

**Operations Committee**  
**Wednesday, March 18, 2009, 4:00 p.m.**  
**City Hall - Council Chambers**

**Committee Members**

Councillor S. Williams,  
Chair  
Councillor H. Noble  
Councillor L. Severson  
Mayor D.L. Henderson,  
Ex-Officio

**Areas of Responsibility**

Operations  
Community Services  
Fire  
Museum  
Library Board  
Cemetery Board  
St. Lawrence Lodge  
Mgmt. Board  
L,L&G Health Unit

CRCA  
Airport Board  
Arena Advisory Board  
Visual/Performing Arts  
Committee  
PLMG  
BMAAC  
Brockville Municipal  
Non-Profit Housing  
Committee

**AGENDA**

Page

- | ITEMS FOR CONSIDERATION |  |
|-------------------------|--|
| 3-62                    | 1. 2009-034-03<br>2008 ANNUAL SUMMARY REPORT<br>WATER TREATMENT PLANT                                      |
| 63-100                  | 2. 2009-035-03<br>2008 ANNUAL SUMMARY REPORT<br>WATER POLLUTION CONTROL CENTRE                             |
| 101-103                 | 3. 2009-036-03<br>BROCKVILLE ARTS CENTRE RETROFITS   |
| 105-120                 | 4. 2009-037-03<br>LEASE AGREEMENT WITH 1000 ISLANDS KYAKING COMPANY  |
| 121-123                 | 5. 2009-038-03<br>ROTARY POOL BUILDING BROCKVILLE GYMNASTICS<br>ACADEMY                                    |
| 125-127                 | 6. 2009-039-03<br>ENGINEERING SERVICES FOR KING STREET<br>RECONSTRUCTION<br>BEACHER STREET TO CEDAR STREET |

CONSENT AGENDA



**MARCH 2, 2009**  
**REPORT TO OPERATIONS COMMITTEE – MARCH 18, 2009**

**2009-034-03**

**2008 ANNUAL SUMMARY REPORT  
WATER TREATMENT PLANT**

**C. J. COSGROVE, P. ENG.  
DIRECTOR OF OPERATIONS  
M. J. HOBBS, C.E.T.  
W&WW TREATMENT SUPERVISOR**

**RECOMMENDATION**

THAT the 2008 Annual Summary Report on the City of Brockville's Water Treatment Plant, Attachment 1 to Report 2009-034-03, be received; and

THAT the Director of Operations be designated to sign the 2008 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, 2008 through December 31, 2008.

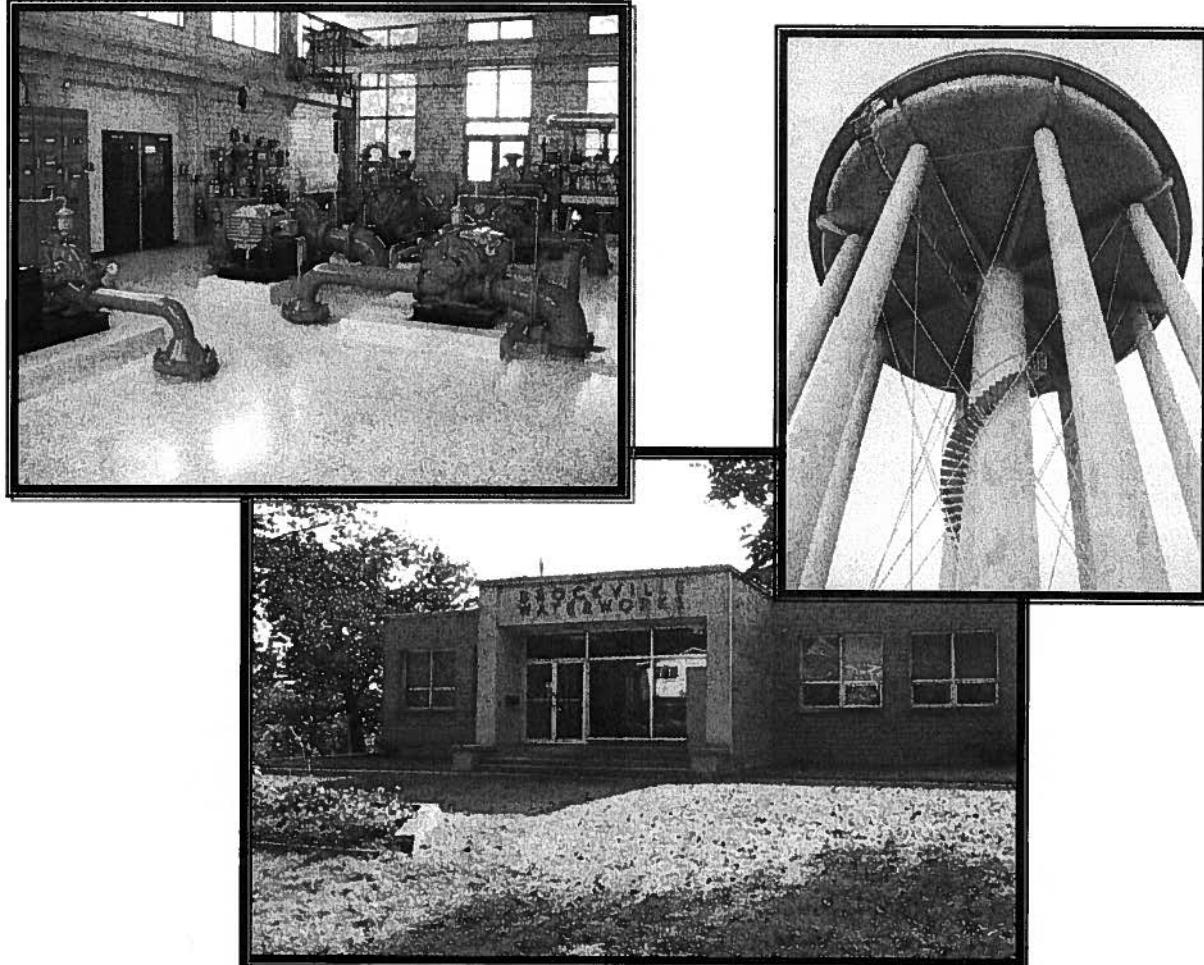
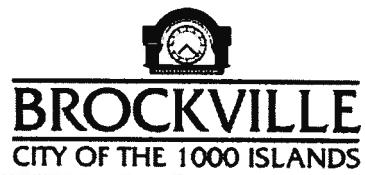
**ANALYSIS**

Provided is a complete annual summary report summarizing the plant description and design, flow data and water quality parameters. The 2008 Annual Report (Part III, Form 2) submitted electronically to the MOE on February 27<sup>th</sup>, 2009 is available on the City's website. The 2008 annual summary report is available at the office of the Water & Wastewater Treatment Supervisor and on the City's website.

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

  
B. Casselman  
City Manager

  
M. J. Hobbs, C.E.T.  
Supervisor, W & WW Treatment



## CITY OF BROCKVILLE DRINKING-WATER SYSTEM

---

### 2008 ANNUAL SUMMARY REPORT FOR COUNCIL

PREPARED BY:  
MELODIE J. HOBBS, CET  
SUPERVISOR, WATER & WASTEWATER TREATMENT

DATE: March 6, 2009  
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 2008 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) for submission to the Ontario Ministry of the Environment (MOE), and Ontario Regulation 170/04, 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 2008 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:

- Lead Sampling as prescribed by O. Reg. 170/04 Section 15 was initiated in 6 Zones in the 1<sup>st</sup> and 3<sup>rd</sup> quarters of 2008. Results indicated that a second sampling period is required for 2009.
- Dan White, Senior Drinking Water Inspector with the MOE conducted an inspection on Feb. 28 – 29<sup>th</sup> and March 4<sup>th</sup>, 2009 that produced another positive outcome. In addition the Drinking Water System received another 100% Inspection result – an excellent achievement for all WTP and WDS Staff!
- The new Zone 3 Booster Station was commissioned; Zone 3 equipment and instrumentation upgrades were required to optimize operation in this zone.
- Seasonal operation of the UV system was approved by the MOE (UV off during colder water temperatures), and will be effective in lowering Energy costs throughout the Fall/Winter months.
- The diesel engine for the Low Lift pump was replaced due to failure on the existing unit. A rental unit was required for contingency until the new unit was in place.
- The City and the Water Treatment Plant participated in an Energy Audit sponsored by the Association of Municipalities of Ontario. The findings and implementation plan will be reviewed and formalized in 2009.
- Raw Water Meter Chamber failures at the chemical addition points, instrumentation and controls wiring; conduit lines have broken down over time, and require replacement. The City's Engineering Dept. assisted Staff with this project.

2008 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 2008	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 2008 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 2008 Flow Summary	
5.4 Adverse Test Results	
5.5 Historical Flow Results	
6. CONCLUSION	14

List of Appendices:

APPENDIX A PROCESS FLOW DIAGRAM – WTP	15
APPENDIX B 2007 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	58
APPENDIX H CAPITAL PROJECTS – 2007 AND 2008	59

2008 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

2008 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 Ontario Water Resources Act	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>, 2008 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

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

water supplied during the 2008 calendar year is provided in Appendix for each of the water systems.

- 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.

2008 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
<b>SAFE DRINKING WATER ACT, 2002</b>			
Certification of Drinking-Water System Operators And Water Quality Analysts		128/04	256/05
Compliance and Enforcement		242/05	
Definitions of “Deficiency” and “Municipal Drinking-Water System”		172/03	20/04, 257/05
Definitions of Words and Expressions Used in The Act		171/03	270/03, 19/04
Drinking-Water Systems	170/03		249/03, 269/03, 18/04, 126/04, 165/04, 408/04, 253/05, 247/06, 402/06
Drinking-Water Testing Services		248/03	127/04, 254/05, 250/06
Ontario Drinking-Water Quality Standards		169/03	268/03, 17/04, 255/05, 248/06

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.

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

### 3. ANNUAL DATA SUMMARY FOR 2008

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 were posted to the Web on Feb. 27<sup>th</sup>, 2008.

#### 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 2008. 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: 2008 WTP Operational Highlights**.

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

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.

This Annual flow report is prepared through retrieval of archived SCADA data, operational information, logsheets, 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 2008 calendar year is provided in **Appendix B: 2008 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**

##### • Parkdale Avenue Reservoir

The Parkdale Avenue Reservoir, Booster Pumping Station and Re-chlorination Facility services two geographical areas which are Zone 1, which is the area South of Highway

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

- 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.
  - **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. Zone 3 and the First Avenue Booster Station was commissioned in 2008.
  - **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)

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

#### 4.4 2008 Flow Summary

In 2008, the maximum or Peak Daily raw water taken per minute was 16,667 L/min which occurred on Feb. 29<sup>th</sup>, and was within the permitted maximum amount of 25,278 L/min, or 65.9% of the Permit. In addition in 2008, the annual average daily raw water flow to the WTP was 13,663,000 L/day or 28% of its maximum approved treatment capacity.

A summary of the volume of water taken daily and the flows of the water supplied during the 2008 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 2008, 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
March 26, 2008 AWQI 78499	Lead Brockville Distribution	10.6 ug/L	Flushed and re-sampled	March 31, 2008
September 6, 2008 AWQI 83564	Total Coliform Brockville Distribution	1 CFU/100mL	Flushed and re-sampled	September 11, 2008
December 11, 2008 AWQI 85763	Total Coliform Brockville Distribution	1 CFU/100mL	Flushed and re-sampled	December 16, 2008
December 31, 2008 AWQI 86005	Total Coliform Brockville Distribution	1 CFU/100mL	Flushed and re-sampled	January 5, 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	53	1	22	4	1310	53	<10	860
Treated	53	<1	<1	<1	<1	53	<10	70
Distribution	592	<1	<1	<1	1	381	<10	870

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

**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.

**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 10.1% of the total annual flow from 2007. 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 2008 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 ELIZABETHTOWN-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".

## **2008 ANNUAL SUMMARY REPORT FOR COUNCIL CITY OF BROCKVILLE DRINKING-WATER SYSTEM**

## **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

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 2008 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. This report was submitted to the Township on March 4<sup>th</sup>, 2009.

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE DRINKING-WATER SYSTEM

## 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.

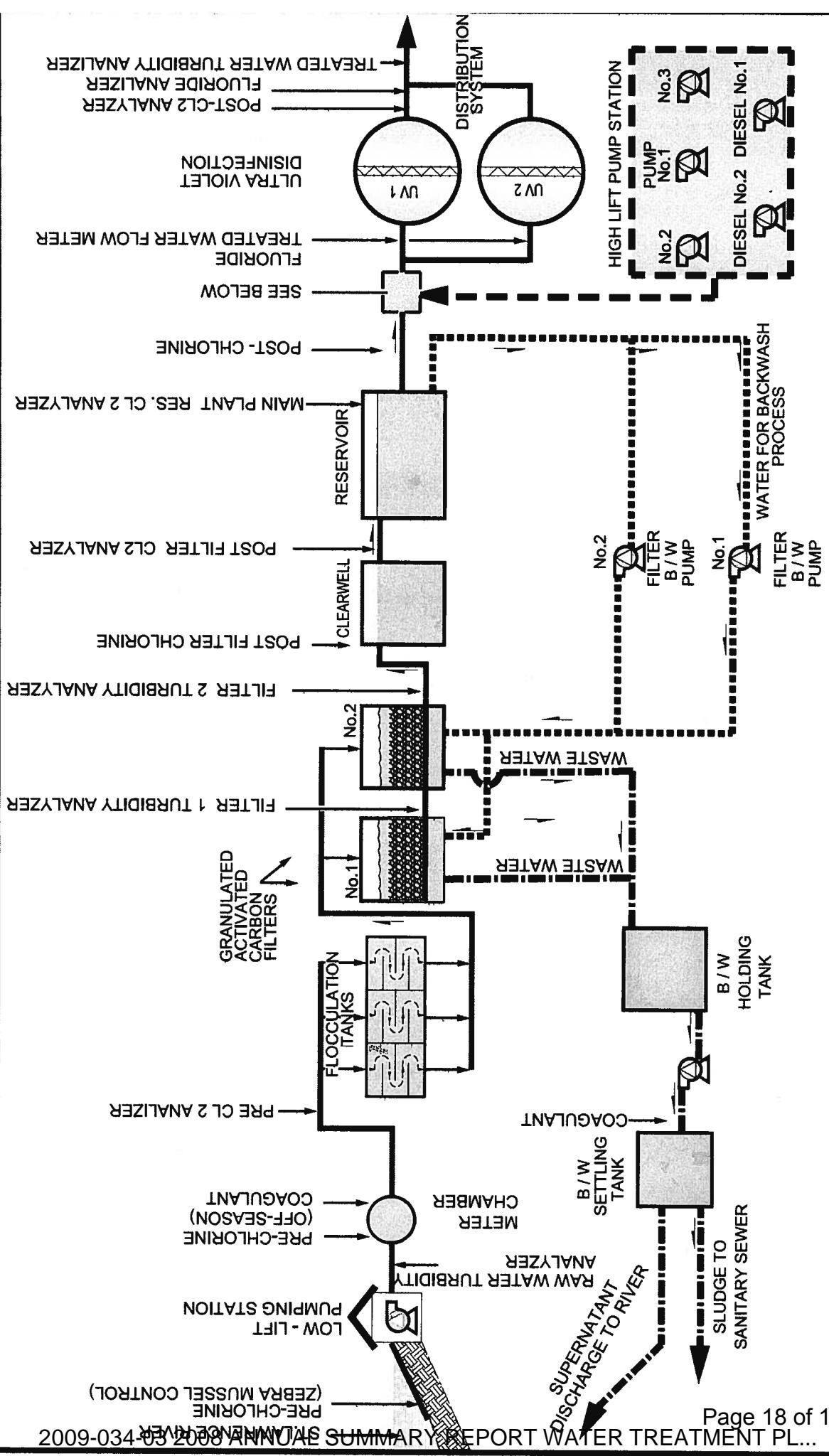
In Ontario, water taking, treatment and distribution are governed by a number of Acts and Regulations. This report fulfills the reporting requirements of the Drinking-Water System Regulation (O. Reg. 170/03) made under the Safe Drinking Water Act for all of the municipal drinking water treatment systems 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> 2008. 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 office of Melodie Hobbs, Supervisor, WT & WWT Division, 1807 County Road #2, Brockville.

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 2008. 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 2008 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

2005 02 21 D.G.D.  
**SK2005-94**



**WTP Section 22 Annual Summary Flow Report**  
**01 January 2008 to 31 December 2008**

City of Brockville Drinking Water

## APPENDIX B

**WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008**

- - - -

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

Month, 2008	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet		DWF 04 Parkdale Avenue Reservoir		Elizabethown Meter	
	TURBIDITY MAX	TURBIDITY MIN	TURBIDITY MAX	TURBIDITY MIN	TURBID H2O TOTAL	TURBIDY MIN	TURBIDITY MAX	TURBIDY MIN	TURBIDY MAX	TURBIDY MIN	TURBIDY MAX	TURBIDY MIN
1	3.449	0.179	12.98	0.044	0.035	0.442	49	30	26	20	5.069	0.451
2	0.44	0.174	12.358	18.91	0.035	0.441	49	40	26	21	5.344	0.449
3	0.398	0.179	14.67	20.43	0.052	0.038	14.125	0.441	30	26	5.321	0.417
4	0.422	0.182	13.554	19.04	0.302	0.035	12.879	0.336	52	29	5.272	0.334
5	0.888	0.176	14.235	20.25	0.45	0.032	13.563	0.443	162	0	5.613	0.423
6	0.341	0.175	14.458	19.41	0.047	0.032	13.845	0.482	49	30	5.887	0.418
7	0.246	0.175	14.35	21.08	0.043	0.033	13.48	0.402	42	26	5.531	0.413
8	0.175	0.214	12.214	19.42	0.068	0.037	11.315	0.443	42	26	5.981	0.439
9	0.327	0.177	12.426	20.25	0.052	0.037	11.804	0.437	42	26	5.346	0.411
10	0.268	0.171	14.182	19.32	0.052	0.036	13.456	0.442	43	28	5.647	0.424
11	1.409	0.171	13.403	20.89	0.034	0.034	12.545	0.441	12	52	5.554	0.412
12	0.323	0.172	15.421	20.08	0.041	0.034	14.616	0.682	42	22	5.904	0.45
13	0.254	0.17	12.595	20.15	0.039	0.033	11.816	0.231	43	26	5.387	0.376
14	0.356	0.156	14.033	20.57	0.055	0.03	13.161	0.459	42	26	5.842	0.408
15	0.358	0.178	13.175	20.4	0.045	0.035	12.296	0.457	42	26	5.523	0.427
16	0.379	0.186	14.116	20.63	0.047	0.035	13.327	0.456	42	25	5.57	0.441
17	0.176	0.176	14.718	21.03	0.05	0.035	13.764	0.457	7	42	6.033	0.388
18	0.228	0.151	13.113	18.58	0.042	0.036	12.175	0.461	25	21	5.971	0.395
19	0.337	0.157	14.693	20.58	0.0828	0.036	13.929	0.457	70	0	5.92	0.408
20	0.506	0.158	13.275	20.3	0.046	0.036	12.325	0.459	42	26	5.678	0.38
21	0.483	0.159	12.96	20.04	0.041	0.036	12.208	0.455	41	26	4.736	0.439
22	0.489	0.157	12.683	20.47	0.042	0.036	11.903	0.458	412	33	5.137	0.45
23	0.268	0.157	11.863	19.8	0.042	0.035	11.027	0.458	41	33	4.969	0.402
24	0.315	0.158	14.819	20.53	0.094	0.036	14.02	0.457	41	25	5.832	0.456
25	0.261	0.15	13.877	20.11	0.044	0.038	13.047	0.682	5	41	6.086	0.441
26	0.841	0.164	14.635	21.73	0.407	0.037	13.935	0.231	42	26	5.486	0.394
27	0.341	0.175	14.893	19.77	0.05	0.039	14.151	0.457	40	24	5.908	0.422
28	1.12	0.175	12.874	19.91	0.047	0.04	12.125	0.457	40	24	5.147	0.409
29	0.345	0.179	14.247	20.18	0.048	0.04	13.572	0.456	40	24	5.831	0.436
30	0.284	0.181	14.416	19.53	0.048	0.04	13.73	0.457	41	20	5.805	0.455
31	0.27	0.178	13.873	18.87	0.142	0.039	13.009	0.459	100	0	5.75	0.483

Average	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		08 Ultraviolet		DWF 04 Parkdale Avenue Reservoir		Elizabethown Meter	
	TURBIDITY MAX	TURBIDITY MIN	TURBIDITY MAX	TURBIDITY MIN	TURBID H2O TOTAL	TURBIDY MIN	TURBIDITY MAX	TURBIDY MIN	TURBIDY MAX	TURBIDY MIN	TURBIDY MAX	TURBIDY MIN
0.541	0.170	13.708	20.100	0.1007	0.038	12.924	0.445	8.250	61.531	24.969	22.156	16.313
0.178	0.15	11.863	17.85	0.039	0.03	11.027	0.231	5	40	0	0	95
3.449	0.192	15.421	21.95	0.45	0.04	14.618	0.682	12	412	42	30	21
3.2	32	32	32	32	32	32	32	4	32	32	32	32
Total			438.892	63.19	413.559	14.232				0	181.662	13.424

WTTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		06 UV 1 Ultraviolet Disinfection		08 Ultraviolet Disinfection		DW 04 Parkdale Avenue Reservoir		Elizabethown Meter Total Daily Flow	
01 Raw H2O MIN	01 Raw H2O MAX	01 Raw H2O TOTAL	01 Raw H2O PEAK	01 Treated H2O MIN	01 Treated H2O MAX	01 Treated H2O TOTAL	01 Treated H2O PEAK	01 UV Intensity Bult 81	01 UV Intensity Bult 82	01 UV Intensity Bult 83	01 UV Intensity Bult 84	01 UV Intensity Bult 85	01 UV Intensity Bult 86
01 Raw H2O MIN	01 Raw H2O MAX	01 Raw H2O TOTAL	01 Raw H2O PEAK	01 Treated H2O MIN	01 Treated H2O MAX	01 Treated H2O TOTAL	01 Treated H2O PEAK	UV Doseage MIN	UV Doseage MAX	UV Doseage MIN	UV Doseage MAX	UV Doseage MIN	UV Doseage MAX
Flow (LPS)	Flow (LPS)	Flow (LPS)	Flow (LPS)	Flow (LPS)	Flow (LPS)	Flow (LPS)	Flow (LPS)	m³/d (cm)	m³/d (cm)	m³/d (cm)	m³/d (cm)	m³/d (cm)	m³/d (cm)
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Suspended Solids	Settling Volume	Treated H2O Total	Treated H2O Peak	Treated H2O Total	Treated H2O Peak	Treated H2O Total	Treated H2O Peak	UV Intensity Bult 81	UV Intensity Bult 82	UV Intensity Bult 83	UV Intensity Bult 84	UV Intensity Bult 85	UV Intensity Bult 86
mg/L	L	L	L	L	L	L	L	m³/d (cm)	m³/d (cm)	m³/d (cm)	m³/d (cm)	m³/d (cm)	m³/d (cm)
1 April, 2008								UV Transmittance	UV Transmittance	UV Transmittance	UV Transmittance	UV Transmittance	UV Transmittance
1	1.773	0.185	15.062	20.71	0.047	14.259	0.458	10	40	25	21	15	97
2	0.772	0.234	13.826	20.33	0.059	0.037	13.084	0.671	41	25	21	15	97
3	0.471	0.306	14.588	20.28	0.044	0.036	13.774	0.251	41	25	20	14	97
4	3.312	0.328	13.703	20.22	0.044	0.038	12.851	0.459	41	25	21	15	97
5	0.504	12.748	18.03	0.043	0.037	11.892	0.46	41	25	0	0	0	97
6	0.678	0.364	14.056	20.64	0.046	0.038	13.334	0.457	41	25	21	15	97
7	0.584	0.398	13.446	18.42	0.522	0.038	12.687	0.479	100	0	24	19	97
8	0.845	0.417	15.743	21.62	0.055	0.04	14.946	0.54	3	47	29	25	97
9	0.558	0.383	15.121	21.77	0.048	0.037	14.322	0.41	40	29	24	19	97
10	0.901	0.356	12.438	18.67	0.049	0.035	12.582	0.473	47	29	24	19	97
11	1.002	0.357	14.652	20.14	0.057	0.042	13.987	0.472	47	29	25	20	97
12	0.986	0.367	12.845	20.05	0.051	0.042	12.043	0.474	48	29	25	20	97
13	0.617	0.335	12.417	20.28	0.055	0.043	11.872	0.472	48	29	24	19	97
14	0.616	0.323	15.083	20.35	0.674	0.042	14.523	0.473	40	25	25	20	97
15	0.536	0.332	14.576	20.27	0.055	0.042	13.981	0.471	2	47	29	24	97
16	0.498	0.352	13.4	20.17	0.218	0.048	12.71	0.473	46	29	24	19	97
17	2.245	0.32	15.27	21.87	0.062	0.047	14.716	0.469	46	28	24	19	97
18	0.322	12.881	22.03	0.057	0.047	12.185	0.473	98	0	24	19	97	97
19	1.467	0.288	14.967	20.5	0.052	0.046	14.44	0.471	48	29	24	19	97
20	0.402	0.259	13.443	20.33	0.088	0.044	12.658	0.473	47	29	24	19	97
21	2.483	0.276	14.502	20.43	0.988	0.036	13.904	0.473	48	28	24	19	97
22	0.514	0.214	15.404	20.75	0.228	0.035	14.796	0.491	7	47	29	24	97
23	0.635	0.202	13.095	20.65	0.047	0.035	12.413	0.507	46	28	24	18	97
24	0.372	0.165	15.449	19.97	0.048	0.039	14.948	0.497	47	28	24	18	97
25	0.258	0.163	14.874	18.25	0.049	0.039	14.137	0.491	48	28	24	18	97
26	0.257	0.146	12.722	18.74	0.131	0.041	12.042	0.491	45	28	23	18	97
27	0.301	0.147	13.884	18.81	0.056	0.044	13.34	0.489	46	28	23	17	97
28	0.378	0.142	13.091	20.03	0.332	0.044	12.418	0.492	97	0	24	18	97
29	0.865	0.139	14.416	21.7	0.103	0.043	13.883	0.491	5	45	27	24	97
30	0.195	0.141	13.004	19.38	0.055	0.042	12.314	0.52	45	28	24	17	97

