, coordination and the creation of tools;
- Inform policy and funding decisions for recreation programs, facilities and open spaces; and
- Define ways to measure success and keep everyone on course.

## WHO WILL USE THE POLICY FRAMEWORK?

Provided that the vision, objectives, and fundamental policy directions of the policy framework are broadly endorsed by leaders in the field, the Task Group anticipates that:

- The **Ontario and federal governments** will use the framework as a guide for making policy and funding decisions to foster affordable access to recreation in Ontario.
- In **municipalities, council and senior management** will use the framework to encourage the creation of access policies and to inform decisions related to recreation programs, spaces and community outreach.
- **Allied organizations** (Public Health Units, Social Planning Councils, Social Services Organizations, etc.) will play a vital role in shaping programs and policies. They will partner with local recreation providers/municipalities to align approaches to affordable access to recreation with other social programs (i.e. physical activity campaigns, early learning and child care, etc.).

- The **Boards of Directors and funders of local recreation providers** will use the framework to include affordable access as a primary consideration in planning and delivering recreation policies, programs and spaces.
- The **private sector** will use the framework as an impetus to make corporate donations of money, equipment, and volunteers to support affordable recreation programs and to help with the development of recreation infrastructure through, for example, incorporating active and passive spaces into new construction, areas of revitalization and/or community projects and initiatives.
- The **education sector** will use the framework to inform policies on community use of schools, programs that can promote awareness of the importance of recreation, and training to build capacity to deliver affordable recreation programming.
- **Community organizations** will use the framework as the basis for ensuring that the needs of women, youth, immigrant, ethno-cultural, rural, disability and Aboriginal communities are taken into account by those who create affordable recreation policies, programs, and spaces.
- **Low-income Ontarians** will participate in affordable recreation programs created under the framework and provide input to their development.

# Vision



**EVERYONE HAS ACCESS TO AFFORDABLE RECREATION IN THEIR COMMUNITY IN ORDER TO ENJOY HEALTH AND SOCIAL BENEFITS AND TO IMPROVE THEIR PROSPECTS FOR A BETTER FUTURE.**

## Objectives

### AFFORDABILITY

*A range of affordable recreation programs will be in place in every community across the province. Where user fees exist, fee assistance will be provided for those facing financial barriers.*

- A core set of high quality recreation programs will be available in each community on a free and universal basis. These programs will have the potential to improve health and quality of life and mitigate conditions of poverty.
- In addition, non-stigmatizing user fee assistance programs will exist that allow Ontarians facing income barriers to participate in a wider range of programs.
- Some programs will target school children or youth. Others will be available for families to enjoy together.

### PLACES TO PLAY

*Communities will have formal and informal spaces where people can participate in recreational activities. Rental fees will not be a barrier to community use of public spaces.*

- Informal, non-structured, free recreation opportunities will be universally available in public spaces across Ontario.
- Facilities for structured recreation programs will be available to the community and maintained based on detailed service planning.

### AWARENESS

*Low-income Ontarians will be aware of the existence and importance of affordable recreation opportunities.*

- Raising awareness among low-income Ontarians will be a key component in the planning and delivery of affordable recreation programs and spaces.

## **INCLUSION**

***Affordable recreation programs will be responsive to Ontario's cultural diversity, gender, and accessible to persons with disabilities.***

- Program planners will conduct outreach and engagement to ensure affordable recreation programs are responsive to Ontario's diversity. This will help to ensure that segments of the low-income population are not inadvertently excluded and unable to enjoy the benefits of community recreation.

## **CAPACITY**

***Municipalities and community providers will have sustainable funding, and the skills and tools they need to provide affordable recreation programs and facilities.***

- The provincial government will create funding strategies and build on existing models to assist local municipalities in the delivery of core, free and universal programming.
- Providers of recreation programs will have access to sustainable, long-term funding for affordable recreation initiatives, such as reducing or eliminating user fees for low-income Ontarians.
- Providers of recreation programs will have non-stigmatizing fee assistance programs that enhance access to recreation programs that fall outside the core set of free and universal services.
- Training programs and tools will help to ensure that staff and volunteers are qualified to plan and deliver affordable, inclusive recreation programs and to create and maintain accessible recreation facilities.
- Community development strategies will be employed to facilitate engagement of marginalized populations.
- Tools will be developed to meet the challenges of providing access to recreation in rural or remote areas.