Average	Minimum	Maximum	Count	Total	401,151	14,321	30	30	30	30	30	1	17,236	13,045
0.921	0.276	14.017	20,180	0.146	5,400	50,133	24,833	22,733	17,433	0.000	97,000	0.0302	5,708	0.435
0.195	0.138	12.417	18.03	0.043	0.035	11,972	0.251	0	0	0	97	0.0302	5,024	0.37
3.312	0.417	15.743	22.03	0.988	0.048	14,946	0.671	10	100	25	97	0.0302	6,197	0.57
30	30	30	30	30	30	5	30	30	30	30	30	1	30	30

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

Date, 2008	01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		DW 04 Parkdale Avenue Reservoir		Elizabethown Meter	
	10 Raw H2O TOTAL	11 Raw H2O PEAK	12 Raw H2O MAX	13 Raw H2O MIN	14 Raw H2O TOTAL	15 Raw H2O MAX	16 Raw H2O TOTAL	17 Raw H2O MAX	18 Raw H2O MIN	
1	0.255	0.139	14.762	20.15	0.053	0.043	14.152	0.488	-	45
2	0.277	0.191	12.882	19.85	0.052	0.042	12.123	0.556	0.553	45
3	0.357	0.201	12.436	20.05	0.052	0.044	11.736	0.553	0.455	45
4	0.365	0.208	14.212	19.6	0.072	0.047	13.686	0.455	0.44	27
5	0.478	0.206	14.916	20.4	0.268	0.045	14.272	0.52	0.522	44
6	0.368	0.178	14.794	20.26	0.066	0.043	14.149	0.522	0.44	27
7	0.33	0.188	14.784	20.05	0.065	0.043	14.156	0.521	0.45	27
8	0.707	0.188	14.972	20.27	0.055	0.043	14.327	0.52	0.44	27
9	0.388	0.229	13.645	20.44	0.063	0.045	12.922	0.521	0.44	27
10	0.364	0.241	12.776	18.54	0.069	0.052	12.079	0.52	0.43	26
11	0.432	0.237	12.393	19.08	0.071	0.055	11.701	0.521	0.42	26
12	0.228	0.233	15.38	21.8	0.09	0.051	14.79	0.52	0.43	26
13	0.384	0.224	16.043	20.28	0.061	0.045	15.411	0.522	0.48	108
14	0.357	0.227	15.33	16.47	0.078	0.042	15.524	0.522	0.42	26
15	0.395	0.255	14.072	20.98	0.055	0.04	13.295	0.513	0.394	26
16	0.842	0.275	15.443	22.13	0.058	0.039	14.589	0.52	0.34	24
17	0.427	0.247	12.656	20.11	0.048	0.038	11.887	0.522	0.40	25
18	0.531	0.241	13.336	20.18	0.047	0.039	12.631	0.52	0.40	25
19	0.465	0.28	12.382	19.98	0.063	0.036	12.286	0.521	0.40	32
20	0.476	0.273	13.402	19.34	0.111	0.041	12.625	0.523	0.40	24
21	2.175	0.312	15.258	21.18	0.358	0.04	14.488	0.522	0.41	24
22	4.98	0.187	16.998	22.09	0.418	0.039	16.254	0.535	0.56	25
23	0.505	0.314	15.587	20.14	0.05	0.04	14.458	0.57	0.57	24
24	0.448	0.298	12.92	19.79	0.046	0.039	12.036	0.556	0.36	25
25	0.423	0.29	14.925	19.5	0.049	0.028	14.152	0.553	0.37	25
26	0.475	0.293	15.58	20.26	0.636	0.037	14.769	0.57	0.56	26
27	0.489	0.304	14.779	20.04	0.069	0.037	14.049	0.622	0.52	27
28	0.497	0.305	15.958	20.22	0.045	0.035	15.3	0.548	0.30	22
28	0.636	0.321	15.376	20.22	0.044	0.035	14.714	0.828	0.54	20
30	1	0.31	14.01	20.98	0.045	0.037	12.719	0.556	0.33	0
31	0.585	0.319	12.505	20.03	0.054	0.039	11.573	0.597	0	0

Average	Minimum	Maximum	Count	Total	0.250	14.339	20.206	0.107	0.041	13.606	0.543	6.500	47.226	22.868	20.846	15.516	0.548	0.000	96.467	6.144	6.623	
0.814	0.139	12.382	18.47	0.044	0.044	0.028	11.573	0.455	0	0.553	0	0	0	0	0	0	0	0	95	95	95	
0.255	0.321	16.989	22.13	0.638	0.055	0.055	16.254	0.828	8	1.58	37	24	24	17	0	0	0	0	97	97	97	
4.99	31	31	31	444.513	626.4	31	31	31	31	421.797	16.836	4	31	31	31	31	31	31	0	0	0	19.321

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		DW 04 Parkdale Avenue Reservoir Zone 2 Flow TOTAL		Elizabethown Meter Total Daily Flow (mLD)	
June	2008	Flow (mLD)	Turbidity MAX (NTU)	Flow (mLD)	Turbidity MAX (NTU)	Flow (mLD)	Turbidity MIN (NTU)	Flow (mLD)	Turbidity MAX (NTU)	Flow (mLD)	Turbidity MIN (NTU)
1	0.651	0.331	14.784	20.53	0.085	0.043	13.928	0.62	0.738	5.388	0.626
2	0.46	0.32	15.083	20.32	0.058	0.039	14.066	0.738	0.633	6.173	0.835
3	0.499	0.309	13.319	20.12	0.064	0.038	12.488	0.513	0	0.6073	0.83
4	0.985	0.303	15.219	20.65	0.341	0.037	14.49	0.514	0	6.121	0.634
5	0.495	0.29	15.894	20.96	0.048	0.035	14.886	0.732	0	7.212	0.131
6	0.774	0.379	15.528	20.1	0.044	0.035	14.54	0.705	0	6.758	0.443
7	0.413	0.301	12.756	20.16	0.061	0.035	11.951	0.512	0	5.777	0.455
8	0.561	0.317	14.891	19.56	0.056	0.038	14.161	0.988	0	6.283	0.468
9	1.021	0.35	15.24	20.07	0.049	0.037	14.264	0.73	0	6.292	0.443
10	3.431	0.36	15.254	21.41	0.999	0.039	14.281	0.72	8	6.431	0.431
11	0.565	0.359	13.977	20.29	0.068	0.045	13.123	0.661	0	6.384	0.501
12	4.984	0.379	14.801	20.62	0.078	0.047	14.144	0.577	0	6.355	0.493
13	2.491	0.418	16.053	20.8	0.086	0.048	15.431	0.555	0	6.569	0.417
14	0.498	0.135	15.056	20.48	0.071	0.046	14.521	0.534	0	5.993	0.375
15	0.914	0.432	12.235	20.32	0.08	0.048	11.405	0.484	0	6.375	0.361
16	0.608	0.406	15.433	20.05	0.064	0.048	14.847	0.6	0	6.386	0.623
17	0.894	0.429	14.19	19.77	0.063	0.045	13.487	0.764	4	5.892	0.114
18	0.843	0.467	15.049	20.18	0.054	0.045	14.042	0.513	50	5.825	0.095
19	0.781	0.475	12.946	20.37	0.08	0.045	11.961	0.705	41	24	25
20	0.878	0.498	14.78	20.25	0.055	0.046	14.054	0.513	0	9.928	0.096
21	0.537	12.538	20.53	0.055	0.045	11.539	0.725	0	0	6.151	0.177
22	0.702	0.464	14.077	19.9	0.058	0.045	13.369	0.515	0	6.792	0.245
23	0.592	0.42	14.423	20.2	0.054	0.043	13.528	0.728	0	6.063	0.257
24	0.1024	0.409	15.104	20.48	0.199	0.041	14.333	0.528	5	6.209	0.439
25	0.608	0.422	14.968	20.43	0.06	0.04	14.154	0.58	0	6.362	0.268
26	1.481	0.402	14.741	20.28	0.133	0.042	13.921	0.528	0	6.183	0.238
27	1.217	0.522	13.081	20.08	0.051	0.043	12.247	0.57	NR	6.019	0.256
28	0.934	0.472	12.079	20.35	0.051	0.044	11.387	0.453	NR	5.677	0.231
29	1.71	0.48	13.968	20.44	0.108	0.042	13.208	0.519	0	5.484	0.241
30	0.608	0.455	12.537	20.5	0.047	0.041	11.76	0.509	NR	4.937	0.247

		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		DW 04 Parkdale Avenue Reservoir Zone 2 Flow TOTAL		Elizabethown Meter Total Daily Flow (mLD)	
June	2008	Flow (mLD)	Turbidity MAX (NTU)	Flow (mLD)	Turbidity MAX (NTU)	Flow (mLD)	Turbidity MIN (NTU)	Flow (mLD)	Turbidity MAX (NTU)	Flow (mLD)	Turbidity MIN (NTU)
Average	1.091	0.392	14.334	20.330	0.110	0.042	13.512	0.595	5.750	6.480	1.286
Minimum	0.413	0.135	12.079	19.56	0.044	0.035	11.387	0.453	0	0	0.889
Maximum	4.984	0.537	16.053	21.41	0.989	0.048	15.431	0.784	30	30	0
Count	30	30	30	30	30	30	30	30	405.348	17.843	27
Total										0	27

# WTP Section 22 Annual Summary Flow Report 01 January 2008 to 31 December 2008

APPENDIX B

01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		03 Ultraviolet		UV Transmittance (%)		Elizabethown Meter Flow (MLD)		
Flow (MLD)	Flow (MLD)	Treated H2O PEAK	Treated H2O MAX	Treated H2O MIN	Treated H2O MAX	Treated H2O MIN	UV Intensity Blue #1 (mJW/cm²)	UV Intensity Blue #2 (mJW/cm²)	UV Intensity Blue #3 (mJW/cm²)	UV Intensity Blue #4 (mJW/cm²)	UV Transmittance (%)	
10 Raw H2O TOTAL	10 Raw H2O TOTAL	1.093	0.452	12.461	20.23	0.058	0.042	11.737	0.498	95	5.208	
11 Raw H2O PEAK	11 Raw H2O PEAK	2.151	0.486	15.351	19.79	0.057	0.042	14.681	0.513	95	0.0681	
12 Raw H2O MAX	12 Raw H2O MAX	2.469	0.47	15.278	19.89	0.35	0.04	14.513	0.512	95	0.256	
13 Raw H2O MIN	13 Raw H2O MIN	0.823	0.447	13.322	20	0.047	0.04	12.51	0.514	95	0.234	
14 Raw H2O MAX	14 Raw H2O MAX	0.662	0.47	12.616	23.03	0.048	0.041	11.879	0.514	95	0.248	
15 Raw H2O MIN	15 Raw H2O MIN	2.162	0.498	14.187	20.92	0.049	0.04	13.508	0.514	95	0.265	
16 Raw H2O MAX	16 Raw H2O MAX	7	0.532	15.623	20.92	0.047	0.04	14.921	0.81	95	0.262	
17 Raw H2O MIN	17 Raw H2O MIN	0.957	0.503	15.612	20.14	0.295	0.04	14.758	0.336	95	0.494	
18 Raw H2O MAX	18 Raw H2O MAX	0.785	0.556	15.117	21.75	0.07	0.04	14.38	0.508	95	0.276	
19 Raw H2O MIN	19 Raw H2O MIN	10	0.791	0.518	15.016	19.85	0.046	0.038	14.278	0.507	95	0.237
20 Raw H2O MAX	20 Raw H2O MAX	11	0.777	0.535	12.984	19.97	0.05	0.039	12.203	0.539	95	0.243
21 Raw H2O MIN	21 Raw H2O MIN	12	0.834	0.52	14	20.2	0.055	0.041	13.351	0.752	95	0.237
22 Raw H2O MAX	22 Raw H2O MAX	13	0.867	0.536	13.989	21.73	0.047	0.04	13.27	0.218	95	0.262
23 Raw H2O MIN	23 Raw H2O MIN	14	0.502	13.844	20.18	0.057	0.034	13.044	0.505	95	0.453	
24 Raw H2O MAX	24 Raw H2O MAX	15	0.791	0.489	15.174	19.81	0.044	0.034	14.465	0.509	95	0.243
25 Raw H2O MIN	25 Raw H2O MIN	16	0.729	0.465	15.397	19.99	0.043	0.034	14.645	0.552	95	0.229
26 Raw H2O MAX	26 Raw H2O MAX	17	1.898	0.453	15.045	20.23	0.045	0.034	14.427	0.511	95	0.228
27 Raw H2O MIN	27 Raw H2O MIN	18	3.646	0.43	14.49	20.04	0.044	0.035	13.529	0.574	95	0.237
28 Raw H2O MAX	28 Raw H2O MAX	19	0.632	0.406	12.3	20.38	0.045	0.036	11.556	0.509	95	0.225
29 Raw H2O MIN	29 Raw H2O MIN	20	0.66	0.38	13.809	20.36	0.055	0.036	13.213	0.51	95	0.255
30 Raw H2O MAX	30 Raw H2O MAX	21	0.544	0.338	14.374	18.64	0.047	0.035	13.644	0.731	95	0.475
31 Raw H2O MIN	31 Raw H2O MIN	22	0.701	0.304	14.506	18.44	0.043	0.035	13.887	0.511	95	0.277
32 Raw H2O MAX	32 Raw H2O MAX	23	0.706	0.308	14.205	21.97	0.056	0.035	13.63	0.523	95	0.237
33 Raw H2O MIN	33 Raw H2O MIN	24	3.822	0.318	14.189	20.79	0.052	0.036	13.455	0.631	95	0.219
34 Raw H2O MAX	34 Raw H2O MAX	25	3.99	0.293	12.743	20.04	0.053	0.045	11.826	0.312	95	5.778
35 Raw H2O MIN	35 Raw H2O MIN	26	1.059	0.266	12.271	19.82	0.137	0.045	11.516	0.562	95	0.225
36 Raw H2O MAX	36 Raw H2O MAX	27	1.678	0.34	13.745	19.69	0.288	0.045	13.101	0.542	95	5.285
37 Raw H2O MIN	37 Raw H2O MIN	28	0.649	0.283	14.821	19.91	0.049	0.038	14.058	0.542	95	5.553
38 Raw H2O MAX	38 Raw H2O MAX	29	0.678	0.288	13.325	19.89	0.049	0.037	12.486	0.542	95	0.454
39 Raw H2O MIN	39 Raw H2O MIN	30	0.691	0.283	15.081	20.01	0.165	0.037	14.354	0.541	95	0.225
40 Raw H2O MAX	40 Raw H2O MAX	31	0.505	0.315	15.388	20.43	0.056	0.041	14.385	0.541	95	6.006

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

	01 SW 1 Raw Water Main Intake	10 TW 1 Treated Water Discharge	05 WW 1 Backwash System TSS	06 Ultraviolet	Elizabethown Meter
	TURBIDITY H2O TOTAL (NTU)	TURBIDITY MAX (NTU)	SUSPENDED SOLIDS (mg/L)	UV Transmittance (%)	Total Daily Flow (MLD)
1	0.618	0.268	13.039	20.46	0.058
2	2.498	1.2151	18.81	0.149	0.038
3	0.343	0.255	12.486	19.92	0.064
4	0.46	0.261	12.377	20.07	0.053
5	0.511	0.286	15.433	20.48	0.062
6	3.29	0.268	15.023	18.75	0.052
7	0.395	0.267	15.175	21.54	0.052
8	0.441	0.245	12.881	20.38	0.047
9	0.491	0.243	13.937	21.09	0.049
10	0.371	0.229	12.538	20.13	0.054
11	0.388	0.223	15.225	20.14	0.048
12	0.325	0.222	15.084	20.24	0.052
13	0.323	0.222	14.641	18.87	0.051
14	1.747	0.216	14.155	21.68	0.048
15	0.727	0.223	14.416	22.59	0.054
16	0.398	0.191	11.98	20.52	0.322
17	0.313	0.214	12.211	19.57	0.053
18	4.984	0.207	13.983	20.28	0.061
19	0.502	0.304	12.825	19.5	0.063
20	0.2	0.318	13.531	20.69	0.063
21	0.328	0.297	14.077	20.24	0.051
22	0.48	0.311	12.21	20.2	0.047
23	0.596	0.319	12.311	20.39	0.047
24	0.328	0.4	14.78	20.23	0.056
25	0.925	0.381	12.706	20	0.048
26	0.96	0.376	14.45	19.81	0.052
27	2.824	0.388	13.027	20.72	0.048
28	0.698	0.414	14.654	20.18	0.048
29	0.599	0.449	12.827	19.59	0.049
30	0.729	0.401	12.469	20.28	0.053
31	0.729	0.413	14.285	19.46	0.05
	0.691		14.413		0.04

	DW 04 Parkedale Avenue Reservoir	Zone 2 Flow TOTAL	Total Daily Flow (MLD)
	THM	m3/d	MLD
Average	0.093	13.581	0.040
Minimum	0.313	11.98	0.035
Maximum	4.864	15.433	0.048
Count	31	31	31
Total	31	421.32	16183

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

September, 2008	01 SW 1 Raw Water Main Intake			10 TW 1 Treated Water Discharge			05 WW 1 Backwash System TSS			06 Ultraviolet			DW 04 Parkdale Avenue Reservoir			Elizabethown Meter								
	01 Raw H2O MAX	01 Raw H2O MIN	Flow (MLD)	01 Raw H2O TOTAL	01 Raw H2O MAX	01 Raw H2O MIN	Flow (MLD)	01 Raw H2O TOTAL	01 Turbidity MAX	01 Turbidity MIN	Flow (MLD)	05 Treated H2O TOTAL	05 Suspended Solids mg/L	05 Chlorine L (mg/L)	UV Dose/g MAX	UV Dose/g MIN	UV Intensity Bulb #1 (mcloWw/cm²)	UV Intensity Bulb #2 (mcloWw/cm²)	UV Intensity Bulb #3 (mcloWw/cm²)	UV Intensity Bulb #4 (mcloWw/cm²)	UV Transmittance (%)	Total Daily Flow (MLD)	UV Daily Flow TOTAL	UV Daily Flow (MLD)
1	0.937	0.374	13.987	13.987	15.984	15.258	20.39	0.048	0.039	0.511	13.332	0.506	0.508	0.95	0.95	0	0	0	0	0	0	5.904	0.481	0.263
2	0.984	0.384	15.385	15.385	15.943	15.361	20.51	0.042	0.052	0.507	14.96	0.506	0.508	0.95	0.95	0	0	0	0	0	0	6.971	0.481	0.234
3	0.943	0.385	15.361	15.361	0.593	0.402	15.842	20.51	0.304	0.039	15.083	12.58	0.507	0.508	0	0	0	0	0	0	0	7.418	0.223	0.267
4	0.593	0.402	15.361	15.361	0.4	0.385	13.389	19.82	0.055	0.04	14.761	0.258	0.507	0.508	0	0	0	0	0	0	0	6.586	0.234	0.234
5	2.855	0.4	13.389	13.389	6	0.841	0.422	14.777	16.92	0.048	0.039	14.022	0.507	0.508	0	0	0	0	0	0	0	6.105	0.234	0.234
6	0.841	0.422	14.777	14.777	7	0.898	0.415	14.058	19.88	0.049	0.038	13.347	0.507	0.508	0	0	0	0	0	0	0	6.551	0.272	0.272
7	0.898	0.415	14.058	14.058	8	0.994	0.339	15.112	20.02	0.038	0.036	14.384	0.545	0.545	0	0	0	0	0	0	0	6.539	0.408	0.408
9	0.807	0.434	14.871	14.871	9	0.807	0.434	14.871	19.66	0.049	0.034	14.169	0.582	0	0	0	0	0	0	0	6.594	0.244	0.244	
10	0.827	0.427	14.88	14.88	10	0.827	0.427	15.371	22.04	0.046	0.038	14.021	0.63	0	0	0	0	0	0	0	6.591	0.222	0.222	
11	0.852	0.522	15.371	15.371	12	0.918	0.591	12.568	20.13	0.055	0.034	13.383	0.589	0	0	0	0	0	0	0	6.363	0.238	0.238	
13	0.982	0.587	12.568	12.568	13	0.982	0.587	12.95	20.11	0.046	0.038	11.736	0.559	0	0	0	0	0	0	0	5.529	0.189	0.189	
14	4.9	0.523	13.473	13.473	15	1.215	0.633	14.764	20.28	0.057	0.039	12.812	0.533	0	0	0	0	0	0	0	6.098	0.217	0.217	
16	1.16	0.613	14.477	14.477	17	4.983	0.807	14.253	20.98	0.057	0.039	12.006	0.534	0	0	0	0	0	0	0	5.538	0.447	0.447	
18	1.278	0.615	13.996	13.996	19	2.071	0.615	13.044	20.27	0.051	0.04	12.265	0.537	0	0	0	0	0	0	0	5.538	0.447	0.447	
20	1.54	0.627	12.197	12.197	21	1.215	0.633	14.764	20.28	0.057	0.039	14.013	0.557	3	0	0	0	0	0	0	5.538	0.447	0.447	
22	0.532	0.383	14.032	14.032	22	0.532	0.383	12.983	19.88	0.055	0.04	13.868	0.625	0	0	0	0	0	0	0	5.538	0.208	0.208	
23	1.661	0.377	15.028	15.028	24	0.845	0.373	15.084	20.15	0.046	0.032	14.281	0.527	0	0	0	0	0	0	0	6.003	0.213	0.213	
25	0.581	0.374	14.234	14.234	26	0.549	0.384	12.782	19.76	0.039	0.032	13.438	0.526	0	0	0	0	0	0	0	5.727	0.201	0.201	
27	0.652	0.338	12.332	12.332	28	0.513	0.342	12.064	19.83	0.049	0.037	11.536	0.55	0	0	0	0	0	0	0	5.38	0.207	0.207	
29	0.896	0.35	14.839	14.839	30	0.701	0.351	12.68	20.4	0.044	0.03	14.056	0.519	0	0	0	0	0	0	0	5.677	0.212	0.212	
																						5.677	0.212	0.212
																						5.642	0.233	0.233
																						6.2	0.383	0.383
																						6.027	0.233	0.233
																						6.38	0.224	0.224
																						5.957	0.195	0.195
																						5.589	0.195	0.195
																						5.208	0.217	0.217
																						5.402	0.221	0.221
																						5.815	0.446	0.446
																						5.778	0.234	0.234

Page 27 of 127  
2009-034-03 2008 ANNUAL SUMMARY REPORT WATER TREATMENT PL...

**WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008**

APPENDIX B

City of Brockville Drinking Water

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

Month, Year	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		Elizabethown Meter		
	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Turbidity MIN	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Total Daily Flow	
November, 2008	1	0.608	0.316	12.115	19.86	0.054	0.039	11.282	0.496	0	0	5.246	
	2	0.62	0.287	12.776	18.31	0.053	0.039	11.932	0.498	0	0	5.084	
	3	0.574	0.275	13.388	18.4	0.046	0.037	12.539	0.496	52	0	5.414	
	4	0.498	0.23	11.273	19.84	0.059	0.035	10.4	0.497	11	27	0.209	
	5	0.935	13.584	19.63	0.046	0.035	12.743	0.497	87	0	5.309	0.35	
	6	0.233	12.057	19.91	0.127	0.035	11.138	0.494	52	25	5.348	0.224	
	7	0.401	0.248	12.641	19	0.048	0.037	11.709	0.496	39	20	5.429	0.224
	8	0.426	0.257	12.257	19.14	0.043	0.037	11.426	0.496	43	32	5.25	0.216
	9	0.801	0.255	12.395	20.09	0.11	0.037	11.582	0.496	53	24	4.813	0.216
	10	0.488	0.288	12.283	17.48	0.043	0.037	11.449	0.496	7	38	4.862	0.223
	11	0.351	0.269	12.298	17.85	0.051	0.038	11.683	0.244	11	32	5.194	0.213
	12	0.408	0.273	12.098	17.5	0.058	0.038	11.323	0.496	25	29	5.241	0.214
	13	0.506	0.271	12.164	16.98	0.042	0.036	11.479	0.252	37	15	5.023	0.188
	14	1.022	0.271	12.345	19.92	0.043	0.036	11.55	0.496	34	24	5.028	0.188
	15	0.486	0.284	12.081	17.44	0.134	0.037	11.364	0.244	45	28	5.028	0.202
	16	0.558	0.258	11.618	16.56	0.649	0.038	11.235	0.25	69	25	5.105	0.193
	17	0.84	0.269	11.28	19.08	0.046	0.039	10.494	0.494	65	24	5.161	0.268
	18	0.594	0.256	11.75	17.05	0.688	0.038	11.092	0.244	2	65	5.032	0.208
	19	0.837	0.242	13.312	19.95	0.047	0.037	12.484	0.495	42	25	5.105	0.199
	20	0.466	0.235	13.467	20.08	0.045	0.037	12.611	0.495	46	23	5.169	0.247
	21	0.375	0.264	11.967	19.83	0.319	0.036	11.004	0.495	46	28	5.043	0.193
	22	0.539	0.236	10.692	19.69	0.046	0.036	10.068	0.25	69	28	4.897	0.217
	23	0.418	0.227	12.271	18.28	0.043	0.036	11.523	0.245	66	28	4.922	0.205
	24	0.468	0.212	11.349	20.49	0.041	0.035	10.393	0.496	45	26	4.763	0.229
	25	0.448	0.207	13.197	20.48	0.049	0.035	12.206	0.495	6	46	5.007	0.3
	26	0.423	0.212	13.541	19.1	0.052	0.031	12.626	0.492	66	26	5.195	0.217
	27	0.356	0.222	11.273	16.78	0.045	0.031	10.274	0.512	56	28	5.091	0.222
	28	0.453	0.245	12.904	19.96	0.088	0.031	11.086	0.496	38	27	5.308	0.231
	29	0.464	0.254	12.067	19.75	0.038	0.032	11.086	0.496	45	27	4.766	0.215
	30	1.101	0.218	11.083	19.59	0.124	0.032	10.063	0.511	3277	27	4.731	0.219

Average	0.556		0.252		12.252		18.934		0.089		0.038	
	Minimum	Maximum	Count	Total	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Turbidity MAX	Flow (m³/d)	Total Daily Flow
	0.351	0.207	30	30	10.682	16.58	0.038	0.031	10.063	0.244	6.500	154.900
	1.101	0.316	13.554	30	30	20.49	0.349	0.038	12.743	0.512	11	3277
											30	30
											0	0
											0	15.058

WTP Section 22 Annual Summary Flow Report  
01 January 2008 to 31 December 2008

APPENDIX B

City of Brockville Drinking Water

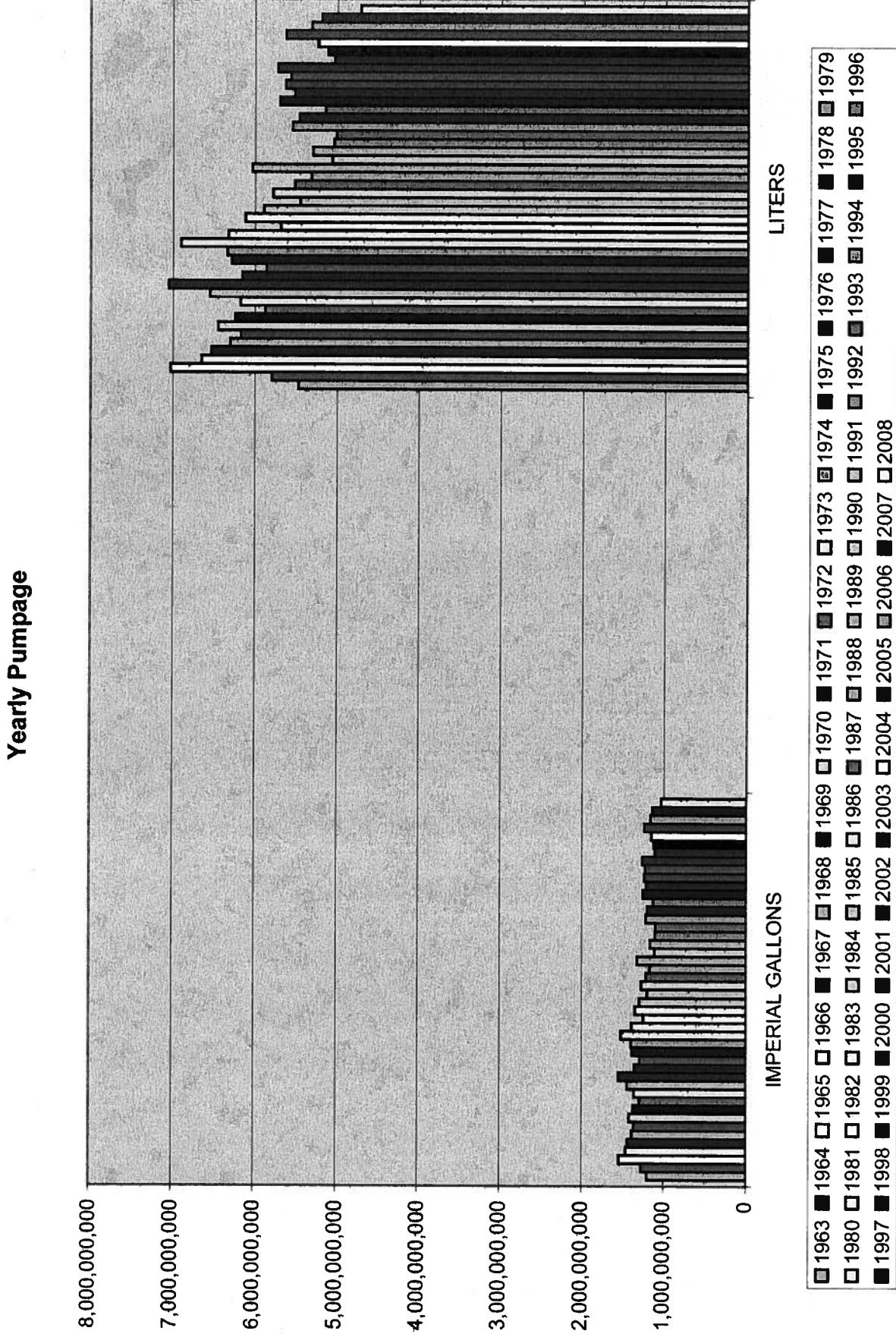
		01 SW 1 Raw Water Main Intake		10 TW 1 Treated Water Discharge		05 WW 1 Backwash System TSS		05 WW 1 Backwash System TSS		08 Ultraviolet		08 Ultraviolet		DW 04 Parkdale Avenue Reservoir		DW 04 Parkdale Avenue Reservoir				
		11 Raw H2O MAX	11 Raw H2O MIN	10 Raw H2O TOTAL	11 Raw H2O MAX	11 Raw H2O MIN	10 Raw H2O TOTAL	11 Raw H2O MAX	11 Raw H2O MIN	10 Raw H2O TOTAL	UV Doseage MAX	UV Doseage MIN	UV Intensity Bult 84 (mJ/cm²/sq.cm)	UV Intensity Bult 84 (mJ/cm²/sq.cm)	UV Doseage MAX	UV Doseage MIN	UV Intensity Bult 84 (mJ/cm²/sq.cm)	UV Intensity Bult 84 (mJ/cm²/sq.cm)		
December,	2008	1	0.767	0.314	12.3	11.74	0.036	0.032	11.717	0.244	11	39	33	27	16	0	95	5.324	0.238	
		2	0.787	0.402	14.224	19.66	0.044	0.032	13.379	0.494	11	37	32	27	19	0	95	5.436	0.214	
		3	0.857	0.42	13.988	19.64	0.045	0.034	13.186	0.495	11.127	48	27	23	20	0	95	5.068	0.202	
		4	0.75	0.369	11.942	19.61	0.044	0.034	11.127	0.495	11.127	48	27	23	16	0	95	5.243	0.223	
		5	0.814	0.349	12.748	19.6	0.046	0.036	11.869	0.496	10.89	32	27	23	16	0	95	5.172	0.199	
		6	0.594	0.361	11.543	17.86	0.041	0.034	10.286	0.44	10.286	44	22	23	15	0	95	5.077	0.225	
		7	0.807	0.37	12.884	18.12	0.042	0.033	12.404	0.243	12.404	44	24	28	19	0	95	5.136	0.237	
		8	0.45	0.337	14.028	18.67	0.044	0.033	13.098	0.394	13.098	40	27	28	19	0	95	5.369	0.278	
		9	0.416	0.316	12.417	20.02	0.041	0.032	11.513	0.6	11.513	32	27	23	15	0	95	5.631	0.198	
		10	1.835	0.302	12.804	18.68	0.054	0.035	11.816	0.47	11.816	32	27	23	16	0	95	4.841	0.255	
		11	0.743	0.282	14.231	19.78	0.051	0.037	13.275	0.494	10.5	0	28	19	0	0	95	5.473	0.226	
		12	0.385	0.262	12.461	19.97	0.042	0.034	11.47	0.494	11.467	32	27	0	22	15	0	95	5.163	0.236
		13	0.415	0.245	12.467	19.13	0.043	0.037	11.576	0.467	11.576	32	27	22	15	0	95	5.016	0.225	
		14	0.313	0.244	11.954	15.71	0.055	0.038	11.344	0.249	11.344	43	27	23	16	0	95	5.201	0.242	
		15	1.04	0.248	11.698	17.61	0.044	0.036	10.753	0.495	10.753	63	26	22	15	0	95	5.432	0.289	
		16	0.915	0.248	15.025	19.62	0.047	0.037	13.842	0.495	12	32	26	28	19	0	95	5.386	0.238	
		17	0.858	0.394	12.435	19.77	0.051	0.037	11.562	0.493	11.562	39	27	23	16	0	95	5.045	0.237	
		18	0.858	0.313	12.709	20.51	0.171	0.037	11.795	0.491	11.795	35	26	22	15	0	95	5.202	0.223	
		19	0.498	0.306	12.868	19.58	0.042	0.036	11.882	0.493	11.882	32	25	22	15	0	95	5.151	0.219	
		20	2.147	0.481	12.698	18.09	0.244	0.036	11.89	0.244	11.89	32	26	23	16	0	95	4.917	0.234	
		21	1.598	0.707	11.553	20.01	0.045	0.038	10.443	0.49	10.443	62	22	22	16	0	95	4.589	0.238	
		22	0.296	0.149	11.91	19.72	0.052	0.038	10.727	0.493	13	43	26	22	15	0	95	5.161	0.231	
		23	0.457	0.152	12.708	19.92	0.055	0.041	11.715	0.481	10.0	27	25	19	0	95	5.089	0.239		
		24	0.517	0.142	11.747	17.72	0.052	0.04	11.077	0.766079	51	24	28	18	0	95	4.047	0.235		
		25	0.249	0.174	10.351	14.56	0.052	0.04	9.65	0	51	31	26	19	0	95	3.737	0.246		
		26	0.288	0.134	11.031	14.29	0.052	0.039	10.077	0.491821	77	31	20	19	0	95	3.922	0.253		
		27	0.425	0.138	10.988	19.4	0.054	0.039	10.15	0.493	10.15	77	31	28	19	0	95	4.627	0.251	
		28	1.522	0.164	13.472	18.75	0.052	0.039	12.471	0.495	100	24	28	18	0	95	4.722	0.302		
		29	0.786	0.376	11.9	20.07	0.051	0.039	10.74	0.492	9	51	24	28	14	0	95	4.907	0.246	
		30	0.66	0.259	10.876	13.19	0.052	0.041	9.721	0.495	77	30	27	18	0	95	4.927	0.235		
		31	0.434	0.245	11.516	17.43	0.049	0.043	10.861	0.243	50	24	27	17	0	95	4.037	0.249		
Average		0.678	0.307	12.435	18.530	0.058	0.037	11.549	0.437613	10.200	50.419	25.548	24.000	17.161	0.500	0.000	85.000	4.989	0.239	
Minimum		0.268	0.134	10.331	13.19	0.058	0.032	9.65	0	6	32	0	0	14	0	0	95	37.737	0.198	
Maximum		4.99	0.707	15.025	20.51	0.244	0.043	13.842	0.768079	13	105	31	28	22	15	0	95	5.631	0.302	
Count		31	31	31	31	31	31	31	31	5	31	31	31	31	30	31	0	31	0	
Total		385.475	574.43					358.03	13.566								154.038	7.402		

Page 30 of 127  
2009-034-03 2008 ANNUAL SUMMARY REPORT WATER TREATMENT PL...

<b>CITY OF BROCKVILLE - HISTORICAL PUMPAGE</b>			
--	--	--	--

<b>YEAR</b>	<b>IMPERIAL GALLONS</b>	<b>LITERS</b>
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
AVERAGE	1,276,443,292	5,802,711,247

## APPENDIX B





Ontario

Ministry  
of the  
EnvironmentMinistère  
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,

- 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;

.2 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,

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

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

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**

- 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  $36,400 \text{ m}^3/\text{d}$ .

### **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  $20 \text{ mJ/cm}^2$  is maintained throughout the life time of the UV lamps.

**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.

**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;

- 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**

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 :

APPENDIX D  
PHONE NO. : 6133456163

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  
 Ressource 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 - Cpy  
 DR - Cpy

RECEIVED  
 JUN 16 2004  
 CLERK

RE: Permit To Take Water No. 8577-5ZCP45  
 City of Brockville Water Treatment Plant  
 20 Rivers Avenue, Brockville, Ontario K6V 5R9  
 Reference Number 1318-5VFQQ8

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,

Clyde Hammond  
 Director, Section 34, OWRA  
 Eastern Region

File Storage Number: SI

FROM :

APPENDIX D  
PHONE NO. : 6133456163

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 7A5  
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.

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.

### 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 Description	Source Category	Taking Specific Purpose	Taking Category	Max. Rate Per Minute (litres)	Max. Rate Per Day (litres)	Max. Num. of Hrs Taken Per Day	Max. Taken Per Day (litres)	Max. Num. of Days Taked per Year	Zone/ Easting/ Northing
1. St. Lawrence River	Municipal	Water Supply	Water Supply	25278.00	24.00		36400000.00	365.00	18 444663 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. ~~NO LATER THAN SEPTEMBER 30TH~~

FROM :

APPENDIX D  
PHONE NO. 6133456163

44000/009

Jul. 19 2004 12:45PM P7

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. APPENDIX D  
6133456163

4009/009

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, Environmental Bill of Rights, R.S.O. 1993, Chapter 28, within 15 days after receipt of this Notice, 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.erl.gov.on.ca](http://www.erl.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 8577-5ZCP45

Page 53 of 127  
2009-034-03 2008 ANNUAL SUMMARY REPORT WATER TREATMENT PL...  
Page 50 of 59

**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>	<b>OPERATOR/INST. TECH. II</b>		
Water Treatment	Class 4	15005	04/30/11
Water Distribution	Class 3	16740	06/30/11
<b>BURNS, RICK</b>	<b>OPERATOR I</b>		
Water Treatment	Class 3	685	11/30/10
Water Distribution	Class 1		
<b>HANLEY, MIKE</b>	<b>OPERATOR I</b>		
Water Treatment	Class 3	697	11/30/10
Water Distribution	Class 1		
<b>HOBBS, MELODIE</b>	<b>SUPERVISOR, WTP</b>		
Water Treatment	Class 4	16929	12/31/11
Water Distribution	Class 4	17339	10/30/11
<b>JENSEN, DOUG</b>	<b>OPERATOR III</b>		
Water Treatment	Class 1	58157	12/31/11
Water Distribution	Class 3	18268	5/31/09
<b>RICHARDS, DON</b>	<b>CHIEF OPERATOR, WTP</b>		
Water Treatment	Class 4	9006	12/31/10
Water Distribution	Class 4	50628	04/30/11

## WATER DISTRIBUTION STAFF LICENSES

### PUBLIC WORKS DIVISION

<u>NAME AND LICENSE TYPE</u>	<u>LIC. CLASS</u>	<u>LIC. #</u>	<u>EXPIRY</u>
<b>BEACH, RICHARD</b> Water Distribution Subsystem	<b>OPERATOR I</b> Class 2	16696	07/31/11
<b>FRASER, RUSS</b> Water Distribution Subsystem	<b>PUBLIC WORKS SUPERVISOR</b> Class 1	17056	07/31/11
<b>GAUDIN, REID</b> Water Distribution Subsystem	<b>WD FOREMAN</b> Class 2	17962	11/30/09
<b>HALL, CHRIS</b> Water Distribution & Supply Subsystem	<b>WD SUBFOREMAN</b> Class 3	8595	01/31/10
<b>MALLORY, DWAYNE</b> Water Distribution Subsystem	<b>OPERATOR 1</b> Class 2	18348	05/31/10
<b>STERRITT, BILL</b> Water Distribution Subsystem	<b>OPERATOR 1</b> Class 1	54781	03/31/11

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

1. **Pumps and Motors:** Parkedale Booster Station Zone 1 MCC Failure reported last quarter prompted us to review electrical distribution issues in addition to the MCC issues, as the feed to Zone 2 is distributed through the Zone 1 MCC's. A solution and quotation has been proposed through a local contractor to provide a cost effective, safe and functional solution that can be implemented in phases for both current installation and any future requirements. Diesel Standby Engines at all locations received annual service.
2. **First Avenue Booster Station:** Trending of critical control points has been programmed to view on a Laptop at the station. This will assist Engineering, Water Distribution (WD) and Water Treatment (WT) Operations to review the Station Operating Conditions. Zone 3 was expanded in January for flow testing conducted by the WD crew, but this had to be scaled back due to operational issues. Contractor continues to work on deficiencies, and a transit time flow meter was installed and commissioned Feb. 29, 2008. Repairs to the east pump and motor were completed and unit placed back in service.
3. **Filters:** City Staff have met with the Granular Activated Carbon (GAC) supplier regarding the change of the GAC this year. Staff also met with Consulting Engineer to discuss a scope of work that includes Filter Condition Assessment (underdrains, support media, etc.), filter performance and optimization potential, taste and odour control technology, etc.
4. **Sunset Booster Station:** Power failure in January resulted in a failed sump pump, and the station flooded. Failure required electrical inspections and replacement of some minor equipment. The west pump was replaced with new unit – planned maintenance.
5. **Elizabethtown-Kitley Distribution System:**
  - New starters were installed on both pumps due to failures causing the pumps/motors to trip out.
  - Distribution system flushed with both booster pumps in operation. System Flushing was required due to increase over 2 to 3 week period of HPC counts, and indicator of decreasing water quality. The system will be flushed every 2 weeks.
6. **Low Lift Pump Station:** Intake screens blocked with frazzle ice in January due to rapid drop in water temperature, which blocked off all water from coming into the low lift pumps. To resolve this critical issue, a method of re-circulating water from the treated water flush line and use of a small circulation pump in the pre-screen area prevented any frazzle ice from forming.
7. **Lead Sampling:** Notices were sent to Owners in the 6 Zones of the City to recruit volunteers for the sampling program, and also for volunteers for the Township of Elizabethtown-Kitley WDS. The sampling was completed the week of March 24 to 28, 2008, and Elizabethtown-Kitley April 1 – 2, 2008.
8. **Raw Water Meter Chamber:**
  - **Chlorine Application** – chlorine solution injection line leaking and unable to pre-chlorinate, so zebra mussel control system was put into service until repairs could be made. A new 2" PVC line from chlorinators in the main plant building was fabricated and installed for both pre chlorination and plant effluent chlorination. Broken chlorine solution pipe from filter building to meter chamber was unable to be removed for replacement. Conduit lines under building and outside meter chamber have collapsed. As a temporary

- repair, 1" Polyethylene line was inserted into the 2" solution line to the meter chamber, connection made in the chamber and filter building, pre chlorination in meter chamber was placed back in service.
- **Electrical & Controls** - Pre chlorine leak in the meter chamber caused corrosion to the 4-20mA electrical wiring. Temporary repairs were made. The conduit replacement solution is being prepared by the City's Engineering Group.
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) on Feb. 28<sup>th</sup>, Feb. 29<sup>th</sup> and March 4<sup>th</sup>. A report will follow.
- 2<sup>nd</sup> Quarter (April, May, June)**
1. **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. 28<sup>th</sup>, Feb. 29<sup>th</sup> and March 4<sup>th</sup>, 2008, and we received his report on May 13<sup>th</sup>, 2008. In addition, the City of Brockville's Drinking-Water System received another 100% Inspection Result. The Mayor took the time to thank the WTP and WDS personnel for their hard work in achieving this result. Staff will be busy this year with the implementation of our Drinking Water Quality Management System (DWQMS) and new Drinking Water Licensing program.
  2. **Low Lift Pump Station:**
    - During routine weekly testing of the diesel generator, the engine failed. A standby unit was rented. The old engine has been removed.
    - Electrical Contractor working on specifications/installation application for new generator sizing to operate the Low Lift electronics and backwash pump.
    - Vibration analysis was completed on all pumps and motors.
    - The annual intake inspection was completed on May 22<sup>nd</sup>, 2008. No significant changes compared to the last two years.
  3. **Raw Water Meter Chamber:** Calibrated raw water control valve in June with a 4-20 mA signal from Low Lift flow signal. Dehumidifiers were installed to attempt to control humidity in the chamber. Engineering Division continues to work on the replacement conduit project.
  4. **Trunk Water Distribution:**
    - **First Avenue Booster Station:** Repair to the west motor was completed and the unit placed back in service. New circuit line installed and the modems were installed to connect the station to the SCADA at the main plant. Vibration analysis completed on pumps and motors. New security fencing installed along First Avenue. Fire flow testing was also conducted in Zone 3.
    - **Sunset Booster Station:** West pump was installed and placed in service. New de-humidifier was installed in chamber.
    - **Elizabethtown-Kitley Distribution System:**
      - Lead Sampling completed.
      - There was a loss of signal from the booster station and meter chamber. Problem with modem circuit board in communication unit; board replaced and communications restored.
      - Vibration analysis was completed on the booster pumps.
      - Sample flush station volume has been reduced to conserve water and lower system operating cost. Weekly flushing of system instead of continuous flushing at station.

- Parkdale Reservoir: Diesel engine failed during weekly test, shutting down on high temp. Solenoid for cooling water supply was replaced, relays in the control panel were replaced and a bird's nest was removed from the exhaust. A new wire screen was fabricated to prevent the birds from entering the piping.
  - Overhead Tank: A new air conditioning unit was installed in the building to cool communications equipment (MIS).
5. U.V. Reactors: Reactors 101 & 201 were serviced. Both reactors were shutdown May 30<sup>th</sup> for the summer season. Operations group have reviewed all Standard Operating Procedures including alarm conditions.
6. Backwash Pump #1 Refurbishment: Local contractor removed the pump and motor for inspection and refurbishment. The impeller required some aggressive re-work with epoxy product. The motor was in very poor condition and was not considered for refurbishment. Existing motor and pump were installed as standby until a new motor and soft start can be quoted and purchased.
7. Electrical & Controls:
  - New junction box for raw water control valve (4-20 mA signal) installed by contractor.
  - New 2" meter installed in chlorinator water supply line.
  - Plant effluent chlorine analyzer required new colour cell block to be installed.
  - Administration area lighting - problems with lighting - faulty light retrofitted with new electrical ballast and T-8 lamp – fire hazard.
  - Main Plant reservoir residual chlorine analyzer failure. The circuit board and colorimeter block shorted out causing failure. Plant compliant with contact time (CT) requirements, however, SCADA unable to provide proper CT calculation without analyzer readings. UV reactors placed in service to ensure proper calculation. New analyzer and spare circuit board colorimeter block ordered.

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

1. Lead Sampling: Round 2 of lead sampling for Brockville and Elizabethtown has been completed. This completes the lead sampling program for 2008. A summary of the results will be provided with the next quarterly report.
2. Main Plant:
  - Annual calibration of all flow metering devices was completed in July.
  - Load testing of generator was completed in July.
  - Suction header 30" blind flange at fluoride injection point was leaking and had to be replaced. A new fluoride chemical feed line and injection quill was installed.
  - Filter to waste drain line installed for GAC application in filters.
  - The actuator for Filter #1 drain gate failed. The actuator was removed and manual chain hoist installed to open and close the gate. New drive parts are being fabricated.
  - Quotes were received for filter carbon media replacement. A purchase order has been issued and installation is scheduled for mid-October.
  - A request for Quotation was sent to contractors for the replacement of the chemical feed lines from the WTP to the raw water meter chamber.
3. Low Lift Pump Station:
  - The new diesel generator was purchased, installed and commissioned. Additional intake ventilation is required to ensure proper cooling of engine.

4. Trunk Water Distribution:

- First Avenue Booster Station: Annual calibration of flow meter was completed in July.
- Trunk Feeder Main: A new 20" gate isolation valve has been ordered for the Beecher Street valve chamber to replace the existing valve. Contractors have been requested to provide quotes for the inspection of the feeder main from the WTP to the Church and Perth Street valve chamber.
- Elizabethtown-Kitley Distribution System:
  - Annual calibration of flow meter was completed in July.
  - Annual MOE inspection was conducted on September 16, 17 & 18, 2008.
- Parkdale Reservoir:
  - Problems with Zone 2 valves resulted in reduced pressure in Zone 2. Temporary repairs were made and new valves ordered.
  - New UPS Unit installed for Zone 2 PLC.
  - Zone 1 basement sump pump failed and had to be replaced.