## **COLLABORATION**

***All stakeholders will work together to develop and implement access policies and to design and maintain affordable programs and spaces, drawing on the strengths of what already exists.***

- All underserved populations (individuals facing financial barriers, immigrants, youth, seniors) will be involved in the planning and design of affordable recreation programs.
- Collaboration, coordination and partnerships will help to identify and fill gaps in affordable recreation services and spaces in Ontario communities. Governments, community organizations, educators, the private sector, and low-income Ontarians will all play a meaningful role to reap the benefits that collaborative efforts can achieve and to ensure the most effective use of existing and new resources.
- Private and public funding programs will encourage collaborative and innovative services to low-income Ontarians, will minimize duplication and will build on that which already exists.

## **ACCOUNTABILITY**

***A concerted effort will be made to implement the policy framework, monitor its implementation, and build on successes.***

- Networks involving all players will be formed to generate enthusiasm for the framework, facilitate implementation, and monitor success at the provincial and grass roots level.
- Concrete targets will be in place along with tools to measure success and incentives to participate.
- Successful approaches will be replicated in communities across the province.

# Fundamental Policy Objectives



*In order to achieve the vision of this framework, there are two fundamental policy objectives that must be in place in order to overcome the barriers faced by low-income Ontarians.*

## 1 ACCESS POLICIES

*Municipal and community delivery organizations establish Affordable Access Policies to ensure individuals that face income barriers have equitable opportunities to participate.*

### Rationale

In recent years, recreation has been seen as an opportunity to generate revenue through user fees. However, it is not realistic to expect that fees, equipment costs and other barriers can be removed for all programs and facilities. Surveys conducted in 2007 for the Ontario Task Group on Access to Recreation found that ninety-one percent of municipalities with an access policy (and 70% of those without a policy) reduce or remove fees for at least some recreation facilities or programs for low-income families and individuals. This is an indication that access policies, and in their absence informal approaches to fee assistance, are effective and necessary in increasing affordability of recreation programs when user fees exist.

**Objectives:** Affordability, capacity, accountability.

## 2 CORE SET OF FREE, UNIVERSAL PROGRAMS

*Communities identify a core set of recreation programs that will be universally available to children, youth, individuals and families and offer these programs without a user fee.*

### Rationale

Ideally, all types of recreation would be available to everyone at no cost. The negative, unintentional consequence has been marginalization of those who cannot afford these fees. Evidence-based research provides a strong argument for the sector to reverse this trend. The goal is to identify those program opportunities which align with the social determinants of health and quality of life indicators, and those that support positive social and physical development and provincial policy priorities. These are the kinds of publicly-funded programs that constitute an essential, core activity and should be available to everyone to ensure the healthy development of individuals and to enhance the overall quality of life within the community. As an essential service, these programs must be funded 100% and offered at no cost so that financial status does not determine who does and who does not participate.

**Objectives:** Affordability and inclusion.

# Policy Strategies

*The two fundamental policy objectives provide the basis for action at the community and provincial level. This section sets out policy strategies that will be implemented in order to achieve the policy objectives. The strategies address the capacity to deliver programs, secure sustainable funding, improve access to community space and engage partners and stakeholders.*

## 1 COMMUNITY ACCESS TO COMMUNITY SPACE

*Maximize affordable access to community space that can be used for formal and informal recreation activities.*

### Rationale

In order to maximize opportunities for participation, it is important to maximize the use of existing community spaces, such as schools. Recreation providers depend on the affordable use of such space, especially in rural and remote areas. Collaborative partnerships and reciprocal agreements are essential to facilitating community access to community spaces.