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

1. Lead Sampling: Tracking Report for Brockville and Elizabethtown-Kitley lead sampling submitted to Dan White, Drinking Water Inspector. The City has initiated the 3<sup>rd</sup> round of lead sampling by sending out notices to the residents of Elizabethtown-Kitley. The 2008 lead sampling for Brockville and Elizabethtown-Kitley did not meet the regulatory requirements in O-Reg 170/03 Schedule 15.1 to qualify for reduced sampling, with 12 samples in the City (4%) and 1 sample in Elizabethtown-Kitley (2%) higher than the maximum allowable concentration. The initial assessment, based on the number and location of the samples exceeding the allowable concentration, is that the source of the lead is the plumbing in the buildings, rather than from the distribution system. Therefore, the City will proceed with lead sampling rounds 3 & 4 in 2009, as required.
2. Main Plant:
  - Filter # 1 drain gate actuator was repaired and placed back in service.
  - Installation of new chemical feed and electrical lines from WTP to Raw Water Meter Chamber was completed.
  - Annual inspections and servicing of Scott Air Units was completed.
  - Annual fire extinguisher inspections were completed.
  - New 125 HP backwash motor has been received, installation scheduled for January 2009.
  - Installation of Main Plant heaters was completed.
3. Low Lift Pump Station:
  - Window sealing project was completed.
  - MCC upgrades for heaters and lighting was completed.
  - Installation of intake air louvers and exhaust fan to ensure proper cooling of the new diesel generator engine was completed.
  - New check valves have been received and will be installed in January 2009.
4. Meter Chamber:
  - Fabrication and installation of Chlorine and PAC Chemical feed headers was completed. New feed supply lines placed in service.

5. Trunk Water Distribution:

- Booster Stations: Booster Stations have been inspected and the heat turned on.
- Trunk Feeder Main: The new 20" gate isolation valve for the Beecher Street valve chamber has been received. Installation to be completed in 2009.
- Overhead Tank: Installation of a radio antenna for Police Services was completed.
- First Avenue: Flowmetrix conducted flow comparison testing on the transit time flow meter.
- Elizabethtown-Kitley Distribution System: Flush Stations have been prepared for winter operation.
- Parkedale Reservoir:
  - Roof flashing and vent caulking was completed as per inspection report.
  - MCC upgrades to Zone 1 pump in progress.
  - Installation and commissioning of new actuators for Zone 1, Pumps #1 and #2 were completed.
  - Installation of new Singer valves for Zone 2 has been completed.
  - Sodium Hypochlorite chemical injection quill that was leaking has been repaired.



APPENDIX G  
**KEN HARRIS**  
INSTRUMENTATION & CONTROL Ltd.

Sir H<sub>2</sub>O

July 30, 2008

Brockville W.T.P.  
20 Rivers Ave  
Brockville, Ontario  
K6V 5R9

Attention Mr. Don Richards/Chief Operator

Dear Don:

The annual calibrations at the water treatment facility have been completed for 2008. My reports are enclosed.

**BROCKVILLE WTP & DISTRIBUTION:**

This year you had me look at the new 1st. Avenue Booster Stn. This station uses a strap-on Transit Time meter to measure flow. As it has only just been installed it will be under the installer's certificate of calibration for this year. I did not calibrate or otherwise 'mess' with the meter as this would compromise the installer's warranty. I did however document the programming for future use.

**ELIZABETHTOWN DISTRIBUTION:**

Both the Lilly Bay and South Meter Pit pressure transmitters were calibrated and no problems encountered. The new Elster (ABB) Aquamaster did raise a few questions.....

1. In reviewing the installer's pre-calibration document I found myself asking why a 'pre-installation' calibration? The manufacturer supplied an NIST traceable document and I find it hard to believe that anybody would feel that they could improve on this with 'off-the-shelf hardware'. The equipment listed as being used by the installer is probably 0.5% accurate (no more than 0.25% if the higher accuracy meter was used on his 'bench test rig'). This type of test is a FLOW COMPARISON not a calibration or verification and as such if a discrepancy is found the question must be asked "in which meter is the error or is it a combination of the errors of both meters?"

A post installation verification using the manufacturer's recommended device is always a good practice, in this case the only people with the proper equipment is Elster. If you recall I contacted ABB directly regarding this meter and they indicated that their service department cannot touch them and that the required equipment, Calmaster II, is not available on the market. Unfortunately I have the Calmaster (original version) which is not functional on this meter and the Calmaster II is only available to Elster. I am not aware of any manufacturer that recommends or approves a *flow comparison* and I believe the MOE reg. requires a manufacturer approved method. As such it would appear that your only recourse re calibration is to have Elster come to site.

2. There is only one grounding ring, if you review the manufacturer's literature I am sure that you will find that they recommend one on both sides. Their purpose is to ensure that the fluid on both sides of the meter is at the same potential if they aren't errors can be expected.

Trusting the above to be satisfactory I enclosed my invoice for the above work.

KEN HARRIS CCST III

**APPENDIX H**  
**2008 CAPITAL PROGRAM**

<u>PROJECT NAME:</u>	Water Equipment/Construction	<u>YEAR PROPOSED:</u>	2008
		<u>ITEM NO:</u>	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.		
	<u><b>WATER TREATMENT: BLDG. &amp; PROPERTY MNTCE:</b></u> WTP Lab & Office Refurb/Upgrade 4,000 Heater Replacement Program 4,000  <u><b>WATER TREATMENT PLANT:</b></u> Treatment System Eng. Review/Process Optimization: Algae Capture & Life Cycle of GAC, Taste & Odour Technologies (Air Scour), Assess Support Media, Underdrains and GAC Efficiency 30,000 Chlorine Analyzers (5) Replace/Refurb. 5,000 Lab Equipment and Analyzers 3,500 Filters 1 & 2 Replace GAC & Sand 200,000 Refurb. B/W Pump/Motor #2 15,000 WTP Check/Discharge Valve Replace (5) + FAB. 20,000 Chlorine Cylinder Leak Detection & Shutoff Valves 10,000 Pump Discharge Valves and Actuators (3) 25,000  <u><b>PARKEDALE BOOSTER STN. &amp; RESERVOIR:</b></u> Zone 1 Pump #1 - Valve's (IV, DV, ACT, CHK) 22,000 Zone 1 Pump #2 - Valve's (IV, DV, ACT, CHK) 22,000 Zone 1 Pump #3 - Valve's (IV, DV, ACT, CHK) Diesel 6,500 Refurb. Trunk WDS Main Transmission Valves 20" 30,000  <u><b>CONTINGENCY:</b></u> 15,000 <b>412,000</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):

Melodie Hobbs

DATE:

March 11, 2009

**MARCH 2, 2009**  
**REPORT TO OPERATIONS COMMITTEE – MARCH 18, 2009**

**2009-035-03**

**2008 ANNUAL SUMMARY REPORT  
WATER POLLUTION CONTROL CENTRE**

**C. J. COSGROVE, P. ENG.  
DIRECTOR OF OPERATIONS  
MELODIE J. HOBBS, C.E.T.  
W&WW TREATMENT SUPERVISOR**

**RECOMMENDATION**

THAT the 2008 Annual Summary Report on the City of Brockville's Water Pollution Control Centre, Appendix 1 to Report 2009-035-03 be received; and

THAT the Director of Operations be designated to sign the 2008 Annual Summary Report on the City of Brockville's Water Pollution Control Centre; and

THAT the 2008 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, 2008 through December 31, 2008, and is a requirement under our Certificate of Approval 3-1974-88-917, Section 18 (3).

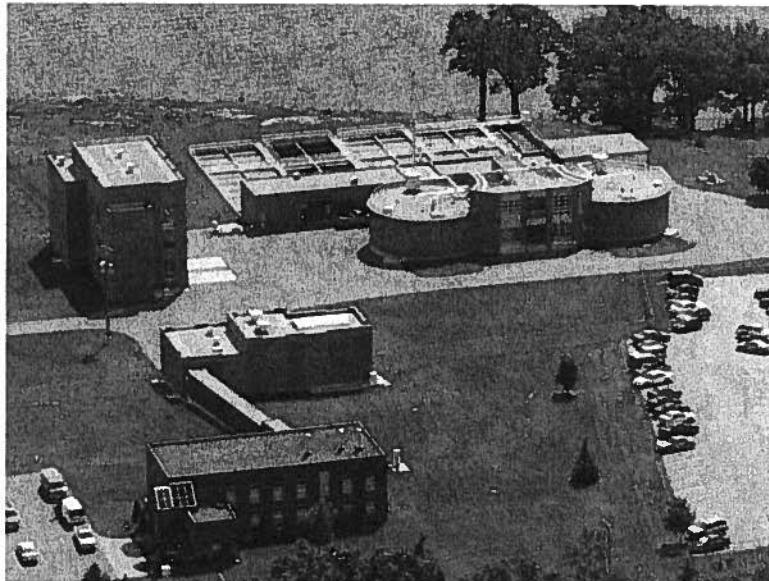
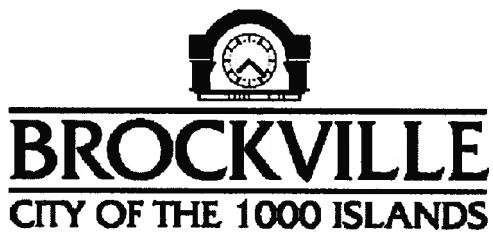
**ANALYSIS**

We are pleased to present The 2008 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 is available at the office of the Water and Wastewater Treatment Supervisor.

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

  
\_\_\_\_\_  
B. Casselman  
City Manager

  
\_\_\_\_\_  
M. J. Hobbs, C.E.T.  
Supervisor, W & WW Treatment



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

---

### **2008 ANNUAL SUMMARY REPORT FOR COUNCIL**

**PREPARED BY:  
MELODIE J. HOBBS, CET  
SUPERVISOR, WATER & WASTEWATER TREATMENT DIVISION**

**DATE: February 27, 2009  
FILE: E03-04**

## EXECUTIVE SUMMARY

The enclosed 2008 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.

Each year, the City of Brockville focuses on Capital and Operational Targets to improve the quality of the wastewater treatment system. In 2008 these improvements included:

- **WPCC Secondary Treatment Project** – The technical review was completed with Conventional Activated Sludge (CAS) along with UV Disinfection as the treatment and disinfection technologies for the upgrade. Thompson Rosemount Group, Stantec and Hydromantis Inc. were awarded the consulting services contract for the design and construction services. A draft preliminary design report has been submitted for the City and consultant team to review. Design work is proceeding towards an April 2009 tender date. The preselection process for major equipment was initiated in December 2008.
- **Digester #1** – Cleaned and inspected for liner warranty issues - some repairs were required; a failed safety valve on the Gas compressor train has prevented us from placing Digester #1 in service.
- **Centrifuge #302** – The Scroll and Bowl were refurbished by a contractor in Mississauga and at a significant cost savings; continue to have refurbishment problems with the hydraulic pump drive due to the age of the equipment and the location of the repair facility (California); all electrical and controls work was completed and field tested in the fall; no work has been started on the other unit in 2008 – assessing capital improvements versus complete replacement cost.
- **Main Pumping Station** – A total of seven Bypass Events occurred at the Main PS; a new impellor, wear rings and bearings for Pump #3 were ordered, installed and tested; Wet Well was bypassed to perform 2 stages of cleaning (first to remove some material and assess work plan, second time to complete the work with equipment and manpower for effective removal in a short time frame); Consultant report received and recommendations reviewed for Pump #2 replacement and wet well modifications to consider to calm swirling conditions in the wet well; Venturi Flow Meter was calibrated and is now programmed into SCADA as the main flow monitoring device.
- **Pumping Stations** – Bayview PS pumps have both been rebuilt with new impellors; Thomas St. PS has had both pumps removed and rebuilt due to mechanical failures; electrical disconnects are not wired properly for isolation of pumps and requires further work by electrical contractors to remedy; consistently high frequency of pump blockages at Oxford, Georgina, Elizabeth and Bayview – staff have followed up with letters, education, etc.; two Standby Portable Generators have been purchased for remote station service (Oxford has one committed unit) during power outages.

2008 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: 2008 WPCC PARS Summary & Figures	11
■ Appendix C: Operator Licenses	12
■ Appendix D: 2008 Bypass Summary Report	13-14
■ Appendix E: 2008 WPCC Operational Data	15-26
■ Appendix F: 2008 WPCC Annual Chemical Summary	27
■ Appendix G: 2008 WPCC & Pumping Stations Operational Highlights	28-34
■ Appendix H: 2008 WPCC Centrifuge Sludge Feed & Cake Disposal	35
■ Appendix I: Calibration Report Summary	36
■ Appendix J: 2008 Capital Project Sheet	37

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

## 1. INTRODUCTION

We are pleased to present the 2008 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, 2008, and is a legal requirement under the Certificate of Approval (C of A) Number 3-1974-88-917 made under the *Ontario Water Resources Act* (R.S.O. 1990, c. O.40). This Annual Report must be forwarded to the Ministry of Environment no later than March 31, 2009.

## 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 influent channel and sludge cake disposal to landfill. 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. 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 C of A NUMBER 3-1974-88-917. 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 effluent limits for 5-day Carbonaceous Biochemical Oxygen Demand (cBOD<sub>5</sub>), Total Suspended Solids (TSS), Total Phosphorus (TP) and Fecal Coliform. The limits are based on monthly and/or 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 2008 PARS Summary**.

2008 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. Melodie Hobbs, Supervisor WT & WWT Division is the designated ORO, and holds a Class IV license in wastewater treatment and wastewater collection.

## 4. FLOW MONITORING DATA

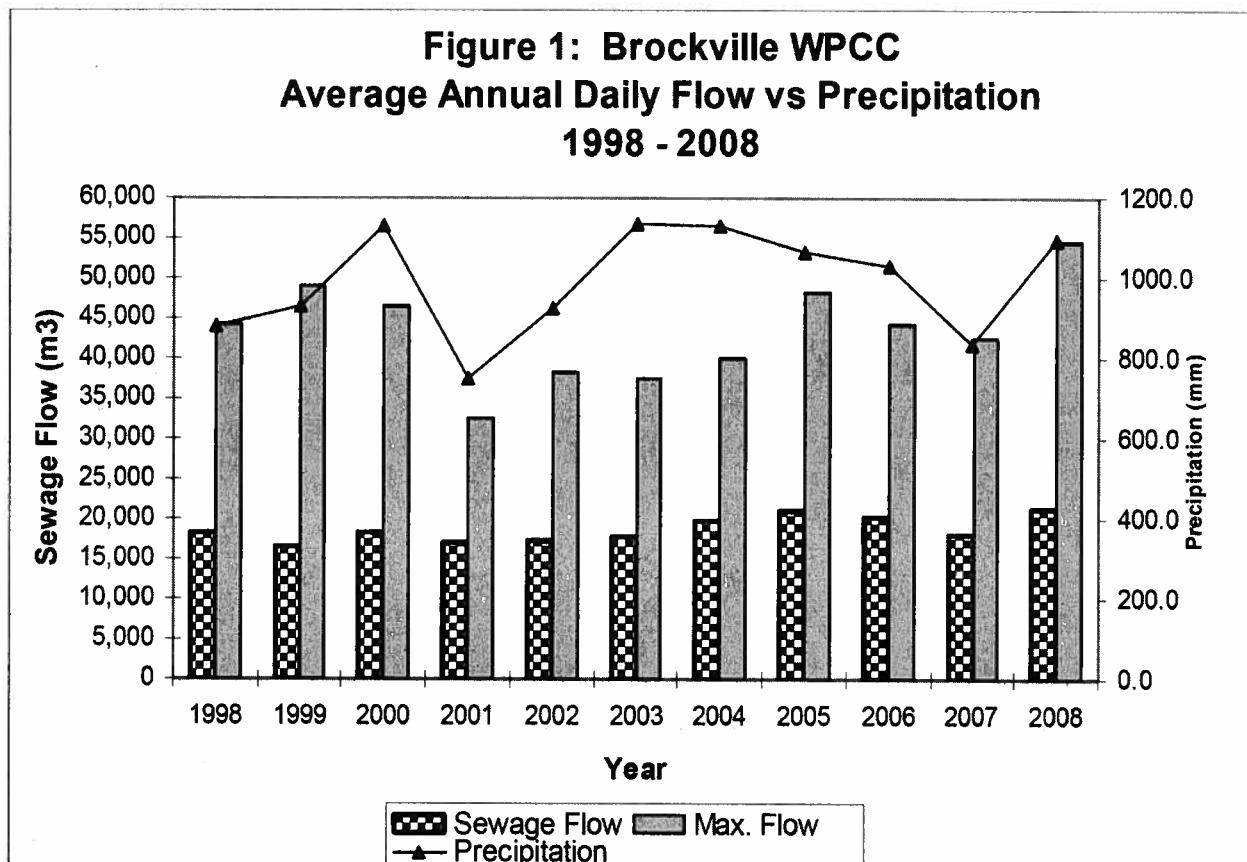
### 4.1 Plant Flow

The wastewater flow during the reporting period is outlined in **Appendix B: WPCC PARS Summary**. The total flow received during the 2008 reporting period was 7,735,974 m<sup>3</sup> with an annual ADF of 21,135 m<sup>3</sup> or 97% of the plant's current rated capacity. The Maximum Daily Flow of 54,547 m<sup>3</sup> occurred on January 8<sup>th</sup>, and the minimum daily flow of 11,770 m<sup>3</sup> occurred on October 12<sup>th</sup>. The ADF at the WPCC for 2008 compared to 2007 showed an increase of 18.2%, and knowing that rain has a large impact on the flow, it is important to note the precipitation increase was 31.8% from 2007. **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 a total of seven Bypass Events recorded by Staff to the Spills Action Centre (SAC) and Corrective Actions initiated. Two of these Bypasses occurred in order to perform Wet Well Maintenance and removal of materials that the coarse screen did not pick up. See **Appendix D: Bypass Report Summary**.



#### 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: 2008 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 2.23 mg/L resulting in a total of 15,849 kg applied in 2008, and is a 2.1% decrease from 2007.

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 98.3 mg/L of Ferric Chloride (product as received) resulted in 735,325 kg of Ferric Chloride applied throughout 2008. This represents a 5.3 % increase from 2007. The plant polymer was also applied throughout 2008 at a minimal dosage. The 2008 total dosage had no significant change from 2007.

## 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 Environmental Analytical Laboratories (CAEAL). 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 collected, updated and reviewed by Abatement Staff – additional information for a few specific clients has been requested. In some cases, City Staff have requested a more formalized plan for reducing the discharges, and those efforts will continue through 2008.

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 have been reduced throughout the 2008 calendar year but continue to be monitored and some follow up with industry was required by Abatement Staff. 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 continues to work hard at identifying and communicating with industries that are repeating these activities.

WPCC Abatement Staff worked on developing a Fats, Oils and Grease (FOG) Program. A draft document was prepared outlining a program to aid in the reduction of FOG within the City's sanitary sewers. The initial contact with Food Service Establishments to introduce them to the new FOG Program was started in the last quarter of 2008.

### 5.4 Effluent Quality Performance – Compliance Limits

The analysis results of the routine sampling at the WPCC are shown by month in **Appendix E: 2008 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 (concentration and loading) however, cBOD<sub>5</sub> continues to be non-compliant for concentration

and loading. Bacteriological analysis also continues to be performed, with the target to achieve and maintain 0.5 to 0.8 mg/L at the Chlorine Contact Outfall. With the various operational issues we face, we have been able to continue to maintain the same quality of disinfection for Fecal Coliform as in 2007. 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 WPCC also achieved removal efficiencies that exceeded the provincial guidelines: 50% CBOD removal (52.5% for 2008) and 70% Total Suspended Solids removal (79.9% for 2008). The PARS Report also contains the concentration and loading values as an average for the month (**Appendix B: 2008 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. Identified PM deficiencies are flagged and scheduled for repair in a priority manner. Critical process equipment that is found to be malfunctioning is repaired or replaced immediately.

### 6.3 Biosolids Management, Land Application and Disposal

Digester #1 was emptied and cleaned out to inspect the Digester Lining for any Warranty issues. A few areas were identified during the audit, and the Contractor was called onto the site to assess and propose a solution. These repairs were completed and a report filed.

We continue to explore options to develop new fields and Certificates of Approval to keep this program viable.

2008 ANNUAL SUMMARY REPORT FOR COUNCIL  
CITY OF BROCKVILLE – WPCC

**Appendix H: 2008 Centrifuge Sludge Feed and Cake Disposal.** The Lafleche Landfill 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 11,750.52 m<sup>3</sup> of digested sludge was land applied in 2008. This Report was due no later than March 1, 2009, 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 2008 Capital Projects for the WPCC and Pumping Stations. 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:

Melodie J. Hobbs, CET  
Supervisor, Water and Wastewater Treatment  
613-342-8772 ext. 8301  
E-mail: [mhobbs@brockville.com](mailto:mhobbs@brockville.com)

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

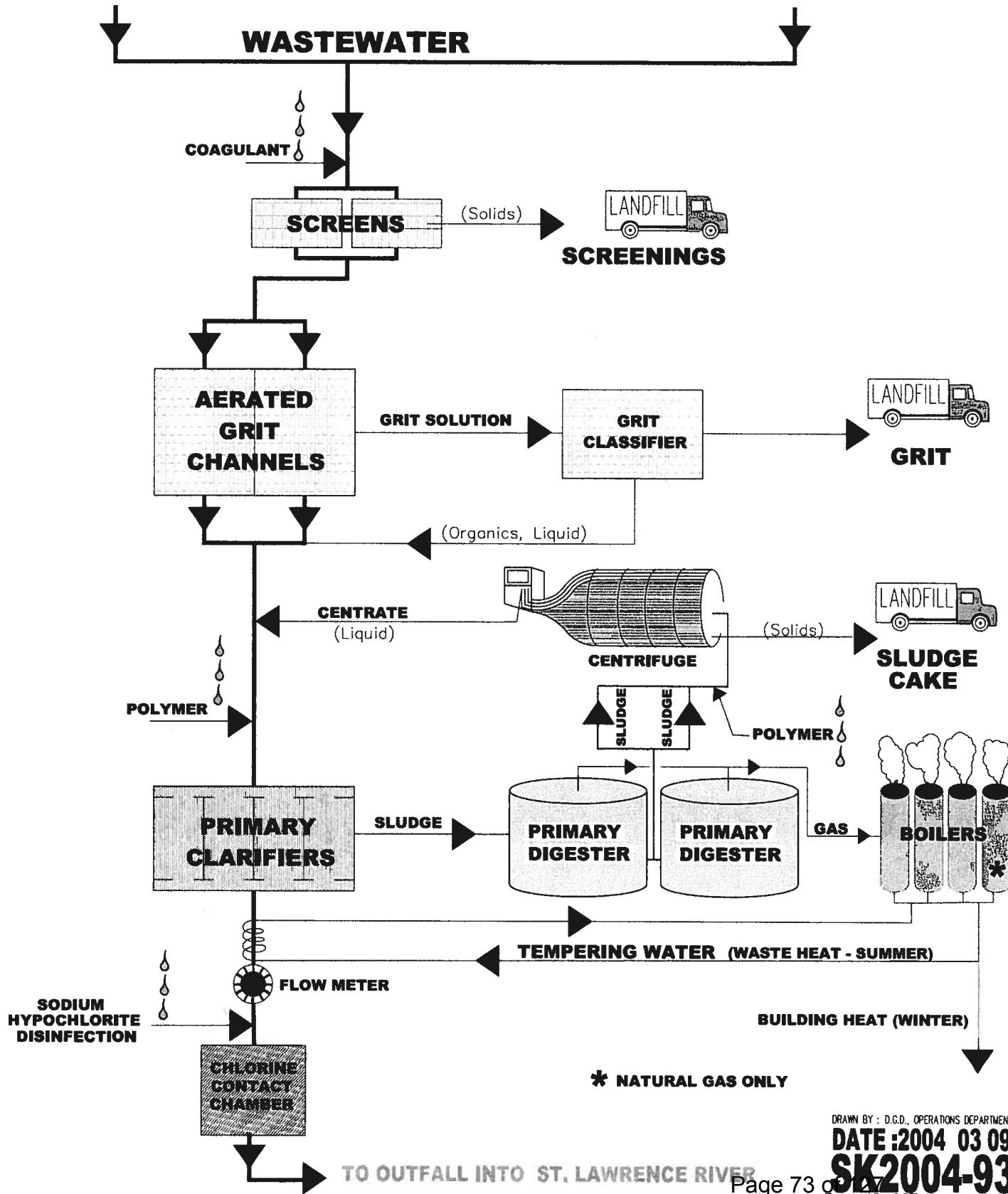
Ministry of the Environment  
Ontario Environmental Training Consortium  
Water Environment Federation  
Water Environment Equipment Association of Ontario  
Ontario Agriculture and Food

[www.ene.gov.on.ca](http://www.ene.gov.on.ca)  
[www.oetc.on.ca](http://www.oetc.on.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

BROCKVILLE  
SEWERS

ELIZABETHTOWN- KITLEY  
SEWERS



## APPENDIX B

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

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

YEAR: 2008  
ST. LAWRENCE RIVER  
21,800 X 1000 m<sup>3</sup>/d  
54,500 X 1000 m<sup>3</sup>/d

WATER COURSE:  
DESIGN CAPACITY:  
PEAK DESIGN CAPACITY:

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.

MONTH	FLOWS		CARBONACEOUS BIOCHEMICAL OX. DEMAND		SUSPENDED SOLIDS		PHOSPHORUS		BACI RESULTS			
	TOTAL FLOW 1000m <sup>3</sup>	MAX DAY FLOW 1000m <sup>3</sup>	Avg CBOD (mg/L)	Avg CBOD (mg/L)	Avg SS (mg/L)	% REMOVAL EFF. BOD (kg/day)	Avg SS (mg/L)	% REMOVAL EFF. SS (kg/day)	Total PHOS. (mg/L)	Percent loading removal eff. phos. (kg/day)	Ecal coliform (organisms per 100 ml)	Number of samples
DEC 08	716,62	23,117	37,739	72,50	33,75	780,20	53,4	98,11	26,44	588,10	74,1	2,08
NOV 08	570,98	19,033	85,42	37,42	72,21	722,27	56,4	151,30	25,92	493,34	79,3	2,59
OCT 08	507,71	16,378	31,783	101,20	44,10	722,27	56,4	151,30	32,00	524,10	78,8	2,97
SEP 08	446,48	14,883	16,548	116,00	58,33	883,01	48,9	161,45	37,18	553,35	77,0	3,14
AUG 08	550,19	17,749	21,510	93,86	40,14	712,40	57,2	137,62	27,44	487,01	80,1	2,67
JUL 08	685,78	22,122	35,049	95,90	840,64	60,4	120,75	24,83	549,29	82,0	2,45	
JUN 08	634,55	21,152	34,128	78,67	34,33	726,15	56,4	123,38	23,13	489,26	81,3	2,42
MAY 08	569,72	18,378	21,223	100,00	45,86	842,82	54,1	140,11	24,44	449,16	82,6	2,79
APR 08	929,63	30,988	48,216	62,46	34,15	1058,24	45,3	99,54	23,38	724,50	76,5	1,86
MAR 08	744,38	24,012	32,589	76,20	39,30	943,67	48,4	137,10	482,64	85,3	2,31	0,58
FEB 08	582,95	20,098	31,481	77,67	42,07	858,18	45,0	111,44	21,10	424,07	81,1	2,35
JAN 08	797,08	25,712	54,547	67,45	35,36	909,18	47,6	116,45	21,73	558,72	81,3	2,07
Avg	21,135		54,547	85,61	40,37	832,41	52,45	128,30	26,56	526,96	79,94	2,48
Max	21,800		116,00	58,33	35,00	783,00	60,38	161,45	37,18	85,34	3,14	0,98
Criteria							45,00	981,00			1,00	22,00
COMPLIANCE	YES			NO	NO		YES	YES	YES	YES		

STATISTICS FOR THE MONTH OF DECEMBER:

2007	574,49	18,532	96,40	46,20	856,18	52,1	122,3	26,40	489,24	78,4	2,88	0,74
2006	711,49	23,145	71,30	33,83	783,00	52,6	101,6	16,44	380,50	83,8	2,42	0,63
2005	633,66	20,441	98,50	38,75	792,09	60,7	104,4	30,94	632,44	70,3	2,53	0,96

MONTH	Total Loadings		Comments:	
	TOTAL RAW CBOD (kg/day)	TOTAL RAW SS (kg/day)	TOTAL RAW P (kg/day)	
DEC 08	1,6716	2,268	48	
NOV 08	1,626	2,384	49	
OCT 08	1,657	2,478	49	
SEP 08	1,726	2,403	47	
AUG 08	1,866	2,443	47	
JUL 08	2,121	3,047	54	
JUN 08	1,664	2,610	51	
MAY 08	1,838	2,575	51	
APR 08	1,936	3,085	58	
MAR 08	1,830	3,292	55	
FEB 08	1,561	2,240	47	
JAN 08	1,734	2,994	53	
Avg	1,753	2,652	51	
Max	2,121	3,292	58	

**PLANT OPERATING STAFF LICENSES****FACILITY: BROCKVILLE WATER POLLUTION CONTROL CENTRE**

<u>NAME AND LICENSE TYPE</u>	<u>LIC. CLASS</u>	<u>LIC. #</u>	<u>EXPIRY</u>
<b>CASSIDY, CHRIS</b>	<b>OPERATOR I</b>		
Wastewater Treatment	Class 3	8179	12/31/09
Wastewater Collection	Class 2	14590	08/31/09
<b>FOX, BARRY</b>	<b>CHIEF OPERATOR</b>		
Wastewater Treatment	Class 2	16689	04/30/10
Wastewater Collection	Class 2	12536	11/30/09
<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>MALCOMMONSON, 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	08/31/09
<b>SINE, DON</b>	<b>MAINTENANCE MECHANIC/OPERATOR</b>		
Wastewater Treatment	Class 2	5327	07/31/09
Wastewater Collection	Class 3	14325	04/30/10
<b>TRACEY, STEPHEN</b>	<b>OPERATOR III</b>		
Wastewater Treatment	Class 1	55107	03/31/11
Wastewater Collection	OIT	OT30578	05/31/09

## APPENDIX D

Facility Name: Brockville Water Pollution Control CentreReport Year: 2008

## 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	1	3.00	0.114			
February	1	8.17	6.468			
March						
April	2	11.75	24.011			
May						
June	2	1.65	8.00			
July	1	2.33	21.35			
August						
September						
October						
November						
December						
TOTAL	7	26.9	59.943			
Volume of Bypass as % of * Average Daily Flow (ADF)			0.78	%		

$$\text{ADF} = \underline{21.135} \quad (1,000 \text{ m}^3/\text{d})$$

$$* \% = \frac{\text{Volume of Bypass}}{\text{ADF}} \times 100$$

## Comments Area - Pumping Stations and Plant Bypasses

---



---



---



---



---



---

APPENDIX D

**Facility Name:** Brockville Water Pollution Control Centre

**Report Year:** 2008

- 1.0 Provide the following information for each bypass that occurred at each sewage pumping station or treatment plant bypass location for the reporting year. Start with a new line for each event. Photo-copy this page if additional space is required.

P = Primary  
S = Secondary

Y = Yes  
N = No  
U = Unknown

Baron Corvo

<b>1 = Heavy Precipitation</b>	<b>5 = Sewer Problems</b>
<b>2 = Snow/Melt</b>	<b>6 = Power Failure</b>
<b>3 = Equipment Failure</b>	<b>7 = Exceed Design</b>

### **Primary Bypass .**

the discharge of raw sewage subject to no treatment

## **Primary Bypass .**

#### **Expect and commercial reading strategies**

the discharge of sewage that has undergone solids removal at the primary clarifiers but bypassed the secondary treatment process.

1.1 Eq. Marginal  
0.0

880

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

	01 Raw Influent	02 Final Effluent									
		011 Chemicals	022 Suspended solids	023 Total phosphorus	024 CBOD	025 Dissolved solids	026 Ammonia (total, as N)	027 Daily flow (cu.m/day)	028 Fecal coliforms (counts)	029 Coliforms (counts)	030 Daily flow (cu.m/day)
January, 2008											
1	94.00 120.00	2.48 2.40	53.00 88.00	30.24 32.8	240 260	1.56 1.6	0.78 0.78	2,129.84 2,183.8	109.01 108.6	14.00 20.00	0.42 0.54
2											
3											
4											
5											
6											
7	156.00 147.00	2.15 1.55	58.00 49.00	97.0 80.6	770 640	2.6 1.5	1.15 1.0	2,507.3 1,846.8	68.2 33.8	20.00 33.00	0.57 0.72
8											
9											
10											
11											
12											
13											
14	91.00 95.00	1.60 1.68	45.00 80.00	40.14 44.15	300.0 330.0	1.47 1.66	1.06 1.17	2,820.12 2,806.88	103.51 105.57	16.00 15.00	0.42 0.44
15											
16											
17											
18											
19											
20											
21											
22											
23	107.00 2.33		70.00 84.00	29.43 28.0	220 210	1.45 1.5	0.57 0.85	2,211.08 1,861.2	104.5 105.5	24.00 106.2	0.65 0.66
24											
25											
26											
27											
28											
29	156.00 140.00	2.83 2.58	84.00 84.00	28.0 33.45	210 210	1.4 1.48	0.86 0.93	2,046.0 2,257.2	106.4 99.52	32.00 22.00	0.82 0.66
30											
31											
Average	116.45	2.07	67.73	38.36	294.2	1.5	0.838	2,227.58	94.77	21.73	0.58
Minimum	87	1.25	45	28	210	0.96	0.26	1,985	33.8	14	0.42
Maximum	156	2.83	88	97	770	2.6	1.17	2,896.32	109.01	33	0.82
Count	11	11	31	31	31	31	31	31	31	11	1
Total			1189.25	9120				69055.06		797081.5	1

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

February, 2008	01 Raw Influent			011 Chemicals			02 Final Effluent			Recal coliforms (counts)	
	D2 Total suspended solids mg/L	D3 Total phosphorus mg/L	D5 CBOD mg/L	E1 Sodium hypochlorite use kg	E2 Sodium hypochlorite use kg	E3 Sodium hypochlorite dose mg/L	F1 Ferric chloride use (kg)	F2 Ferric chloride dose mg/L	F3 Total suspended solids mg/L	F4 Ammonia (total, as N) mg/L	Daily flow cu.m/day
1	26.76	200	1.36	0.78	2,098.80	106.72	19,665.74	19,665.74	19,665.74	19,665.74	19,665.74
2	25.42	190	1.42	0.50	1,887.60	105.31	17,924.17	17,924.17	17,924.17	17,924.17	17,924.17
3	24.08	180	1.37	0.60	1,861.20	105.5	17,643.02	17,643.02	17,643.02	17,643.02	17,643.02
4	26.76	200	1.33	0.60	2,151.60	106.6	20,175.60	20,175.60	20,175.60	20,175.60	20,175.60
5	25.4	190	1.37	0.63	2,481.60	106.1	23,398.87	23,398.87	23,398.87	23,398.87	23,398.87
6	103.00	29.4	220	1.4	0.93	2,270.4	106.1	18.00	0.52	36.00	21,391.47
7	25.4	26.8	200	1.3	0.67	2,204.4	106.4			42.00	20,722.72
8	25.4	26.8	200	1.4	0.75	2,100.4	106.8				19,654.21
9	25.4	190	1.3	0.69	2,034.3	106.8					19,046.53
10	25.4	190	1.3	0.52	2,047.6	107.2					19,094.17
11	108.00	2.73	82.00	1.39	2,047.6	106.9	25.00	0.74	45.00	11.6	19,136.78
12	102.00	2.28	89.00	25.4	1.4	0.65	1,981.5	106.6	22.00	0.67	52.00
13	106.00	2.68	83.00	25.4	190.0	1.4	0.54	1,968.29	106.7	24.00	46.00
14				25.4	190.0	1.4	0.58	1,928.66	106.20		
15				25.4	190.0	1.37	0.61	1,968.24	106.1		
16				24.0	180.0	1.39	0.67	1,809.77	105.1		
17				28.0	210.0	1.33	0.60	2,245.70	106.6		
18	154.00	2.38	65.00	48.1	360.0	1.53	0.88	2,562.74	81.4	23.00	0.59
19	84.00	1.90	56.00	36.0	260.0	1.44	0.77	2,615.58	104.61	17.00	0.49
20	84.00	2.05	69.00	30.77	230	1.32	0.825	2,383.48	106.56	18.00	0.56
21				25.42	190	1.19	0.65	2,285.33	106.59		
22				24.08	180	1.14	0.68	2,287.98	108.36		
23				20.07	150	1.03	0.405	2,114.04	108.73		
24				25.42	190	1.32	0.68	2,087.28	108.36		
25				21.4	160.0	1.39	0.60	1,552.08	101.02		
26				26.76	200.0	1.34	0.72	2,167.56	108.96		
27				24.0	180	1.25	0.58	2,087.2	109.0	26.00	48.00
28	148.00	2.83	110.00	24.0	180	1.26	0.62	2,047.14	107.8	19.00	51.00
29				22.7	170	1.22	0.48	1,993.62	107.4		
											18,551.74
Average	111.44	2.35	77.67	26.78	200	1.33	0.641	2,112.82	105.74	21.1	42.7
Minimum	84	1.9	56	20.07	150	1.03	0.39	1,552.08	81.4	17	0.49
Maximum	154	2.83	110	48.1	360	1.53	0.93	2,615.58	109	26	0.74
Count	9	9	29	29	29	29	29	61271.69	29	10	1
Total				776.65	5800					1	582851

APPENDIX E

2008 City of Brockville Wastewater Treatment Plant Operational Data

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

		01 Raw Influent										02 Final Effluent																				
		011 Chemicals					02 Suspended Solids					03 Dissolved Solids					04 Dissolved Chlorides					05 Dissolved Ammonia (Total, as N)										
		01 Sodium Hypochlorite Use		02 Sodium Hypochlorite Use			03 Sodium Hypochlorite Use		04 Sodium Hypochlorite Use			05 Total Suspended Solids		06 Total Dissolved Solids			07 Ferric Chloride Dose		08 Total Phosphorus			09 CBOD		10 Ammonia (Total, as N)			11 Daily Flow		12 Daily Coliforms (Counts)		13 Daily Coliforms (Counts)	
		01	02	03	04	05	06	07	08	09	00	01	02	03	04	05	06	07	08	09	00	01	02	03	04	05	06	07	08			
April 2008		1	129.00	1.63	57.00	56.80	430	1.18	0.83	1,933.04	40.09	34.00	0.83	29.00	48.215.89	4.1	30,987.72	1,100														
		2	46.00	1.18	50.00	54.16	410	1.18	1.07	1,946.28	42.6	24.00	0.73	26.00	45.669.02	4.1	384.89															
		3				48.87	370	1.18	0.78	2,171.36	52.4																					
		4				55.48	420	1.18	0.84	1,853.36	39.6																					
		5				54.16	410	1.19	0.78	2,012.48	44.5																					
		6				52.8	400	1.17	0.93	1,853.6	41.3																					
		7	62.00	1.25	31.00	46.23	350	1.19	0.76	1,694.7	43.8	21.00	0.73	33.00	4.1	38,613.95																
		8	56.00	1.20	38.00	39.63	300	1.2	0.60	2,038.96	62.1	26.00	0.59	28.00																		
		9				44.91	340	1.18	0.77	2,595.04	68.0																					
		10				40.95	310	1.19	0.79	2,806.88	81.69																					
		11				46.24	350	1.19	0.79	2,833.36	72.93																					
		12				48.88	370	1.21	0.80	2,502.36	61.87																					
		13				42.27	320	1.20	0.80	2,889.57	81.36																					
		14	102.00	1.75	33.00	34.35	260	1.06	0.69	2,951.95	90.99	19.00	0.46	28.00																		
		15	89.00	1.78	41.00	26.4	200	0.92	0.58	2,979.4	102.8	18.00	0.46	28.00																		
		16	96.00	1.80	53.00	23.8	180	0.86	0.48	2,938.2	106.7	18.00	0.48	32.00																		
		17				19.8	150	0.75	0.56	2,869.6	109.5																					
		18				25.1	190	1.1	0.58	2,622.4	110.7																					
		19				26.4	200	1.2	0.55	2,471.4	110.7																					
		20				25.1	190	1.2	0.39	2,416.5	110.4																					
		21	129.00	2.28	96.00	25.1	190	1.1	0.52	2,443.9	110.4	22.00	0.55	40.00																		
		22	133.00	2.38	77.00	25.1	190	1.2	0.61	2,334.1	109.7	20.00	0.56	40.00																		
		23	124.00	2.45	99.00	23.77	180.0	1.13	0.45	2,306.64	109.8	22.00	0.58	41.00																		
		24				27.74	210.0	1.34	0.37	2,161.08	104.42																					
		25				27.74	210.0	1.41	0.35	2,054.36	104.89																					
		26				40.95	310.0	2.0	0.53	2,121.06	103.67																					
		27				35.66	270.0	1.85	0.68	2,001.0	104.05																					
		28	119.00	2.28	67.00	58.12	440.0	2.19	1.05	2,334.50	88.01	27.00	0.69	36.00																		
		29	98.00	2.03	83.00	40.11	310.0	1.72	0.86	1,840.82	70.75	23.00	0.86	40.00																		
		30	111.00	2.15	87.00	24.59	190	1.12	1.105	1,187.26	54.12	30.00	0.93	43.00																		
Average	99.54	1.88	62.46	38.04	288.3	1.25	0.697	2,298.17	61.13	23.38	0.63	34.15																				
Minimum	46	1.18	31	19.8	150	0.75	0.35	1,187.26	39.6	18	0.46	26																				
Maximum	133	2.45	99	58.12	440	2.19	1.105	2,979.4	110.7	34	0.93	43																				
Count	13	13	30	30	30	30	30	30	30	30	30	13	13																			
Total				1141.21	8650			68945.16																								

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

	01 Raw Influent	011 Chemicals										02 Final Effluent									
		D2 Total suspended solids (mg/L)	D3 Total phosphorus (mg/L)	D4 Sodium hypochlorite dose (kg/day)	D5 Chlorine residual (mg/L)	D6 Ferric chloride dose (kg/day)	D7 Ferric chloride use (kg/day)	D8 Sodium hypochlorite use (L)	D9 Ferric chloride use (L)	D10 Total suspended solids (mg/L)	D11 Phosphorus (mg/L)	D12 Sodium hypochlorite use (kg/day)	D13 Ferric chloride use (kg/day)	D14 Sodium hypochlorite dose (mg/L)	D15 Chlorine residual (mg/L)	D16 Ammonia (total, as N) (mg/L)	D17 Daily flow (cumulative counts)	D18 Fecal coliforms (counts)			
	May, 2008	1	19.41	150	0.92	0.41	1,787.56	85.08	NR	85.08	83.94	NR	24.00	0.61	47.00	13.9	21,009.37	200			
		2	21.99	170	1.07	0.385	2,414.54	117.66	NR	117.66	83.94	NR	24.00	0.60	46.00	13.9	20,520.95	200			
		3	15.53	120	0.83	0.72	1,574.12	83.94	NR	83.94	NR	NR	24.00	0.60	46.00	13.9	18,752.24	200			
		4	NR	NR	NR	0.585	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	19,068.05	200			
		5	145.00	3.13	96.00	NR	0.25	1,867.6	94.92	24.00	0.61	47.00	13.9	19,675.07	200						
		6	118.00	2.48	91.00	NR	0.413	2,098.7	108.07	22.00	0.60	46.00	13.9	19,419.06	200						
		7	118.00	2.53	85.00	27.17	210	1.35	0.605	2,166.4	107.82	24.00	0.66	42.00	20,092.46						
		8	NR	NR	NR	0.38	2,098.70	107.90	NR	NR	NR	NR	NR	NR	NR	NR	19,449.77				
		9	20.70	160	1.12	0.495	1,976.84	107.32	NR	107.32	NR	NR	NR	NR	NR	NR	18,419.46				
		10	18.12	140	1.06	0.25	1,841.44	107.52	NR	107.52	NR	NR	NR	NR	NR	NR	17,127.26				
		11	23.29	180	1.39	0.30	1,800.82	107.42	NR	107.42	NR	NR	NR	NR	NR	NR	16,764.60				
		12	20.00	170	1.13	0.38	2,098.70	107.90	NR	107.90	NR	NR	NR	NR	NR	NR	18,575.25				
		13	20.70	160	1.12	0.495	1,976.84	107.32	NR	107.32	NR	NR	NR	NR	NR	NR	17,896.56				
		14	129.00	2.55	97.00	28.47	220	1.59	0.30	1,922.68	107.43	25.00	0.67	49.00	18,017.96						
		15	153.00	3.00	107.00	31.05	240	1.72	0.34	1,922.68	106.7	24.00	0.67	43.00	17,884.08						
		16	148.00	2.98	107.00	31.05	240	1.74	0.53	1,909.14	106.7	NR	NR	NR	NR	NR	17,709.31				
		17	129.00	2.55	107.00	31.05	240	0.87	0.16	1,895.60	107.00	NR	NR	NR	NR	NR	16,033.78				
		18	153.00	3.00	119.00	22.47	220	1.59	0.30	1,922.68	107.43	25.00	0.74	49.00	18,316.13						
		19	148.00	2.98	107.00	31.05	240	1.72	0.34	1,922.68	106.7	24.00	0.74	49.00	17,926.55						
		20	126.00	2.60	NT	45.29	350	2.5	0.61	1,909.14	106.4	NR	NR	NR	NR	NR	18,194.28				
		21	144.00	2.78	NT	42.7	330	2.3	0.93	1,814.36	99.7	23.00	0.64	NT	NT	NT	18,376.47				
		22	126.00	2.60	NT	40.1	310	2.2	1.0	1,811.9	98.6	28.00	0.82	NT	NT	NT	19,430.93				
		23	27.1	210	1.6	0.32	1,746.66	107.0	NR	107.0	NR	NR	NR	NR	NR	NR	18,235.88				
		24	38.8	300	2.1	0.52	1,903.9	104.4	NR	104.4	NR	NR	NR	NR	NR	NR	16,146.99				
		25	32.4	250	2.0	0.41	1,693.8	104.9	NR	104.9	NR	NR	NR	NR	NR	NR	16,603.26				
		26	37.5	290	2.3	0.33	1,746.3	105.2	NR	105.2	NR	NR	NR	NR	NR	NR	19,172.96				
		27	43.9	340	2.3	0.53	1,995.8	104.1	NR	104.1	NR	NR	NR	NR	NR	NR	17,892.09				
		28	40.11	310	2.24	0.52	1,864.46	104.2	NR	104.2	NR	NR	NR	NR	NR	NR	17,940.76				
		29	37.5	290	2.09	0.51	1,877.59	104.65	NR	104.65	NR	NR	NR	NR	NR	NR	17,840.71				
		30	41.4	320.0	2.10	0.495	1,851.33	103.77	NR	103.77	NR	NR	NR	NR	NR	NR	18,008.54				
		31	55.64	430.0	2.29	0.23	1,877.59	104.26	NR	104.26	NR	NR	NR	NR	NR	NR	21,223.07				
Average	140.11	2.79	100	32.02	247.5	1.75	0.469	1,904.56	103.9	24.44	0.68	45.86	13.9	18,378.19	200						
Minimum	118	2.48	85	15.52	120	0.83	0.16	1,574.12	83.94	22	0.6	42	13.9	16,033.78	200						
Maximum	180	3.13	119	55.64	430	2.62	1	2414.54	117.66	28	0.82	49	13.9	21,223.07	200						
Count	9	9	7	896.46	6930	28	31	30	9	9	9	7	1	1	569723.9	1					

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

	01 Raw Influent	011 Chemicals			02 Final Effluent			Daily flow (cu.m/day)	fecal coliforms (counts/100ml)
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		
June, 2008									
1	146.00	2.60	86.00	45.29	350.0	2.41	0.89	1,956.37	18,787.96
2				47.87	370.0	2.51	0.76	1,982.63	19,043.90
3				43.99	340.0	2.28	0.56	2,008.89	19,254.92
4				45.29	350	2.38	0.77	1,969.5	18,990.95
5				46.58	360	2.36	0.405	2,035.15	19,777.34
6				45.29	350	2.25	1.07	2,090.85	20,129.30
7				34.94	270	2.02	0.51	1,814.7	17,341.99
8				43.99	340	2.02	0.93	2,169.75	21,757.60
9	55.00	1.85	51.00	42.70	330	1.84	1.015	2,340.7	8.7
10	121.00	2.25	81.00	33.98	260	1.61	0.735	2,064.55	23,252.92
11	118.00	2.40	84.00	30.06	230	1.59	0.50	2,064.55	21,131.93
12				28.75	220	1.51	0.30	1,972.5	19,942.19
13				30.06	230	1.63	0.22	1,919.9	18,949.38
14				32.35	250	1.93	0.39	1,734.48	18,430.14
15				36.23	280	2.1	0.38	1,735.8	16,685.43
16	142.00	3.00	88.00	41.40	320	2.2	0.69	1,938.6	16,688.46
17	144.00	2.23	82.00	47.8	370	2.2	0.56	2,169.75	18,400.27
18				54.35	420	2.41	1.02	2,327.55	20,922.37
19				42.70	330	1.94	1.14	2,261.80	22,561.99
20				40.11	310	2.03	0.55	2,038.25	21,972.13
21				37.53	290	2.09	0.28	1,858.43	19,789.49
22				40.11	310	2.16	0.61	1,925.28	17,953.93
23	131.00	2.50	NT	42.70	330	2.13	0.72	2,085.72	18,802.46
24				44.00	340	2.29	0.66	1,952.02	20,056.19
25	130.00	2.53	NT	41.4	320.0	2.26	0.64	1,898.54	19,223.05
26				58.23	450.0	2.21	0.40	2,419.97	18,256.29
27				56.93	440.0	1.66	1.11	2,821.07	26,248.84
28				46.58	360.0	1.49	0.80	2,954.77	34,128.30
29				41.40	320.0	1.45	0.73	3,048.36	31,178.91
30				38.82	300.0	1.47	0.86	2,847.81	28,361.82
									26,727.39
Average	123.38	2.42	78.67	42.05	324.7	2.01	0.674	2,146.94	1,340
Minimum	55	1.85	51	28.75	220	1.45	0.22	1,734.48	8.7
Maximum	146	3	88	58.23	450	2.51	1.14	3048.36	16685.43
Count	8	8	6	1261.43	9740	30	30	6440.24	1340
Total									1