**Objectives:** Affordability, places to play, awareness, inclusion, and collaboration.

## 2 PARTNERSHIP AND COLLABORATION

*Establish community-based partnerships that will determine how to make affordable access to recreation a reality in communities.*

### Rationale

Working in isolation often leads to duplication and ineffective approaches to community issues. Improving access to recreation requires a collaborative model not unlike the provincial Task Group in Ontario. A collaborative planning table will be effective in generating creative ideas, making effective use of existing resources, and building credibility in the community, helping to leverage support and funding. A collaborative approach also ensures that the expertise and resources of public health, recreation, education and other social services organizations will be used effectively.

**Objectives:** Capacity, affordability, accountability and collaboration.



## 3 TARGETED COMMUNITY OUTREACH AND ENGAGEMENT

*Build awareness among marginalized populations (i.e. youth, seniors, persons with disabilities, immigrant, low-income families and Aboriginal) of the benefits of recreation, affordable programs, and provide opportunities for community engagement in program design and delivery.*

### Rationale

Marginalized populations are unlikely to participate in community recreation, even if it is low cost or free, unless they are aware of these opportunities and understand the benefits of participating. This is not a case of "build it and they will come." Individuals and families need to feel welcome. They need to know how they can take advantage of fee assistance programs. These programs must be non-stigmatizing and simple for the client to navigate, as intrusive eligibility assessments and complex forms are likely to deter take-up. Input from families and community organizations into the kinds of outreach approaches, fee assistance processes and program opportunities available is necessary to building an inclusive system of services and supports.

**Objectives:** Awareness, inclusion, accountability and capacity.

# Champions for Success



Photo: Get Active Now

The success of a policy framework lies in the degree to which its strategies are implemented to achieve the vision. There are a multitude of stakeholders who have a role to play to ensure success, and to promote and monitor implementation of the policy framework and to share benefits, challenges and success stories.

## GOVERNMENT

Federal, provincial and local government support is crucial for the successful implementation of this framework. Each has a different role to play.

### **Federal Government:**

- Balance tax credits (which benefit middle-income families) with funding that will support provincial and local affordable access to recreation policies and programs.
- Align affordable access to recreation with other national sport and physical health policy objectives.
- Ministries such as Health and Sport will work with the Canadian Parks and Recreation Association to create a national strategy to engage low-income Canadians in sport and recreation in every community.
- Provide additional, targeted recreation infrastructure funding for underserved and high risk communities.

### **Government of Ontario**

- Be an active partner for change across the province. Through policies and programs, the provincial government will ensure that communities have the funding and resources necessary to implement the fundamental policy objectives that will increase access.

- Build on existing funding models to create ongoing and sustainable financial resources to support affordable access initiatives (free, universal programs and fee assistance programs), especially where such initiatives support provincial strategies and policies.
- Implement the After School program funding as a first step in addressing the recreational needs of low-income children and youth.
- Expand Community Use of Schools program to other community spaces and require Boards of Education to report on the impact Community Use of School funding is having.
- Provide additional, targeted recreation infrastructure funding for priority communities.
- Implement policy, legislative and regulatory options that enable improved access to recreation, i.e. Ontario Works benefits extended to include participation in recreation for children and youth; MPMP measures which examine the correlation between universal programming and increased access/participant hours; provincial funding, similar to Community Use of Schools, that would allow for greater access to recreational spaces.



- Strengthen the role of the Ministry of Health Promotion to engage other ministries to provide support.
- Establish a joint sector/Ministry task group to fully develop these and other recommendations, estimate provincial budget allocations required and define measures of success.

## LOCAL GOVERNMENT

- Will make a statement about who will benefit from affordable access policies and initiatives in their community.
- Will support the development and implementation of access policies that meet local needs. More detailed action steps are contained in the companion "Policy Development and Implementation Guide for Communities."

All governments will ensure that tax policies that apply to sport and recreation program fees and facility rental do not become a barrier to participation because of increased cost to the user.