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

	01 Raw Influent		011 Chemicals		02 Final Effluent		Daily flow (m³/day)	Fecal coliforms (counts/100mL)	Ammonia (total, as N) (mg/L)	BOD (mg/L)	Total Phosphorus (mg/L)	Total suspended solids (mg/L)	Sodium hypochlorite dose (kg)	Ferric chloride dose (kg)	Sodium hypochlorite use (kg)	Sodium hypochlorite dose (kg)	Sodium hypochlorite use (kg)	Sodium hypochlorite use (kg)	Sodium hypochlorite dose (kg)	Sodium hypochlorite use (kg)
	Date	Time	Total suspended solids (mg/L)	Total phosphorus (mg/L)	Total suspended solids (mg/L)	Total phosphorus (mg/L)														
July, 2008	1	142.00	2.68	113.00	32.35	250.0	1.46	0.63	2,366.49	106.80	106.75	17.00	0.47	23.00	22,157.27	22,293.78	22,293.78	25,908.42		
	2	3	31.06	37.53	290	1.45	0.705	2,379.86	89.79	104.31	2,326.38	89.79	106.22	104.42	20,951.59	19,177.48	18,732.36	> 4,000		
	4	4	37.53	240	1.48	0.31	2,185.38	104.31	2,036.99	106.22	104.31	1,956.05	104.42	104.17	11.3	20,201.36	22,094.74	24,391.04	21,149.34	
	5	5	100.00	71.00	33.64	260	1.79	0.36	2,104.44	104.17	103.79	2,293.3	98.99	105.24	101.89	20,388.52	19,320.80	20,858.63	19,691.88	
	6	6	173.00	2.68	84.00	36.23	280	1.79	0.52	2,104.44	104.17	103.79	22.00	0.41	32.00	20,911.11	20,018.70	17,915.28	16,405.01	
	7	7	100.00	1.88	71.00	40.11	310	1.65	0.33	2,414.71	98.99	105.24	105.24	0.39	22.00	19,726.80	19,726.80	19,726.80	35,048.77	
	8	8	173.00	2.58	91.00	34.94	270	1.65	0.245	2,225.85	105.24	105.24	105.24	0.46	46.00	30,105.22	30,105.22	30,105.22	30,105.22	
	9	9	10.00	40.11	310	1.97	0.31	2,077.46	101.89	101.89	101.89	101.89	101.89	101.89	19,103.90	19,103.90	19,103.90	19,103.90		
	10	10	11	40.11	310	2.08	0.095	1,902.09	98.45	100.24	2,080.95	100.24	100.24	100.24	10.3	46.00	46.00	46.00	46.00	
	11	12	12	40.11	310	1.86	0.20	2,080.95	NR	44.00	323.76	NR	36.00	1.45	41.00	24,391.04	24,391.04	24,391.04	24,391.04	
	12	13	13	38.82	300	2.04	0.29	1,618.80	90.36	104.31	1,497.39	74.80	100.02	21.00	0.46	46.00	19,691.88	19,691.88	19,691.88	19,691.88
	13	14	14	105.00	42.70	330	2.19	0.045	1,861.62	94.37	1,861.62	1,861.62	1,861.62	1,861.62	1,861.62	19,103.90	19,103.90	19,103.90	19,103.90	
	14	15	15	2.80	43.99	340	2.19	0.30	1,969.54	100.02	1,969.54	1,969.54	1,969.54	1,969.54	1,969.54	19,103.90	19,103.90	19,103.90	19,103.90	
	15	16	16	2.55	96.00	45.29	2.30	0.30	1,969.54	100.02	1,969.54	1,969.54	1,969.54	1,969.54	1,969.54	19,103.90	19,103.90	19,103.90	19,103.90	
	16	17	17	2.63	107.00	47.88	2.51	0.29	1,767.19	92.50	1,767.19	1,767.19	1,767.19	1,767.19	1,767.19	17,915.28	17,915.28	17,915.28	17,915.28	
	17	18	18	65.99	510	3.68	0.23	1,335.51	81.41	1,335.51	1,335.51	1,335.51	1,335.51	1,335.51	16,405.01	16,405.01	16,405.01	16,405.01		
	18	19	19	69.88	540	4.26	0.23	1,335.51	81.41	1,335.51	1,335.51	1,335.51	1,335.51	1,335.51	16,405.01	16,405.01	16,405.01	16,405.01		
	19	20	20	76.35	590	3.87	0.57	1,861.62	94.37	1,861.62	1,861.62	1,861.62	1,861.62	1,861.62	19,726.80	19,726.80	19,726.80	19,726.80		
	20	21	21	67.29	520	3.48	0.60	1,717.41	88.93	1,717.41	1,717.41	1,717.41	1,717.41	1,717.41	19,312.26	19,312.26	19,312.26	19,312.26		
	21	22	22	61.57	470	3.15	0.54	1,835.40	93.83	1,835.40	1,835.40	1,835.40	1,835.40	1,835.40	19,559.98	19,559.98	19,559.98	19,559.98		
	22	23	23	102.00	61.6	470	3.0	0.84	1,953.4	96.5	1,953.4	1,953.4	1,953.4	1,953.4	1,953.4	20,236.66	20,236.66	20,236.66	20,236.66	
	23	24	24	102.00	97.00	123.1	940	3.5	1.4	2,268.0	64.7	2,268.0	2,268.0	2,268.0	2,268.0	2,268.0	30,105.22	30,105.22	30,105.22	30,105.22
	24	25	25	61.57	37.9	290	1.3	1.5	2,464.7	81.9	2,464.7	2,464.7	2,464.7	2,464.7	2,464.7	26,440.80	26,440.80	26,440.80	26,440.80	
	25	26	26	102.00	30.1	230	1.1	0.56	2,569.6	97.2	2,569.6	2,569.6	2,569.6	2,569.6	2,569.6	24,656.78	24,656.78	24,656.78	24,656.78	
	26	27	27	102.00	23.6	180	0.96	0.41	2,517.1	102.2	2,517.1	2,517.1	2,517.1	2,517.1	2,517.1	27,950.85	27,950.85	27,950.85	27,950.85	
	27	28	28	102.00	30.1	230	1.08	0.43	2,386.0	85.8	2,386.0	2,386.0	2,386.0	2,386.0	2,386.0	NT	NT	NT	NT	
	28	29	29	1.48	NT	170	0.91	0.45	2,241.8	91.3	2,241.8	2,241.8	2,241.8	2,241.8	2,241.8	24,555.53	24,555.53	24,555.53	24,555.53	
	29	30	30	83.00	35.37	270	1.4	0.51	2,150.0	90.7	2,150.0	2,150.0	2,150.0	2,150.0	2,150.0	23,689.35	23,689.35	23,689.35	23,689.35	
	30	31	31	34.06	260	1.4	0.61	2,032.0	89.0	2,032.0	2,032.0	2,032.0	2,032.0	2,032.0	22,828.9	22,828.9	22,828.9	22,828.9		
	31																			
Average	137.75	2.45	95.8	44.84	345.2	2.08	0.495	2,028.04	94.89	24.83	0.64	38	11.3	22,122.04	4,000					
Minimum	83	1.48	71	22.3	170	0.91	0.045	323.76	64.7	17	0.3	22	11.3	16405.01	> 4,000					
Maximum	173	2.8	113	123.1	940	4.26	1.5	2,569.6	106.8	44	1.65	54	11.3	35048.77	> 4,000					
Count	12	12	10	31	31	31	31	31	30	12	12	10	1	31	685783.1	1				
Total				1390.08	10700			62869.17												

## APPENDIX E

2008 City of Brockville Wastewater Treatment Plant Operational Data

## APPENDIX E

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

01 Raw Influent		011 Chemicals		02 Final Effluent	
September, 2008		mg/L	mg/L	mg/L	mg/L
02 Total suspended solids	03 Total phosphorus	04 CBD	05 Chloride use (kg)	06 Sodium hypochlorite dose (mg/L)	07 Ferric chloride dose (kg)
08 Total suspended solids	09 Total phosphorus	10 CBD	11 Chloride use (kg)	12 Sodium hypochlorite dose (mg/L)	13 Ferric chloride use (kg)
14	154.00	3.03	100.00	50.72	400
15	155.00	3.75	108.00	52.00	410
16	151.00	3.18	110.00	53.3	420
17				55.8	440
18				55.8	440
19				57.1	450
20				62.1	490
21	176.00	3.03	120.00	60.9	480
22	143.00	2.88	101.00	64.7	510
23	152.00	2.85	130.00	58.3	460.0
24				58.3	460.0
25				64.6	510.0
26				77.3	610.0
27				74.8	590.0
28				77.3	610.0
29	169.00	3.10	123.00	74.8	590.0
30	160.00	2.85	120.00	73.5	580
31				77.3	610
32				74.2	630
33				76.6	650
34				62.4	530
35	156.00	3.03	132.00	61.3	520
36				62.43	530
37				60.08	510
38				49.48	420
39				58.9	500
40				58.90	500
41				58.90	500
42	180.00	3.55	NT	62.43	530
43	180.00	3.33	NT	64.79	550
44				4.31	0.56
45				4.31	0.56
46				4.27	0.135
47				4.64	0.32
48				4.28	0.34
49				4.25	0.243
50				4.25	0.243
51				4.25	0.243
52				4.25	0.243
53				4.25	0.243
54				4.25	0.243
55				4.25	0.243
56				4.25	0.243
57				4.25	0.243
58				4.25	0.243
59				4.25	0.243
60				4.25	0.243
61				4.25	0.243
62				4.25	0.243
63				4.25	0.243
64				4.25	0.243
65				4.25	0.243
66				4.25	0.243
67				4.25	0.243
68				4.25	0.243
69				4.25	0.243
70				4.25	0.243
71				4.25	0.243
72				4.25	0.243
73				4.25	0.243
74				4.25	0.243
75				4.25	0.243
76				4.25	0.243
77				4.25	0.243
78				4.25	0.243
79				4.25	0.243
80				4.25	0.243
81				4.25	0.243
82				4.25	0.243
83				4.25	0.243
84				4.25	0.243
85				4.25	0.243
86				4.25	0.243
87				4.25	0.243
88				4.25	0.243
89				4.25	0.243
90				4.25	0.243
91				4.25	0.243
92				4.25	0.243
93				4.25	0.243
94				4.25	0.243
95				4.25	0.243
96				4.25	0.243
97				4.25	0.243
98				4.25	0.243
99				4.25	0.243
100				4.25	0.243
101				4.25	0.243
102				4.25	0.243
103				4.25	0.243
104				4.25	0.243
105				4.25	0.243
106				4.25	0.243
107				4.25	0.243
108				4.25	0.243
109				4.25	0.243
110				4.25	0.243
111				4.25	0.243
112				4.25	0.243
113				4.25	0.243
114				4.25	0.243
115				4.25	0.243
116				4.25	0.243
117				4.25	0.243
118				4.25	0.243
119				4.25	0.243
120				4.25	0.243
121				4.25	0.243
122				4.25	0.243
123				4.25	0.243
124				4.25	0.243
125				4.25	0.243
126				4.25	0.243
127				4.25	0.243
128				4.25	0.243
129				4.25	0.243
130				4.25	0.243
131				4.25	0.243
132				4.25	0.243
133				4.25	0.243
134				4.25	0.243
135				4.25	0.243
136				4.25	0.243
137				4.25	0.243
138				4.25	0.243
139				4.25	0.243
140				4.25	0.243
141				4.25	0.243
142				4.25	0.243
143				4.25	0.243
144				4.25	0.243
145				4.25	0.243
146				4.25	0.243
147				4.25	0.243
148				4.25	0.243
149				4.25	0.243
150				4.25	0.243
151				4.25	0.243
152				4.25	0.243
153				4.25	0.243
154				4.25	0.243
155				4.25	0.243
156				4.25	0.243
157				4.25	0.243
158				4.25	0.243
159				4.25	0.243
160				4.25	0.243
161				4.25	0.243
162				4.25	0.243
163				4.25	0.243
164				4.25	0.243
165				4.25	0.243
166				4.25	0.243
167				4.25	0.243
168				4.25	0.243
169				4.25	0.243
170				4.25	0.243
171				4.25	0.243
172				4.25	0.243
173				4.25	0.243
174				4.25	0.243
175				4.25	0.243
176				4.25	0.243
177				4.25	0.243
178				4.25	0.243
179				4.25	0.243
180				4.25	0.243
181				4.25	0.243
182				4.25	0.243
183				4.25	0.243
184				4.25	0.243
185				4.25	0.243
186				4.25	0.243
187				4.25	0.243
188				4.25	0.243
189				4.25	0.243
190				4.25	0.243
191				4.25	0.243
192				4.25	0.243
193				4.25	0.243
194				4.25	0.243
195				4.25	0.243
196				4.25	0.243
197				4.25	0.243
198				4.25	0.243
199				4.25	0.243
200				4.25	0.243
201				4.25	0.243
202				4.25	0.243
203				4.25	0.243
204				4.25	0.243
205				4.25	0.243
206				4.25	0.243
207				4.25	0.243
208				4.25	0.243
209				4.25	0.243
210				4.25	0.243
211				4.25	0.243
212				4.25	0.243
213				4.25	0.243
214				4.25	0.243
215				4.25	0.243
216				4.25	0.243
217				4.25	0.243
218				4.25	0.243
219				4.25	0.243
220				4.25	0.243
221				4.25	0.243
222				4.25	0.243
223				4.25	0.243
224				4.25	0.243
225				4.25	0.243
226				4.25	0.243
227				4.25	0.243
228				4.25	0.243
229				4.25	0.243
230				4.25	0.243
231				4.25	0.243
232				4.25	0.243
233				4.25	0.243
234				4.25	0.243
235				4.25	0.243
236				4.25	0.243
237				4.25	0.243
238				4.25	0.243
239				4.25	0.243
240				4.25	0.243
241				4.25	0.243
242				4.25	0.243
243				4.25	0.243
244				4.25	0.243
245				4.25	0.243
246				4.25	0.243
247				4.25	0.243
248				4.25	0.243
249				4.25	0.243
250				4.25	0.243
251				4.25	0.243
252				4.25	0.243
253				4.25	0.243
254				4.25	0.243
255				4.25	0.243
256				4.25	0.243
257				4.25	0.243
258				4.25	0.243
259				4.25	0.243
260				4.25	0.243
261				4.25	0.243
262				4.25	0.243
263				4.25	0.243
264				4.25	0.243
265				4.25	0.243
266				4.25	0.243
267				4.25	0.243
268				4.25	0.243
269				4.25	0.243
270				4.25	0.243
271				4.25	0.243
272				4.25	0.243
273				4.25	0.243
274				4.25	0.243
275				4.25	0.243
276				4.25	0.243
277				4.25	0.243
278				4.25	0.243
279				4.25	0.243
280				4.25	0.243
281				4.25	0.243
282				4.25	0.243
283				4.25	0.243
284				4.25	0.243
285				4.25	0.243
286			</		

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

01 Raw Influent		011 Chemicals										02 Final Effluent									
Date, Year	Total suspended solids (mg/L)	05 CBOD (mg/L)		02 Sodium hypochlorite use (kg)		03 Sodium hypochlorite dose (mg/L)		04 Ferric chloride use (kg)		05 Ferric chloride dose (mg/L)		02 Total phosphorus (mg/L)		03 Total suspended solids (mg/L)		04 Daily flow (cu.m/day)		05 Coliforms (counts)		06 Fecal coliforms (counts)	
October, 2008	186.00	2.95	112.00	70.68	600	4.20	0.945	1,840.92	109.30	39.00	0.94	60.00	16.4	1,842.82	60	14,778.79	14,778.79	13,598.00	12,753.56	13,120.92	60
1	186.00	2.95	112.00	61.26	520	4.15	0.625	1,614.14	109.22	39.00	0.94	60.00	16.4	1,842.82	60	14,778.79	14,778.79	13,598.00	12,753.56	13,120.92	60
2				58.9	500	4.3	0.15	1,480.7	108.9												
3				57.7	490	4.5	0.35	1,400.7	109.8												
4				57.7	490	4.3	0.37	1,440.7	109.1	53.00	1.08	35.00	16.4	1,842.82	60	14,778.79	14,778.79	13,598.00	12,753.56	13,120.92	60
5				57.7	490	4.3	0.37	1,440.7	109.1	39.00	0.94	60.00	16.4	1,842.82	60	14,778.79	14,778.79	13,598.00	12,753.56	13,120.92	60
6				55.4	470	3.9	0.52	1,534.1	109.1												
7	197.00	3.73	112.00	44.8	380	3.2	0.46	1,494.1	110.0												
8	163.00	3.38	146.00	54.19	460	3.66	1.71	1,627.48	109.83												
9				45.94	390	3.26	1.28	1,547.44	109.76												
10				42.41	360	3.20	0.775	1,427.38	107.81												
11				37.70	320	3.09	0.045	1,334.00	109.27												
12				51.83	440	4.40	0.55	1,200.6	102.01												
13				54.19	460	4.35	0.56	1,293.98	103.84												
14				62.43	530.0	4.46	1.04	1,534.1	109.64												
15				63.61	540.0	4.31	0.68	1,627.48	110.40												
16	180.00	3.38	120.00	56.49	480.0	3.75	1.07	1,654.16	109.9	34.00	0.82	49.00	15.0	1,842.82	60	12,208.44	12,208.44	11,769.88	12,461.09	13,391.82	60
17				45.90	390.0	3.41	0.75	1,440.72	107.26												
18				45.90	390.0	3.77	0.36	1,253.96	103.23												
19				52.96	450.0	4.13	1.05	1,414.04	110.69												
20				55.32	470	3.71	1.70	1,640.82	110.04												
21	161.00	2.95	108.00	62.38	530	3.60	1.41	1,880.94	108.69												
22	132.00	2.95	107.00	44.7	380	2.9	0.98	1,707.5	108.7	35.00	0.87	43.00	15.0	1,842.82	60	17,305.58	17,305.58	13,431.34	12,146.15	12,820.73	60
23				41.20	350	2.77	1.325	1,664.08	111.97												
24				45.90	390	3.33	0.045	1,541.32	111.93												
25				82.39	700	2.59	0.92	2,400.64	75.53												
26				51.79	440	2.35	1.795	2,455.20	111.25												
27	147.00	2.48	76.00	48.26	410	2.27	1.43	2,359.72	110.97												
28	103.00	2.15	80.00	47.08	400.0	2.02	1.50	2,564.32	110.29												
29	92.00	2.03	92.00	47.08	400	1.94	1.36	2,687.08	110.8												
30				45.90	390	1.98	0.80	2,564.32	110.86												
31				50.61	430	1.95	1.18	2,809.84	108.4												
<b>Average</b>	151.30	2.97	101.20	52.89	450.0	3.41	0.895	1,756.02	108.04	32.00	0.76	44.10	16.4	1,842.82	60	16,377.75	60	11,769.88	60	31,782.93	60
<b>Minimum</b>	92	2.03	59	37.7	320	1.94	0.045	1,200.6	75.53	17	0.39	28	16.4	1,842.82	60	16,377.75	60	11,769.88	60	31,782.93	60
<b>Count</b>	197	3.73	148	82.39	700	4.5	1.795	2,809.84	111.97	53	1.08	60	16.4	1,842.82	60	16,377.75	60	11,769.88	60	31,782.93	60
<b>Total</b>	10	10	31	31	31	31	31	54,436.48	31	10	10	10	1	1,842.82	60	507,710.4	1	31	1	25,918.51	1

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

November, 2008	01 Raw Influent							02 Final Effluent							
	02 Total solids mg/L	03 Total suspended solids mg/L	04 CBOD mg/L	05 CBOD mg/L	01 Sodium hypochlorite use (kg) use (kg)	02 Sodium hypochlorite use (L)	03 Sodium hypochlorite dose (mg/L)	04 Sodium hypochlorite residual use (mg/L)	05 Ferric chloride use (kg)	06 Chlorine dose (kg)	07 Ferric chloride dose (mg/L)	08 Phosphorus solids mg/L	09 Total ammonia nitrogen mg/L	10 Daily flow (cu.m/day)	11 Daily flow (cu.m/day)
1	122.00	2.08	70.00	38.84	380	1.96	1.26	2,523.40	110.91			22,750.31	21,051.05	120	
2	122.00	2.40	103.00	38.84	330	1.84	1.32	2,346.08	111.4			20,674.39	20,011.75	120	
3	122.00	2.68	109.00	37.66	320	1.88	0.98	2,291.52	110.84	21.00	0.37	10.9	18,706.22	18,445.13	
4	118.00	3.20	81.00	35.31	300	1.88	0.983	1,541.32	77.02	26.00	0.73	41.00	17,556.53	17,408.13	
5	133.00	2.93	40.00	41.20	350	1.89	0.905	68.20	3.65	48.00	1.90	63.00	16,745.86	16,745.86	
6	161.00	2.38	80.00	40.02	340	2.39	0.66	1,808.40	107.99	107.99		22.00	0.57	36.00	17,499.57
7	118.00	2.23	89.00	44.7	380	2.29	0.515	1,887.60	107.87	107.87		25.00	0.70	35.00	17,220.35
8	111.00	2.68	103.00	48.3	410	2.2	0.55	1,887.60	107.52	107.52		30.00	0.77	40.00	16,790.00
9	115.00	2.38	80.00	47.04	400.0	2.3	0.69	1,874.40	107.67	107.67					16,958.09
10	136.00	2.68	77.00	40.02	340	2.39	0.66	1,808.40	107.99	107.99		22.00	0.57	36.00	17,499.57
11	111.00	2.23	89.00	44.7	380	2.2	0.645	1,861.20	108.08	108.08		25.00	0.70	35.00	17,220.35
12	115.00	2.38	80.00	45.86	390	2.5	0.44	1,808.44	107.7	107.7		30.00	0.77	40.00	16,790.00
13	111.00	2.68	103.00	41.2	350	2.4	0.45	1,821.6	107.4	107.4					16,958.09
14	115.00	2.38	80.00	47.04	400.0	2.5	0.56	1,736.9	106.3	106.3					16,335.14
15	111.00	2.68	103.00	45.9	390	2.4	0.87	2,285.5	105.1	105.1					21,744.88
16	118.00	2.23	89.00	44.7	380	2.2	0.80	2,244	107.4	107.4					20,900.67
17	111.00	2.68	103.00	48.3	410	2.3	0.85	2,217.6	107.5	107.5					20,632.50
18	115.00	2.38	80.00	47.04	400.0	2.44	0.88	2,072.40	107.6	107.6					18,836.81
19	111.00	2.68	103.00	45.9	390	2.4	1.2	2,011.2	106.8	106.8					19,254.97
20	115.00	2.38	80.00	45.86	390.0	2.42	1.14	2,032.8	107.60	107.60					18,890.51
21	111.00	2.68	103.00	39.98	340.0	2.24	1.65	1,906.76	106.83	106.83					17,847.35
22	115.00	2.38	80.00	37.63	320.0	2.28	0.63	1,776.16	107.7	107.7					16,486.66
23	111.00	2.68	103.00	38.80	330.0	2.36	0.50	1,763.10	107.30	107.30					16,430.55
24	131.00	2.80	97.00	39.98	350.0	2.28	0.48	1,867.58	106.63	106.63					17,514.35
25	121.00	2.70	86.00	51.74	440.0	2.53	0.80	2,167.96	106.07	106.07					20,437.93
26	115.00	2.30	90.00	45.86	390	2.22	1.05	2,194.08	106.42	106.42					20,616.79
27	126.32	1.2	126.32	42.34	360	2.04	0.76	2,220.2	106.99	106.99					20,750.99
28	126.32	1.2	126.32	42.34	360	2.08	0.73	2,167.96	106.72	106.72					20,315.25
29	126.32	1.2	126.32	41.16	350	2.21	0.555	1,998.18	107.08	107.08					18,660.23
30	126.32	1.2	126.32	47.04	400	2.00	1.025	2,494.46	106.12	106.12					23,507.06
Average	126.25	2.59	85.42	42.28	359.7	2.23	0.814	1,959.69	102.93	25.92	0.72	37.42	10.9	19,032.67	120
Minimum	111	2.08	40	35.31	300	1.84	0.44	68.2	3.65	20	0.37	27	10.9	16335.14	120
Maximum	161	3.2	109	51.74	440	2.53	1.65	2523.4	111.4	48	1.9	63	10.9	23507.06	120
Count	12	12	12	30	30	30	30	30	30	12	12	12	1	30	1
Total				1268.32	10790			58790.56						570980	