## ALLIED ORGANIZATIONS

Provincial organizations and other government agencies (i.e. Public Health units, Association of Municipalities Ontario, Ontario Municipal Social Services Association, Heart & Stroke Foundation) have been instrumental in the advancement of the Affordable Access to Recreation agenda. In many instances, these organizations also have the capacity to disseminate the recommendations of the Framework throughout member networks.

As well, in many communities local planning tables exist that would benefit from understanding the issue of access to recreation in order to help improve opportunities, one community at a time.

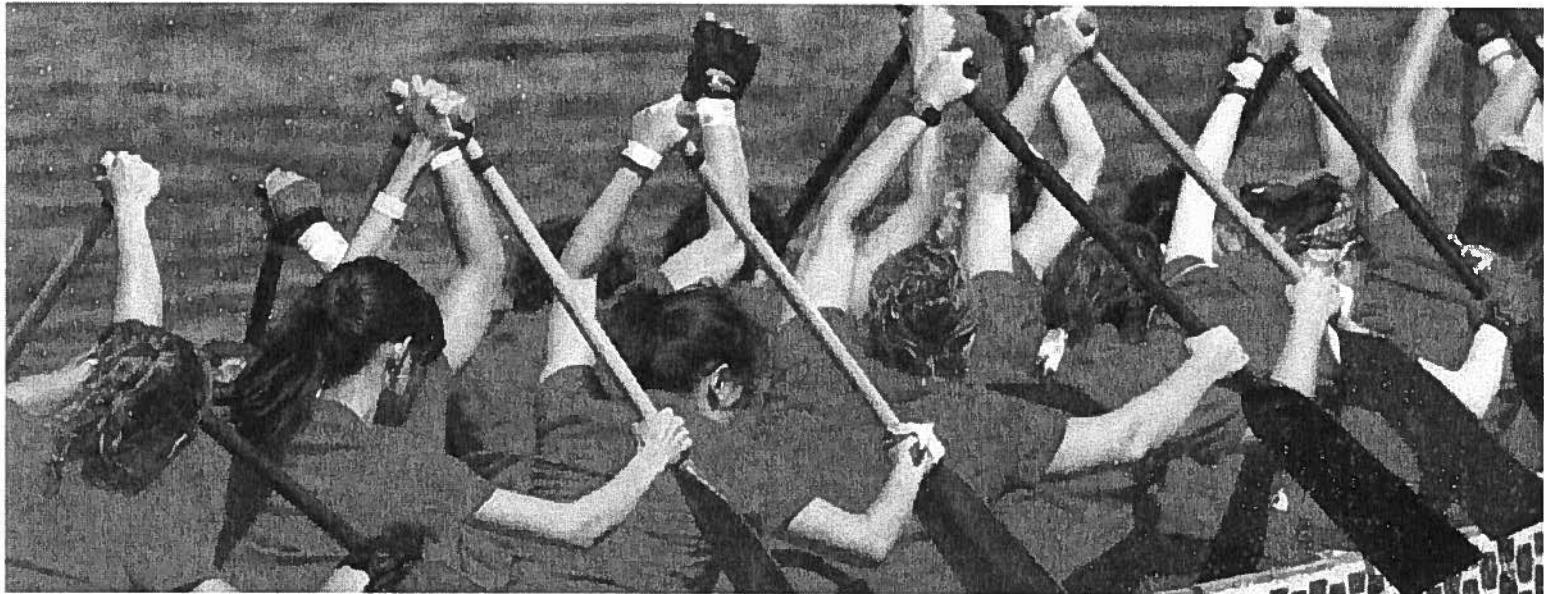
- Provincial organizations will continue to collaborate with Parks and Recreation Ontario to advance the Affordable Access to Recreation agenda.
- Local planning networks will be informed through the municipal or not for profit recreation provider of the Framework and opportunities to align mandates and initiatives will be explored.
- Parks and Recreation Ontario will continue to seek opportunities to share resources, tools and information at various conferences of allied organization.