**APPENDIX E**

**2008 City of Brockville Wastewater Treatment Plant Operational Data**

December, 2008	01 Raw Influent			011 Chemicals			02 Final Effluent		
	D2 Total solids (mg/L)	D3 Total phosphorus (mg/L)	D5 CBOD (mg/L)	D1 Sodium hypochlorite use (kg)	D2 Sodium hypochlorite use (kg)	D3 Sodium hypochlorite dose (mg/L)	D4 Sodium hypochlorite dose (kg)	D5 Ferric chloride dose (kg)	D7 Ferric chloride dose (kg)
1	109.00	1.75	60.00	59.98	510	1.94	1,225	2,899.32	93.83
2	52.92	450	1.97	1.26	2,794.84	104.13			
3	43.51	370	1.81	1.04	2,602.88	108.28			
4	41.2	350	1.79	0.83	2,455.3	106.5			
5	37.63	320	1.76	0.83	2,310.72	108.4			
6	32.92	280	1.68	0.69	2,124.8	108.5			
7	31.75	270	1.66	0.89	2,084.96	109.3			
8	21.16	180	1.08	0.67	2,124.8	108.7	24.00	0.56	35.00
9	101.00	2.23	21.16	1.04	0.32	2,164.64	106.7	28.00	0.63
10	102.00	2.43	81.00	29.40	250	1.46	0.21	2,204.48	109.13
11				34.10	290	1.72	0.305	2,151.36	108.56
12				36.46	310	1.95	0.375	2,045.12	109.27
13				43.51	370	2.45	0.195	1,938.88	108.94
14				49.39	420	2.66	0.285	2,031.84	109.21
15				89.38	760	2.92	0.725	2,656.00	86.77
16				72.91	620	2.86	0.985	2,748.96	107.68
17				65.86	560	2.87	0.775	2,483.36	108.25
18				62.1	530	2.8	0.81	2,377.1	107.9
19				58.80	500	2.83	0.935	2,257.6	108.74
20				58.55	500	2.83	0.54	1,208.48	58.61
21				56.20	480	2.7	0.72	2,124.80	105.6
22				36.3	310	1.8	0.56	2,191.20	109.2
23				52.69	450	2.7	1.06	2,084.96	109.0
24				70.26	600	2.91	0.73	2,536.48	105.10
25				63.23	540	2.89	1.075	730.4	33.42
26				46.84	400	2.25	1.365	185.92	8.93
27				71.43	610	2.24	0.79	2,456.8	77.08
28				85.5	730	2.2	1.3	2,775.5	73.5
29				66.75	570	2.21	1.075	3,187.2	105.42
30				49.2	420	1.9	1.06	3,147.4	121.7
31				42.2	360	1.9	0.97	2,842.7	116.8
Average	98.111	2.081	72.5	51.074	435.161	2,186	0.794	2,249.32	98.166
Minimum	66	1.23	60	21.16	180	1.04	0.195	185.92	8.93
Maximum	121	2.53	81	89.38	760	2.92	1.365	3,187.2	121.7
Count	9	9	4	31	31	31	31	31	31
Total				1583.29	13490			69728.8	716619.6

## 2008 Brockville WPCC Annual Chemical Summary

		011 Chemicals						
		01 Sodium hypochlorite use (kg)	02 Sodium hypochlorite dose (mg/L)	03 Sodium hypochlorite residual mg/L	04 Sodium hypochlorite use (kg)	05 Ferric chloride use (kg)	07 Ferric chloride dose (mg/L)	
2008		Average	43,662	347,190	2,227	0.683	2,014.588	98.294
	Totals	Minimum	15,520	120,000	0.750	0.020	68,200	3,650
		Maximum	123,100	940,000	5.700	1.795	3187,200	121,700
		Count	363	363	363	366	365	364
		Total	15,849.37	126,030.00			735,324.58	

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

1. **Main Pumping Station Pump #3:** We have received the replacement impeller and wear rings for Pump #3. The rebuild of this pump is on hold until after the spring thaw/run-off.
2. **Main Pumping Station Bypass:** On January 9, 2008 due to heavy rainfall and snow melt there was a bypass event at the Main Pumping Station from 8:20 am – 12:15 pm. Approximate volume of the bypass was 114 m<sup>3</sup>. SAC was notified of the event. Chlorination was established and samples taken.
3. **Main Pumping Station Planned Bypass:** As per SOP 309 Main Pumping Station Bypass for Maintenance Cleaning, a planned bypass was scheduled to be completed February 25<sup>th</sup>, 2008 at the Main Pumping Station and the inlet channel and screening areas at the WPCC. Due to a 6-7 foot mat of grease, rags, plastics and asphalt mix in the wet well at the Main Pumping Station the job had to be stopped. Approximate volume of the bypass was 6,468 m<sup>3</sup>. SAC was notified of the event. Chlorination was established and samples taken. The WPCC inlet channel was unable to be cleaned due to flows ranging from 3000 – 4000 m<sup>3</sup> from the gravity side of the system. The screening areas were cleaned and washed down and all areas were put back in service, and a follow-up report was forwarded to the MOE. WPCC Staff along with Contractor have developed a Work Plan to remove this build-up and complete phase 2 of this work. A formal request for this Class IV Spill for maintenance purposes must be forwarded to the MOE for the Director to approve. This letter is being prepared by City Staff and will be forwarded to the MOE the first week of April.
4. **Primary Clarifiers:** Primary Clarifier #3 short collectors failed, the clarifier was taken out of service and drained. The chain and holders were replaced and the clarifier put back in service. A few days later the short collectors failed again and the clarifier had to be drained. Further investigation on this failure is required when the weather is warmer and ice buildup has been resolved.
5. **Centrifuges:** An internal camera inspection is required on both centrifuges to determine the condition of the scrolls and tiles. Contractors (Controls) were on site March 31<sup>st</sup> to April 1<sup>st</sup>, 2008 to address operating issues – tuning was performed on the Viscotherm pump on centrifuge 302. In addition, the hydraulic pump was changed out on centrifuge 301 with the rebuild unit, and set up the same as 301. The balance of the tuning on 301 will be performed with the balance of the electrical and controls capital work to be completed this summer.
6. **Dewatering Screw Conveyor Gear Boxes:** One of the gear boxes were removed for rebuild and replaced with a spare. Parts are on order to rebuild the spare.

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

7. Bar Screens: Bar Screen #2 tripped out due to bearing failure. The bearing was replaced and the screen put back in service. New bearings have been ordered for both screens and will be replaced when received.
8. Thomas Street Pumping Station: Pump #2 has been reinstalled but still needs to be wired. Once Pump #2 has been wired, Pump #1 will be removed and sent out for inspection.
9. Bayview Pumping Station: The pumps had been tripping out and air locking. The sealtrode sight glass was dismantled and cleaned. A large rag was also removed from one of the pumps. The new pump impellers have arrived. Pump #2 to be removed for rebuild.
10. Leachate: Pump #2 was removed and sent to contractor for rebuild. We are looking at changing these pumps to a double round rail slide system to help hold them in place, and hopefully reduce the frequency of breakdown. The forcemain has been pigged and the crossover valve is open and both chambers are ready for spring run-off.

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

1. Main Pumping Station Bypasses:

On April 1<sup>st</sup>, 2008 due to heavy rainfall and snow melt there was a bypass event at the Main Pumping Station. Approximate volume of the bypass was 9,844.56 m<sup>3</sup>. SAC was notified of the event. Chlorination was established and samples taken.

On June 26<sup>th</sup>, 2008 at approximately 8:00 pm a severe electrical storm brought heavy rainfall and interrupted power supply to the Main Pumping Station. Due to the pumps requiring a 5 minute delay on startup (safety interlock), a bypass was required in order to prevent backup of raw sewage in the collection system, but it only lasted fourteen minutes. Approximate volume of the bypass was 1,100 m<sup>3</sup>. SAC was notified of the event. Chlorination was established but due to the short duration of the bypass no samples were taken.

On June 27<sup>th</sup>, 2008 at approximately 6:00 pm another severe rainfall storm occurred causing a large volume of water to come into the Main Pumping Station. Pumping capacity was not able to keep up and a bypass was required for approximately 85 minutes total. Approximate volume of the bypass was 6,900 m<sup>3</sup>. SAC was notified of the event. Chlorination was established and samples taken.

2. Main Pumping Station Planned Bypass Phase 2: The MOE (Craig Dobiech) issued Provincial Officer's Order (POO) Number 3232-7DGPST on April 7<sup>th</sup>, 2008 for the completion of the wet well cleaning according to the City of Brockville's Standard Operating Procedure (SOP). This work was completed by WPCC Staff and Team Industrial. Craig Dobiech was

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

also on site during this work. All required reports have been submitted to the MOE. Staff also had a meeting to review the work and have come up with some changes to the SOP. There was a large amount of debris removed from the wet well.

3. **Primary Clarifiers:** The chain in primary clarifier #3 cross-collectors has broken three times. All idler wheels were removed, shafts grinded, greased, reinstalled and the clarifier was placed back in service in late June.
4. **Centrifuges:** WPCC Staff travelled to Highland Creek Wastewater Treatment Plant on May 6<sup>th</sup>, 2008 to meet with maintenance staff and view a Humboldt centrifuge that had been disassembled for repair. Staff also learned that the existing tiles for rebuild are no longer available. The new replacement tiles are a different size and would require modifications to the scroll. Quotes for this modification have been received and are being reviewed by staff. WPCC Staff have removed the scroll from Centrifuge #302. A contractor was on site to look at the wear. A report of repair recommendations to follow. The centrate line was high pressure cleaned by WPCC Staff and an outside contractor.
5. **Pumping Stations:**
  - April 5<sup>th</sup> & 6<sup>th</sup>, 2008 – Pump blockages at Bayview and Oxford Avenue Pumping Stations. Both blockages were due to collection of “rags” building up around the impeller of the pump. Letters were distributed to residents in the Bayview collection area requesting their assistance in preventing future blockages by educating them on the consequences of flushing towels, face cloths and rags into the sanitary system.
  - April 21<sup>st</sup>, 2008 – Pump blockage at Oxford Avenue Pumping Station due to rags.
  - April 21<sup>st</sup>, 23<sup>rd</sup>, & 25<sup>th</sup>, 2008 – Force main break at Central Avenue Pumping Station. Outside contractor working in the area damaged the force main three separate days. WPCC Staff worked with the Public Works Department until all repairs were completed.
  - May 13<sup>th</sup>, 2008 - Overload Trip at Elizabeth Street Pumping Station. A rag was removed from the impeller and the pump placed back in service.
  - May 26<sup>th</sup>, May 31<sup>st</sup>, 2008 and June 17<sup>th</sup>, 2008 – Pump blockages at Bayview Street Pumping Station. Rags were removed from impeller and the pump placed back in service.

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS****6. Power Outages:**

- June 11<sup>th</sup>, 2008 - there was a short power outage at the Leachate Pumping Station. Repairs were completed by Hydro One.
- June 26<sup>th</sup>, 2008 - On Call Operator called in at 5:00 pm due to high levels and power outage at WPCC and Chelsea Street Pumping Station. The main plant was reset and the portable generator taken to Chelsea. Power was restored at 7:50 pm.
- June 27<sup>th</sup>, 2008 – On Call Operator called in at 5:00 pm for pump overload/trip at Central Avenue Pumping Station. The pumps would not reset due to lack of one phase of hydro feed being out. The portable generator was brought on site. Power was restored at 7:50 pm.
- June 29<sup>th</sup>, 2008 – On Call Operator called in at 6:45 pm for power outage at Central Avenue Pumping Station. The portable generator was brought on site. Power was restored at 10:30 pm.

7. **Leachate:** Quotes have received for a double roller rail slide system for the pumps in the south chamber to help relieve stress on the pumps and piping during operation. Pump #3 has been repaired and is ready for installation. The forcemain was pigged on June 3<sup>rd</sup>, 2008 using Team Industrial's high pressure truck. May 27<sup>th</sup>, 2008 we lost our signal for the leachate flow. It appears to be a PLC issue, our instrumentation technician and electrician are working on the problem.

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

1. **Main Pumping Station:** Pump #3 was rebuilt and placed back in service. The Venturi flow meter was also calibrated using a dye test and found to be working accurately.

**2. Main Pumping Station Bypasses:**

On July 24<sup>th</sup>, 2008 at approximately 4:30 pm a severe rainfall storm occurred causing a large volume of water to come into the Main Pumping Station. Pumping capacity was not able to keep up and a bypass was required for approximately 2 hours and 20 minutes total. Approximate volume of the bypass was 21,350 m<sup>3</sup>. SAC was notified of the event. Chlorination was established and samples taken. There was also a series of short power brown outs throughout the City during this period.

3. **Generators:** Diesel back-up generators at the WPCC, Main Pumping Station and West End Pumping Station were load tested. The generator at West End Pumping Station required a complete exhaust replacement. This work was completed by an outside contractor.

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

4. **Centrifuges:** Centrifuge #302 was dismantled and the rotating assembly and drive pulleys were shipped to an outside contractor for repair. The contractor is just waiting on two final parts and the unit can be re-assembled.

5. **WPCC Operational Items:**

- Annual calibration of all flow metering devices was completed in July.
- All Primary Clarifiers have been cleaned and inspected.
- Digester #1 has been cleaned and inspected. Some areas of concern with the internal lining was identified and the necessary repairs will be made under warranty. Thompson Rosemount Group also completed their own inspection as part of the secondary treatment upgrade process.
- Digested Sludge Pump #2 was replaced with a new pump.
- The east and west grit tanks have been cleaned and inspected. The grit screw in the west grit tank was broken and had to be repaired by an outside contractor.
- We had the use of an Inline Total Chlorine Residual analyzer for a 30 day trial period to try and help us achieve better dosing of disinfectant. This unit did not work for our application and was shipped back to the supplier.
- A new motor was installed in Blower #401 and the unit is back in service.

6. **Pumping Stations:**

- Thomas Street Pump #1 was removed and inspected. The necessary repairs were made and the pump was reinstalled and is back in service.
- Pumps #1 and #2 at Bayview Pumping Station were rebuilt including new impellers. Pump #1 is back in service. Pump #2 is ready for installation. Upon inspection of Pump #1 excessive rag build-up was found on the impeller. A second letter along with a picture of the blockage was distributed to residents in the Bayview collection area requesting their continued assistance in preventing future blockages.
- The fence at Oxford Avenue Pumping Station, next to St. Lawrence Lodge, was repaired due to damage sustained in the Spring when a large tree fell on it.

7. **Power Outages:**

- September 15<sup>th</sup>, 2008 WPCC Staff were called to the plant due to brown out power glitches caused by high winds from Hurricane Ike. The plant was reset with no further problems. WPCC Staff were later

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

called in for a power outage in the north end of the City which caused Broome Park Pumping Station to go down. The portable generator was set-up at the station until the power was restored.

**4<sup>th</sup> Quarter (October, November, December)****1. Main Pumping Station:**

- Instrumentation contractor is looking into switching the daily total read out from the Greyline Doppler flow meter to the Venturi flow meter, as the Doppler meter is less accurate and can not be calibrated.
- WPCC Staff met with an outside contractor regarding the replacement of Pump #2.

**2. Main Pumping Station Bypasses: No bypasses to report.****3. Generators: The two new portable generators have been commissioned and are ready for service.****4. Centrifuges: Centrifuge #302 has been repaired and is back in operation. We are experiencing some operational issues with the hydraulics. WPCC Staff are working to try and resolve this problem.****5. WPCC Operational Items:**

- Annual fire extinguisher inspections were completed.
- All Primary Clarifiers are back on line for the winter with the exception of #2 which is down for repair due to mechanical failure.
- WPCC Staff have completed preliminary pressure testing on Digester #1.
- The grit screw in the west grit tank broke again and was repaired by an outside contractor.
- Land Application is completed for 2008. The 2008 Organic Soil Conditioning Report has been prepared for submission to the MOE in January 2009.
- The City has entered into an agreement with Norterra Organics, a Division of Scott Environmental Group Limited, for the removal and disposal of our sludge cake beginning in 2009.
- Calibration of plant gas monitors was completed

**6. Pumping Stations:**

- Paving was completed at Oxford Avenue, Broome Park and Chelsea Street Pumping Stations.
- Pumps #1 and #2 at Bayview Pumping Station are now back in service.

**BROCKVILLE WPCC & PUMPING STATIONS OPERATIONAL HIGHLIGHTS**

- Pump #1 from Georgina Street Pumping Station was rebuilt by WPCC Staff.
- December 21<sup>st</sup>, 2008 – pump blockage at Georgina Street Pumping Station due to rags.
- Pump #2 from Chelsea Street Pumping Station has been sent to an outside contractor for rebuild.
- December 1<sup>st</sup>, 2008 - pump blockage at Oxford Avenue Pumping Station due to rags.

7. **Power Outages:**

- December 28<sup>th</sup>, 2008 WPCC Staff responded to Broome Park Pumping Station due to a power outage caused by high winds.

8. **PLC Upgrades:**

- PLC Upgrades were completed at WPCC Administration Building and Main Pumping Station.

### 2008 Brockville WPCC Centrifuge Sludge Feed & Cake Disposal Summary

	2008			17 Centrifuge - Sludge Feed - Dig #1			20 Centrifuge - Sludge Feed - Dig #2			18 Centrifuge - Cake - Dig #1			21 Centrifuge - Cake - Dig #2			27 Cake		
	Total Solids	% Solids	% Volatile Solids	Total Solids	% Solids	% Volatile Solids	Centrifuged Sludge Volume (cu.m)	Centrifuged Sludge Volume (cu.m)	Total Solids	% Solids	% Volatile Solids	Centrifuged Sludge Volume (cu.m)	Centrifuged Sludge Volume (cu.m)	Total Solids	% Solids	Cake Weight to Sand (kg)		
Average	2.581	46.788	1.29	61.786	2.087	48.125	48.701	48.701	35.846	35.846	34.07	36.129	36.129	31.39	31.39	7,903.134		
Minimum	1.29	39	1.29	15.61	1.4	41.64	9.86	9.86	34.07	34.07	34.07	31.39	31.39	18.250	18.250	4980		
Maximum	12.23	52.11	19	100.22	4.52	56.71	93.1	93.1	39.28	39.28	14	39.88	39.88	20	20	67		
Count				63	31	31	104	104										
Total				3,891.24					5,064.88								529,510	



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 28, 2008

Attention: Barry Fox

**Re: Main P.S. Greyline 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 converter *in place* of the flow tube delivers a precise signal back to the converter 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 & Greyline**

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 Centrate	Primary Simulator	Conditional	Not in operation
4 FIT 367 East Poly	Primary Simulator	Pass	none
5 FIT 366 West Poly	Primary Simulator	Pass	none
6 FIT 369 East Sludge Transfer	Primary Simulator	Pass	none
7 FIT 368 West Sludge Transfer	Primary Simulator	Pass	none
8 FIT 511 Raw Sludge #3	Primary Simulator	Pass	none
9 FIT 512 Raw Sludge #4	Primary Simulator	Pass	none
10 Raw Sludge #1	Primary Simulator	Pass	none
11 Raw Sludge #2	Primary Simulator	Pass	none
12 FIT 473 Chlorine Feed	Primary Simulator	Pass	none
13 Main P.S. Greyline Doppler	Dye Test	Fail	Inst. not accurate, insufficient hydraulic conditions.
14 FIT 370 Phosphorous	Primary Simulator	Fail	Suspected Instrument failure.
15 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?"**

2009-035-03 2008 ANNUAL SUMMARY REPORT WATER POLLUTION CO... Page 99 of 127

WATER & WASTEWATER RECEIVED	
AUG 07 2008	
MH	
BF	
Page 36 of 37	

## APPENDIX J

### 2008 CAPITAL PROGRAM

<u>PROJECT NAME:</u>	Water Pollution Control Centre Equipment Replacement Program	<u>YEAR PROPOSED:</u> <u>ITEM NO.:</u>	2008 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-GPMP	<u>Screen and Degrit Operations:</u> Grit Slurry Pumps (2)		20,000
C4060-WPCE-DW01	<u>Dewatering Operations:</u> Refurb. Controls/PLC & Vibration Sensors		80,000
C4060-WPCE-DW02	VFD on Backdrive Motors (2) + Install		30,000
C4060-WPCE-DWAC	AC Condensor Replacement		20,000
C4060-WPCE-HWB2	<u>East/West Service Building Operations:</u> Boiler #502 - NG/DG Boiler Replacement Program		7,500
C4060-WPCE-HWLP	HW Loop Water Conditioning		8,000
C4060-WPCE-PSPV	<u>PUMP STN'S - PAVING, ACCESS &amp; GRADING</u>		15,000
C4060-WPCE-PSP2	MAIN PS - Main Pump #2 REPLACE		200,000
C4060-WPCE-PSP3	MAIN PS - Main Pump #3 Rebuild 1st Impellor		10,000
C4060-WPCE-PSRM	MAIN PS - RETROFIT KNIFE GATES TO AIR RAM		35,000
C4060-WPCE-PSGS	MAIN PS - Standby Generator & Switchgear Refurb.		15,000
C4060-WPCE-CSEL	CHELSEA PS - Upgrade Electrical Panels		10,000
C4060-WPCE-WEEL	WEST END PS - Upgrade Electrical Panels		10,000
C4060-WPCE-WEGS	WEST END PS - Standby Generator & Switchgear Refurb.		8,000
C4060-WPCE-CONT	<u>CONTINGENCY:</u>		15,000
			<b>483,500</b>
<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):

Melodie Hobbs

DATE:

October 16, 2007

March 6, 2009

## **REPORT TO OPERATIONS COMMITTEE – MARCH 18, 2009**

**2009- 036-03  
BROCKVILLE ARTS CENTRE  
ENERGY RETROFITS**

**B. CASSELMAN  
CITY MANAGER  
L. WHITE  
BUDGET OFFICER**

### **RECOMMENDATION**

THAT Council engage Eastern Engineering to provide design services for the proposed alterations to the HVAC system, a sprinkler system and an electrical main service upgrade at the Brockville Arts Centre (BAC) at a cost of \$20,000; and

THAT the expenses be allocated to the Capital Budget “Energy Retrofits” account C1010-ENRT (as passed in the 2009 Capital Budget); and

THAT Council waive the provisions of the Purchasing Policy with respect to the request for quotes for new HVAC system at the BAC.

### **PURPOSE**

To obtain Council’s approval to accept the proposal from Eastern Engineering for the design services for the proposed alterations to the HVAC system, a sprinkler system and an electrical main service upgrade at the BAC.

To request Council’s permission to waive the provisions of the Purchasing Policy to ensure that staff can work in a timely manner to complete the alterations to HVAC system and the installation of a sprinkler system at the BAC in coordination with Project Encore.

### **BACKGROUND**

The recently completed energy audit and building audit addressed the insufficiencies of the BAC’s current heating, ventilation and air-conditioning (HVAC) system as well as the electrical service. The building audit also noted that the theatre portion of the BAC does not have a sprinkler system.

As the BAC will be undergoing an interior renovation through Project Encore, it is prudent to address the insufficiencies in the HVAC system prior to any renovations.

The electrical service at the Arts Centre will be studied as an increased load from a additional HVAC system, as was recommended in the energy audit, may require the BAC to have its own transformer.

## **ANALYSIS**

The HVAC system at the Arts Centre is inefficient due to the age of the unit as well as air distribution system within the building. Currently there is one set of vents blowing cool air directly on the front rows of the theatre while the rest of the theatre has no direct venting. The same HVAC system also serves the lobby and office area of the building. The distribution of heating and cooling is uneven for the two floors and is problematic.

The boiler system at the BAC provides the heat for the theatre but again the system is old and is in constant need of repair.

The energy audit recommended replacing the inefficient HVAC system with two smaller units, with one of the units being located on the roof of the theatre. Repairs to the roof of the BAC are scheduled to be completed this summer. It is prudent that the HVAC unit be in place prior to the roof work.

All of these reasons have made the BAC the top priority as the work should be completed prior to Project Encore renovations.

## **POLICY IMPLICATIONS**

As the replacement of the HVAC system and Project Encore need to be coordinated and time is of the essence, staff recommends that Eastern Engineering be retained to complete the necessary design work for the bidding process.

Council approval is required as per Procedure 1012 of the Purchasing By-law to allow staff to engage the services of a local company provided that the fees are between \$10,000 - \$50,000.

As time is a factor, staff also requests that the provisions of the Purchasing Policy be waived so staff may acquire three written quotes instead of the prescribed Public Tender as the project is estimated to be over \$100,000.

## **FINANCIAL CONSIDERATIONS**

The 2009 Capital Budget has allocated \$200,000 for "energy retrofits", funded directly from the Federal Gas Tax dollars the City has already received.

## CONCLUSION

As over \$1.5 million is being spent on the interior of the BAC through Project Encore, it is important that the HVAC system be corrected prior to any interior renovations being completed.