## COMMUNITY ORGANIZATIONS

Community organizations, foundations, the private sector and citizens will be engaged in the planning and implementation locally.

- Participate on local community planning tables.
- Develop formal approaches to reducing fees where they are unaffordable.
- Establish local fundraising initiatives and engage local businesses to dedicate corporate giving toward community sport and recreation.
- Advocate to local government/authorities to remove barriers that exist (i.e. fees associated with use of public space, etc.).

# Taking Action



This policy framework provides the guiding principles for increasing access to recreation for low-income Ontarians. The policy objectives and strategies in this document are enhanced and supported by a Policy Development and Implementation Guide for Communities. The Guide and the Framework are available for download from the Parks and Recreation Ontario website: [www.prontario.org](http://www.prontario.org)

## Conclusion

Recreation benefits all who participate, whether for the simple enjoyment of leisure time or the more concrete benefits that lead to improved health, life skills and a better future. The Task Group on Access to Recreation for Low-Income Families hopes that the Ontario government, municipal governments, and all those involved in community recreation will endorse this policy framework and take steps to achieve its vision.

The time for action is now. Communities in Ontario must take the time to have a meaningful discussion on Affordable Access to Recreation. It may seem like an overwhelming task but for the first time, the Policy Framework and Community Guide provide Ontario with the tools, steps and supporting research to affect meaningful and sustained change. All it takes is local political and organizational will. Creating systemic change in recreation will

require champions across many human services sectors to work together towards our common goal.

The Task Group on Access to Recreation by Low-Income Families would like to thank all those who helped in the creation of this policy framework. We gratefully acknowledge the financial support of the Ontario Ministry of Health Promotion for the development of the framework and much of the research and consultation that led up to it.

Please contact the Task Group or Parks and Recreation Ontario to discuss the framework and how you can be involved in furthering the vision it promotes.

**[www.prontario.org](http://www.prontario.org)**

**[access@prontario.org](mailto:access@prontario.org)**

# Resource Links

## LIFESTYLE INFORMATION NETWORK

**This policy framework and the following materials are available online at the Lifestyle Information Network at <http://lin.ca/access-to-recreation>**

- Parks and Recreation Ontario, *Affordable Access to Parks and Recreation Services: Positioning Statement* (April 2000)
- Parks and Recreation Ontario, *Resolution Re: National Policy on Access to Recreation for Low-Income Families* (April 2006)
- Totten, Mark, *The Health, Social and Economic Benefits of Increasing Access to Recreation for Low-Income Families: Research Summary Report* (Nov 2007)
- Redmond, David, *Every Child Plays: Access to Recreation for Low-Income Families in Ontario. Report of Survey Findings* (Nov 2007)
- Ontario Task Group on Access to Recreation for Low-Income Families *Every Child Plays: Access to Recreation for Low-Income Families in Ontario. Promising Practices* (Nov 2007)
- Ontario Task Group on Access to Recreation for Low-Income Families, *Every Child Plays: Access to Recreation in Ontario Policy Planning Institute, Statement of Vision and Beliefs* (2007)
- Wright, Susan (The Randolph Group), *Every Child Plays: Report on the Access to Recreation for Low-Income Families in Ontario Policy Planning Institute* (Nov 2007)
- Dayton, Howie (Parks and Recreation Ontario), *Improving Access for Low Income Families in Ontario* (2008)

## ADDITIONAL RESEARCH AND MATERIALS

Hanvey, Louise, *Access to Recreation Programs in Canada*, Perception, Volume 24, #4 (Spring 2001).  
<http://www.ccsd.ca/perception/244/louise.htm>

Browne, Gina, *Making the Case for Youth Recreation - Integrated Service Delivery: More Effective and Less, Ideas That Matter*, Volume 2, Number 3 (2003) [www.ideasthatmatter.com](http://www.ideasthatmatter.com)

Berck, Phyllis (Parks and Recreation, City of Toronto), *Challenges and Opportunities - The View from the Municipality, Ideas That Matter*, Volume 2, Number 3 (2003) [www.ideasthatmatter.com](http://www.ideasthatmatter.com)

Slack, Enid, *Municipal Funding for Recreation, Ideas That Matter*, Volume 2, Number 3 (2003) [www.ideasthatmatter.com](http://www.ideasthatmatter.com)

Torjman, Sherri, *Culture and Recreation: Links to Well-Being*, Caledon Institute of Social Policy (April 2004)  
<http://www.caledoninst.org/Publications/PDF/472ENG.pdf>

Canadian Parks and Recreation Association, *National Policy - Access to Recreation for Low-Income Families* (October 2005)  
<http://www.cpra.ca/UserFiles/File/EN/sitePdfs/initiatives/CPRANationalAccessPolicyFinal.2005.pdf?PHPSESSID=ea317b6c453508aafef084abe0afcb34>

Browne, G.C., et. al, *Within our Reach: A RCT of the two-year Effects and Expense of Subsidized Versus Non-Subsidized Quality Child Care/Recreation for Children on Social Assistance*, McMaster University (1998)

The Canadian Council on Social Development, *Recreation and Children and Youth Living in Poverty: Barriers, Benefits and Success Stories*, The Canadian Parks and Recreation Association (September 2001)  
[http://www.cpra.ca/UserFiles/File/EN/sitePdfs/initiatives/Barriers\\_Report.pdf](http://www.cpra.ca/UserFiles/File/EN/sitePdfs/initiatives/Barriers_Report.pdf)

Leitch, K. Kellie, *Reaching for the Top: A Report by the Advisor on Healthy Children & Youth*, Her Majesty the Queen in Right of Canada, represented by the Minister of Health Canada (2007)  
<http://www.hc-sc.gc.ca/hl-vs/pubs/child-enfant/advisor-conseillere/index-eng.php>

*Charter for Recreation and Parks in Ontario (2009)*  
[http://www.prontario.org/charter\\_2009.pdf](http://www.prontario.org/charter_2009.pdf)



#### Affordable Access to Recreation for Ontarians - Policy Framework



February 11, 2010

## **REPORT TO OPERATIONS COMMITTEE – FEBRUARY 17, 2010**

**2010-033-02**

**UPDATE ON RinC and BCF  
INTAKE II PROGRAMS**

**V. HARVEY**  
**ACTING DIRECTOR OF**  
**PARKS AND RECREATION**  
**L. WHITE**  
**BUDGET OFFICER**

### **RECOMMENDATION**

THAT Council receive this report for information purposes only.

### **PURPOSE**

To provide an update to Council regarding the RinC and Build Canada Fund Intake II programs.

### **BACKGROUND**

The City of Brockville received funding for improvements to the Memorial Centre Athletic Complex and the Centennial Youth Arena through RinC and Build Canada Fund (BCF) Intake II funding announced earlier this year

These programs were offered as infrastructure stimulus programs through the federal and provincial governments.

### **ANALYSIS**

The projects proposed in the application for RinC and BCF Intake II has been directed at the rehabilitation of the Centennial Youth Arena and the Brockville Memorial Centre including the ball fields and improvements to the skatepark.

User groups of the arenas, ball fields and skatepark have all been consulted by staff to consider their priorities.

To date, many projects have been tendered under each program. They are as follows:

Completion of the last quarter of the Memorial Centre roof	\$ 67,700
Replacement of the seats at the Memorial Centre	180,000
Renovation of the Memorial Centre community hall	285,737
Lighting retrofits at both arenas	75,000
Door replacement at both arenas	55,000
Improvements to the infields in the ball fields	19,650
Improvements to the exhaust system at the Memorial Centre	9,850
Installation of a water treatment system at the Memorial Centre (to improve ice quality)	16,500
Total	\$709,437

Other projects that have been prioritized and are to be completed prior to the Canada 55+ Games are:

- Improvements to the change rooms at both arenas including the showers, washrooms and new rubber flooring
- New heating in the Youth Arena change rooms
- Improvements to the skatepark include lighting, washrooms, an exterior drinking fountain and a redesign of the entrance for accessibility. The entrance redesign will also address insufficiencies with the Memorial Centre entrance to address and relocate the current non-designated smoking area.
- Fix the power supply at the Youth Arena
- Lighting retrofit over the ice pads at both rinks
- Replace light standard at Youth Arena
- Repointing and caulking at both arenas
- Lobby washroom improvements at Youth Arena
- Accessible viewing area for Youth Arena

## POLICY IMPLICATIONS

All projects mentioned in this report represent many of the core values contained in the City's Strategic Plan which includes working in partnership with community organizations to enhance our facilities and the community.

## FINANCIAL CONSIDERATIONS

The value of the projects is:

RinC Memorial Centre Athletic Complex project	\$ 651,670
RinC Youth Arena project	630,000
BCF Intake II project – Memorial Centre Athletic Complex	<u>425,000</u>
	<b>\$1,706,670</b>

All projects are funded equally by the federal, provincial and municipal governments and as such the City's share is \$568,890 (1/3 of \$1,706,670). The City funds have been allocated through a reallocation of 2009 Capital funds as well as the 2010 Capital Budget.

## CONCLUSION

Additional updates on these programs will be forwarded bi-annually.

L. White  
L. White, Budget Officer

V. Harvey  
V. Harvey, Acting Director of  
Parks and Recreation

D. Cyr  
D. Cyr, Director of Finance

B. Casselman  
B. Casselman, City Manager



## **REPORT TO THE OPERATIONS COMMITTEE – February 16, 2010**

**2010-008-02  
RENEWAL OF AGREEMENT  
WITH THE COMMISSIONAIRES INC.  
KINGSTON & REGION DIVISION  
FOR PARKING ENFORCEMENT**

**S.M. SEALE  
CITY CLERK**

### **RECOMMENDATION**

THAT City Council authorize the City Clerk to enter into an agreement with the Commissionaires Inc., Kingston and Region Division for the provision of parking enforcement for the period of February 1, 2010 to January 31, 2012.

### **ORIGIN**

The current contract with the Commissionaires expired on January 31, 2010.

### **ANALYSIS**

In December 2003, Council authorized staff, subject to the approval of the DBIA, to enter into a contract for the provision of parking enforcement after the existing unionized staff resigned. In January 2004, after contacting three agencies, a contract was entered into with the Canadian Corps of Commissionaires Incorporated, Kingston & Region Division for the provision of two commissionaires to undertake parking enforcement in the downtown area.

Since February 2004, the Commissionaires have been enforcing parking in the downtown area. The Commissionaires provide enforcement Monday to Friday and repair and maintain the metering equipment in the downtown area including five pay and display parking lot machines and approximately 170 parking meters.

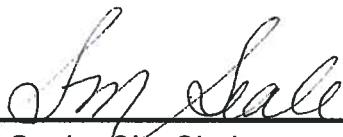
The integration of the Commissionaires into the by-law division has gone very smoothly and the current compliment of officers work very well with City staff. The DBIA and its members have been satisfied with the service.

Staff is recommending the renewal of the agreement with the Commissionaires be for a two (2) year term, from February 1, 2010 to January 31, 2012.

## FINANCIAL CONSIDERATIONS

The contract includes a 3% increase which has been built into the 2010 operating budget. Please note that under the terms of the contract, the rate charged by the Commissionaires includes all required health and safety training, uniforms and cellular phones.

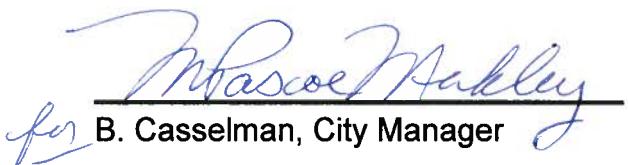
Funding of this contract is through the Parking operating account 1270 1160 3010.



S.M. Seale, City Clerk



D. Cyr, Director of Finance

  
*for*

B. Casselman, City Manager