L. White, Budget Officer



D. Cyr, Director of Finance



B. Casselman, City Manager



**March 6, 2009**

**REPORT TO OPERATIONS COMMITTEE – March 18, 2009**

**2009- 037-03  
LEASE AGREEMENT WITH  
1000 ISLANDS KAYAKING COMPANY**

**VALERIE HARVEY, DIRECTOR  
PARKS & RECREATION  
PETER AMO, SUPERVISOR**

**RECOMMENDATION**

THAT Council enter into a one year lease agreement with 1000 Islands Kayaking Company for the outdoor storage of kayaks at St. Lawrence Park from May 1 - September 30, 2009 at a rental rate of \$200 per month; and

THAT Council enter into a lease agreement with 1000 Islands Kayaking Company for the west pavilion at St. Lawrence Park at a rate of \$100 per day, with a two week cancellation clause, on the following 2009 dates:

- June 6 & 20
- July 11 & 25
- August 8 & 22
- September 12 & 26

**PURPOSE**

To allow the 1000 Islands Kayaking Company (1000 IKC) to operate out of St. Lawrence Park.

**BACKGROUND**

During 2008, 1000 IKC operated a pilot program out of St. Lawrence Park from September 10 – October 31. The purpose of the lease agreement is to formalize this company's use of park facilities and generate revenue for the City of Brockville.

**ANALYSIS/OPTIONS**

Schedule A (attached) is a proposal from 1000 IKC to operate their business out of St. Lawrence Park. Although this is a commercial operation it will provide a passive recreation activity accessible to all residents in our community including families and youth through the youth camp, weekend family programs, paddle fit and the youth paddling club. 1000 IKC, a well established company in operation

since 2003, has similar lease agreements with the Town of Gananoque and the St. Lawrence Parks Commission at Ivy Lea Provincial Park. Schedule B lists the partners and stakeholders associated with 1000 IKC.

The lease agreement for the storage of the kayaks would be outdoors, inside an existing locked fenced area on the newly acquired lands immediately west of St. Lawrence Park. At the beginning of the season the company would, at their expense, install portable outdoor storage racks for the kayaks. These racks would be removed from the park at the end of the season. In addition to this, 1000 IKC would be granted the use of a small area of indoor storage space underneath the west gazebo, used to store equipment such as life preservers that must be secure and sheltered from the elements.

The second portion of the lease agreement would involve the rental of the west pavilion for two Saturdays per month as identified in the recommendation during the months of June, July, August and September. The pavilion would be utilized for what 1000 IKC is promoting as luxury tours whereby kayaking would be combined with yoga, massage and a catered meal at the end of the day in the pavilion. Schedule C, St. Lawrence Park Pavilion Use, identifies the use of both the east and west pavilion in the park for recent years. As shown, use of the west pavilion by the public on Saturdays has been minimal and this operation should not negatively impact the park or eliminate availability for the public based on past usage.

The term of this lease agreement is one year. This will allow both 1000 IKC and the City to evaluate the program at year's end and make appropriate adjustments for the next year if a new lease agreement is entered into.

During the 2009 season staff will track the number of times a request comes into the City from the public for the use of the west pavilion that could not be accommodated because the pavilion was in use by 1000 IKC. This information will be used in the evaluation of any further lease agreements.

## **FINANCIAL**

The rental agreement for the storage of the kayaks and to operate out of St. Lawrence Park will generate revenue in the amount of \$1,200 and will be allocated to account G7250 7210 0794.

The rental agreement for the use of the west pavilion could generate revenue in the amount of \$800 if all eight dates are utilized and will also be allocated to account G7250 7210 0794.

2009-037-03

Lease Agreement with 1000 Islands Kayaking Company

Page 3

Actual revenues generated will be dependant on the numbered of cancelled dates.



---

V. Harvey  
Director of Parks & Recreation



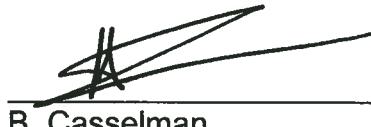
---

Peter Amo  
Supervisor, Parks/Facilities



---

D. Cyr  
Director of Finance



---

B. Casselman  
City Manager



*"Luxury Explorations"*

---

## City of Brockville

### Proposal from 1000 Islands Kayaking, 2009

The 1000 Islands Kayaking (1000 IKC) is moving into its seventh year of business delivering quality recreational opportunities for families, tourists, youth groups, schools, corporate groups, wildlife and fitness enthusiasts in the region. Founded in Gananoque 2003 with a change in ownership in 2007, 1000 IKC has undergone several program developments increasing the company's capacity to over 60 kayaks, 25 staff, 10 core programs and over 100 partners. We specialize in adventure tourism and outdoor education with a mandate of facilitating people's connection to their sense of place, sense of self and sense of community. The 2008 season saw several pilot projects in the City of Brockville, launching from St. Lawrence Park that will help us achieve this mandate and contribute to the diversity of recreational opportunities for both local residents and guests to the city. The intentions of this proposal are to determine the feasibility of a partnership between the City of Brockville and 1000 IKC and prepare terms of reference for the logistics of the partnership.

#### **Site Selection**

In order to operate out of Brockville, we require waterfront access to the Brockville Islands preferably the West end of St. Lawrence Park where our 2008 pilot programs took place. There are several reasons we have selected this site to host our programs. At this point there is no other site in Brockville we have found suitable for moving programs into the city. The priorities we require for business site selection include:

#### **Mandatory**

- Parking and washroom facilities complete with change room area.
- Access to a sheltered launch site. Most of our clients are beginner paddlers and the 1<sup>st</sup> half hour of our program is pivotal in our facilitation of a positive experience. We will not consider launching programs from an unsheltered site. St. Lawrence Park has great access to calm water and fulfills this need very well.

- Access to prime paddling destinations / multiple routes. Our programs range from youth camps and fitness programs to commercial tourism and team building corporate facilitation. Every program possesses a core objective and having access to multiple routes from a common launch site optimizes this requirement. We have the ability to utilize the river, Brockville's greatest asset, along with the 16 city islands in a responsible and colorful way. Currently, the city islands are not used to their potential and we have a reputation in the tourism industry for setting the standard of property stewardship along with ecological and historical interpretation.
- Youth programs require an alternate venue if weather conditions present a danger to our students. Our contingency plan involves dry land programming and the shelters at St. Lawrence Park along with the green space are ideal for meeting this need.
- Access to supporting tourism components. We make great efforts to support local businesses. The closer we are to the hospitality sector of tourism, the more our partnering communities benefit from the presence of 1000 IKC. It is important for us to look at the whole package picture of our guest's experience. Our clients are commonly looking for dinner and accommodations following their experience with us. We would like to optimize the transition period for our clients, encouraging tourism dollars to stay in the community.

#### **Other issues for consideration necessary for acceptable site selection**

- Reasonable proximity to launch site. Boats must be a maximum of 30 meters to the water to reduce labor time in accessing equipment and reducing the likelihood of injury to staff and clients.
- Protection of equipment from theft and vandalism. The fenced in area by the old pumping station worked well, however inside storage would be preferred.
- Provide equipment with shelter from the weather with good ventilation to prevent mildewing. If we store our equipment outside, we will have to design a structure to protect our gear from the weather. This will be built so that it can be removed in the off season and leave no trace.
- Minimize impact on natural shoreline and ecological integrity. We will take measures to ensure we are not disturbing natural habitat and that our impact on the shoreline is concentrated to a small area.
- Must maintain a professional image of both 1000 IKC and the City of Brockville while existing within green-space principles. Any structure or storage unit we build will uphold high aesthetic value for the park and reasonably blend in with the existing surroundings.
- Provide administrative space for staff. It would be ideal to have indoor space for our staff to conduct any administrative work.

## **Programs Proposed for Brockville, 2009**

### **Luxury Tours**

There are three package options we would like to offer our commercial clients out of Brockville. All include a three hour tour of the Brockville Islands followed by an additional luxury experience delivered by a subcontracted local service provider. The three packages include: yoga, massage or a 5 course shoreline dinner. Each of these programs would require the use of a gazebo in St. Lawrence Park and we would be looking to have some form of guarantee that can have exclusive access to it at the scheduled times of the programs. There are minor improvements we would like to do to the facilities on the waterfront, all of which would be paid for and retained by 1000 IKC.

### **Youth Camp**

This is a five day program for youth ages 8-16 running nine weeks during the summer. We have the capacity to involve 12 youth per week. The program is based on a model of the Outward Bound curriculum and has received input from the Ministry of Health, Communities Alive, Paddle Canada, Kids Active and Challenges Unlimited. This program would periodically require the use of other facilities at St. Lawrence Park in the event of bad weather. On a normal program day, the camp would be only using the park as a launch site and spending the day on the water and Park Islands.

### **Weekend Family Programs**

We have identified a need for inexpensive, family oriented programming. The demand for this program concept came through out rentals in Gananoque in 2008 along with the success of multiple family day events including Beach Fest, Brockville. Our rental rates are designed for commercial clients and families found it difficult to pay the full price for their children and their friends. We would like to promote a family day at St. Lawrence Park once a week (either Saturday or Sunday) where the charge is \$5 for an hour of paddling. This program will require a sponsorship to recover costs and we will be discussing this with several companies in Brockville as soon as the facility is secured.

### **Paddle Fit**

This program has been designed by Jodi Bigelow, Olympic down river paddler and partner of 1000 IKC. It is a two hour program offered twice a week in the evenings for people wishing to get professional coaching on their fitness paddling. The program is a hybrid of competitive paddling using recreational equipment with the goal of progressing beginner paddlers into competitive kayakers. There is a large emphasis on fitness and technique, however participants are not pushed too hard and discouraged from continuing on with their skills. Many beginners who start in sprint kayaks with competitive clubs lose motivation quickly because they have not been coached at a moderate pace in appropriate, beginner friendly equipment. This program has been very successful in Ottawa and with our YMCA and corporate partnerships, should be very popular amongst Brockville locals.

### **Youth Paddling Club**

This is a paddling club designed and led by youth in the community for paddlers aged 12-18 years. Our main focus will be on females around 15 years old as requested by Ministry of Health. The potential is being explored to initiate a female only paddling club. We will work closely with the local schools and recruit volunteers from each school to represent the paddling club in their school. We have had success involving three school boards in our 2008 programs and would like to include more, if not all, Brockville schools this year.

### **Benefits Contributing to the Quality of Life on Brockville**

#### **Community**

- Foster nature based recreation and active lifestyles
- Reduce costs on health care, along with therapeutic and emotional benefits for the general public.
- Providing unique access and opportunity use to city islands.
- Diversification of recreational opportunities on Brockville's waterfront
- Retention of young families, a key indicator of a healthy, attractive and vibrant community
- Facilitate more environmentally conscious citizenry, promotion of environmental sensitivity
- Development of self-reliance in youth, address Nature Deficit Disorder, Attention Defecate Disorder, youth obesity and many other issues identified by social services and Health Canada

#### **Tourism**

- Branding of the 1000 Islands, marketing our region as an attractive tourism destination.
- Diversification of recreational opportunities on Brockville's waterfront
- Providing unique access and opportunity use to city islands.
- Increase in visitors length of stay with more diverse recreational opportunities
- Economic spin-offs to local businesses (e.g. restaurants, stores, lodging, equipment rental)
- Direct economic impact of \$114 000 in Gananoque, 2008
- Indirect economic impact of \$479 000 in Gananoque 2008

We at 1000 IKC are very excited to expand our programs into Brockville and have felt extremely welcomed by the community so far. Through our test programs in 2008 we found the facility at St. Lawrence Park very attractive and have not discovered another venue in Brockville that is capable of meeting all the needs for our site selection. We would like to discuss with the Parks and Recreation department the possibility of using St. Lawrence Park between the months of May 1 to Sept 30 for the above programs. We feel we will bring with us many benefits that contribute to the quality of life for residents and make the city a more attractive travel destination. Thank you for taking the time to consider our partnership and we look forward to meeting with you soon!

Sincerely,

Scott Ewart, owner

613-329-6265, [scott@1000ikc.com](mailto:scott@1000ikc.com)



*"Luxury Explorations"*

---

## **Community Responsibility**

### **Youth Programs**

1000 IKC is a dedicated sponsor of Gananoque Youth Services and Kingston Boys and Girls Club. We facilitate programs for both youth organizations on a cost recovery basis. We are also involved with fundraising initiatives to help children access our programs who would otherwise be left behind. The very heart of 1000 IKC revolves around creating positive opportunities for self development and our entire society benefits as children grow and experience the world in a healthy and stimulating environment.

### **Property Stewardship**

We have committed to taking a stewardship role of Rotary Beach in Gananoque, Ivy Lea Provincial Park, Charleston Lake Provincial Park and of St. Lawrence Islands National Park islands we visit regularly. This stewardship would be extended to cover the Brockville Islands and St. Lawrence Park. Our guides report damages to property, clean up garbage, maintain trails, and promote ecological awareness to guests and other users. We recognize that the 1000 Islands biosphere is an extremely sensitive ecosystem and we are dedicated to role modeling minimum impact principals throughout our practices.

### **Source Water Protection Committee**

The 1000 Islands Kayaking Company has been appointed representative of Tourism and Recreation on the Source Water Protection Committee for the Cataraqui Conservation Authority. Our role involves attending monthly meetings hosted by the Cataraqui Conservation Authority and communicating interests of stakeholders within the Tourism and Recreation industries. We have voting authority to influence legislation through the Ministry of the Environment according to the Clean Water Act 2006. This project provides a key link between educating the public on water management issues and representing the tourism industry on Municipal and Provincial legislation regarding source water protection.

## **Kipawa Fund**

The Kipawa project is a nationwide effort to prevent a change in legislation regarding the rights to navigable waterways. Esprit Rafting on the Ottawa River launched a fundraising campaign to pay legal fees and prevent the destruction of this heritage river which will set a new precedence in watershed management. 1000 IKC has donated a free kayaking tour for two people for everyone who signed up for Esprit's fundraiser. Our goal is to make their packages more attractive and generate more revenue for the Kippawa fund by supporting this fundraising effort.

## **Environmental Education Network**

1000 IKC has a chair position on the Environmental Education Network, a sub-committee hosted by the Frontenac Arch Biosphere Reserve. We provide a key link between the science and research of the 1000 Islands National Park and communicating their message to the general public and school groups. Without the presence of 1000 IKC, the National Park would not have the opportunity to deliver school based programs on the Park Islands. Through our specialization in Outdoor and Experiential Education, the National Park curriculum can be delivered in a much more unique, meaningful and influential way to students across the county. We get the opportunity to provide specialized programming for a grade 5 Earth Day celebration every April exposing students to pleasure of outdoor activity.

## **Frontenac Arch Paddling Association**

1000 IKC has a committee position with the Frontenac Arch Biosphere Reserve's Trails Council and is representing the commercial sector for the designation of the Gananoque River as a heritage water. The trails council serves as an umbrella network for the development of all trails systems through FABR with the goal of catalyzing tourism and providing more opportunities for recreation in our region. Our primary focus is on assisting with marketing research, facilitating explorative trips for FABR staff and consulting on logistical issues related to the paddling community's use of the watershed. We were pleased to assist with the successful grant application that contributed \$10 000 towards infrastructure development along the historical water trail. This will be a very exciting project to be a part of in 2009!

## **Eco-Schools Designations**

1000 IKC sponsors and actively participates in helping three local schools achieve their eco-school designation from the federal government. The Ministry of the Environment has committed to match every dollar a school saves in energy costs through the eco-schools program and donate that money back to the school board. We are involved by assisting teachers with resources and educational opportunities for students. Several elementary school environmental clubs have come on kayaking trips as a reward for their success and progress with this initiative.

## Support for Local Business

It is important to us to keep our dollars in the community as much as possible. We are well aware of the concept of leakage and multiplier effects within the tourism industry and will place high value on the proximity of suppliers. We will promote other supporting attractions, package with local hospitality businesses, refer clients to local restaurants, buy from local suppliers and encourage community initiatives that support our economy.

## Organics

One of the newest endeavors of 1000 IKC is the commitment to a local Community Supported Agriculture (CSA) farm on How Island known as Root Radical. The overall health of our ecosystem is equally important to 1000 IKC as is the strength of the local economy and human rights issues. By purchasing food from a local organic farm to supply our lunches we are:

- Making a statement about farming practices on a national and local level
- Reducing the use of toxic chemicals that pollute our own office
- Educating students and client about sustainability
- Improving the quality of our food served to clients
- Helping the agriculture industry adapt to future trends
- Promoting ecological awareness and stewardship practices

It is our goal to purchase all our food supplies within a 100 km radius and from organic suppliers by 2010.

**1000 IKC is under review of the National Geographic Society as a model company for sustainable Geo-tourism development, designations will be awarded spring 2010.**

# Partners / Stakeholders

The diversity of the local landscape is reflected in the diversity of interested stakeholders, and partners within our community. Our stakeholders and partners include municipalities, federal and provincial government agencies, community groups, three school boards, businesses, residents and students.

Hospitality Businesses	Tourism Providers
Gananoque Inn	Gananoque and Brockville Chamber of Commerce
Trinity House	Landon's Bay Outdoor Center
Athalon	Three KOA Campgrounds
Victoria Ross	Brockville Museum
Sleepy Hollow	Fort Henry
Holiday Inn Express	Boiler Room Climbing Gym
Provincial Remada Inn	Gananoque and Rockport Boat Lines
Royal Brock Hotel	Ministry of Tourism, Ontario
Island View B+B	Try That
Misty Isles Lodge	Sunny Acres Fishing Resort
	Gananoque Play House
	Brown's Hospitality
	Sear's Canada
	Youth Affiliations
St. Lawrence Islands National Park	
1000 Islands Parks Commission (Ivy Lea, Brown's Bay)	Gananoque Youth Services
Frontenac Arch Biosphere Reserve	YMCA (Kingston + Brockville)
Algonquin to Adirondack (A to A)	Scouts Canada
Catarraqui Conservation Authority	Cycle Nomads
Charleston Lake Provincial Park	Kingston Boys and Girls Club
Ducks Unlimited	Gould Lake Outdoor Center
Ottawa River Keeper	Environmental Education Network
We Speak for the Rivers	Community Living, Gananoque, Brockville, Kingston
Navigable Waterways Protection Act	

<b>Community Recreation and Development</b>	
<b>Academic Institutions</b>	
Communities Alive	
Rotary Club	Brock University
Kingston Aboriginal Friendship Center?	Upper Canada District School Board
Community Living Kingston	Catholic School Board
Power and Sail Squadron	Sir Sanford Fleming College, Adventure Tourism Program
Ontario Recreational Canoeing and Kayaking Association (ORCKA)	Queen's University, Phys Ed. Department
Rideau Canal Heritage Rout	St. Lawrence College, Phys Ed. Department
Frontenac Arch Paddling Association	Algonquin College
Paddle Canada	Lakehead University
Kingston Outdoors Club	Limestone Schoolboard
Gananoque Canoe Club	Queen's University, Outdoor Education Department
<b>Suppliers / Equipment</b>	
Root Radical, Community Supported Agriculture (CSA)	Queen's University Outdoor Club
Trailhead (Ottawa + Kingston)	<b>Corporate Groups</b>
Peak Experience	Fort Drum
Sports Experts	Bell Canada
Mountain Equipment Co-op	Maynard Public School
NRS	Gananoque Charity Casino
Stholquest PFD's	Gananoque Inn
Warner Paddles	Community Living Kingston
Confluence Watersports	BizXel
Pan Chancho Bakery	Eagles Flight
Tara's Natural Foods	Singer Castle
Eco Paddles	CHUM FM radio
Local Flavors	Ovation Travel X
	City of Brockville, Human Resources
	Madawaska Kanu Center
	Esprit Rafting + Owl Rafting

## St. Lawrence Park Pavilion Usage

park - the entire park and both pavilions were booked

WEST PAVILION

**WEST PAVILION**

park - the entire park and both pavilions were booked

				WEST			WEST		
<b>2007</b>				Park			Park		
Apr 28	Saturday	10 am - 4 pm	Community Wide Cleanup	Park			Park		
May 27	Sunday	9 am - 1 pm	MS, Super Cities Walk TISS, Celtic Heritage Day	Park			Park		
Jun 8	Friday			Park			Park		
Jun 16	Saturday	9 am - 4 pm	Brockville Rowing Club, Dragon Boat Races	Park			Park		
Jun 24	Sunday	11 am - 5 pm	Standard Church, church picnic	WEST			Park		
Jul 15	Sunday	noon - 5 pm	Leslie Towe, karoke	WEST			Park		
Jul 22	Sunday	noon - 5 pm	Leslie Towe, karoke	WEST			Park		
Aug 4	Saturday	10 am - 6 pm	Beth Baker, family reunion	WEST			Park		
Aug 5	Sunday	noon - 5 pm	Jodie White, birthday party	WEST			Park		
Aug 12	Sunday	10 am - 4:30 pm	Marjorie McCombrey, knit-out	WEST			Park		
Aug 15	Wednesday	6:30 - 10 pm	Jim Withers, 1000 Islands Toastmasters	WEST			Park		
Aug 18	Saturday	noon - 4 pm	Karen Cotie, family gathering (picnic)	WEST			Park		
Aug 19	Sunday	9 am - 4 pm	Bob Edwards, family reunion	WEST			Park		
Aug 25	Saturday	11 am - 2 pm	Chisamore Family, picnic	WEST			Park		
Aug 26	Sunday	7 am - 7 pm	Old Fashion Family Picnic (noon - 4 pm)	Park			Park		
Sept 1	Saturday	2 - 8 pm	Trish Sheridan, family picnic	WEST			Park		
Sept 2	Sunday	noon - 5 pm	Leslie Towe, karoke	WEST			Park		
Sep 8	Saturday	noon - 7 pm	Scuba in the Park	Park			Park		

WEST PAVILION

park - the entire park and both pavilions were booked

<u>2006</u>				
May 13	Saturday	noon - 4 pm	Jody Roke, church event	
May 20	Saturday	2 - 6 pm	Linda Therien family picnic	
May 28	Sunday	10 am - noon	MS, Super Cities Walk	
June 3	Saturday	10 am - 3 pm	Cindy Rannells, art & picnic	
Jun 9		8:30 am - 1 pm	TISS, Celtic Heritage Day	
June 17	Saturday	9 am - 4 pm	Brockville Rowing Club, Dragon Boat Races	
Jul 2	Sunday	noon - 5 pm	Maria Heuthorst, picnic	
Jul 22	Saturday	3 - 6 pm	Mary-Ann Bowman, bridle shower	
Jul 23	Sunday	11 am - 7 pm	Mrs. Tolentino, Philpino gathering (picnic)	
Aug 5			Beth Baker, family reunion	
Aug 13	Sunday	9 am - 4 pm	Theresa McCaig, church picnic	
Aug 13	Sunday	4:30 - 9 pm	Ivana Paternostro, family gathering	
Aug 16	Wednesday	5:30 - 9 pm	Jim Riesberry, potluck	
Aug 19	Saturday	noon - 3:30 pm	Helen Throop, picnic	
Aug 20	Sunday	10:30 - 4 pm	Marjorie McCombrey, knit-out	
Aug 27	Sunday	7 am - 7 pm	Old Fashion Family Picnic (noon - 4 pm)	
Sep 23	Saturday	7 am - 7 pm	SOS, Scuba in Park	

## **EAST PAVILION**

park - the entire park and both pavilions were booked

			EAST	PARK
May 16	Tuesday	6:30 - 8 pm	Susan Malarika, scouts meeting	
May 28	Sunday	10 am - noon	MS, Super Cities Walk	
Jun 9	Friday	8:30 am - 1 pm	TISS, Celtic Heritage Day	Park
Jun 11	Sunday	noon - 2 pm	Trinity Church, picnic	EAST
Jun 15	Thursday	4:30 - 8 pm	Upper Canada Swim Club, awards & picnic	EAST
June 17	Saturday	9 am - 4 pm	Brockville Rowing Club, Dragon Boat Races	Park
Jun 20	Tuesday	10 am - 3 pm	Roger Lemire, Active Comm. Living, picnic	EAST
Jun 24	Saturday	noon - 7:30 pm	Jesus Christ of Latter Day, picnic	EAST
Jun 25	Sunday	1 - 6 pm	TD Bank, picnic	EAST
Jun 26	Monday	1 - 5 pm	St. Joe's School, fun day	EAST
Jun 28	Wednesday	3 - 8 pm	Debbie Canning, birthday party	EAST
Jul 2	Sunday	9 am - 2 pm	Wall St. Street, church service & picnic	EAST
Jul 2	Sunday	2 - 5 pm	Sharky's Scuba Shop, diver picnic	EAST
Jul 8	Saturday	3 - 5 pm	Blair Smith, wedding	EAST
Jul 9	Sunday	noon - 2 pm	April Lorne, birthday party	EAST
Jul 16	Monday	10 am - 6 pm	Sue Jason, family picnic	EAST
Jul 17	Tuesday	10 am - 2 pm	North Kingston Community Living, day at beach	EAST
Jul 22	Saturday	1 - 5 pm	Roseanne Leduc, birthday party	EAST
Aug 4	Friday	1 - 4 pm	Ellisa Davidson, birthday party	EAST
Aug 5	Saturday	10 am - 6 pm	Patricia Edwards, family reunion	EAST
Aug 6	Sunday	11 am - 4 pm	Corey Crowder, birthday party	EAST
Aug 12	Saturday	noon - 4 pm	Jesus Christ of Latter Saints, picnic	EAST
Aug 13	Sunday	1 - 7 pm	Mike Raisin, picnic	EAST
Aug 16	Wednesday	5:30 - 9 pm	Cathy McHugh, bbq	EAST
Aug 17	Thursday	noon - 2 pm	Alana Beddoe, picnic	EAST
Aug 19	Saturday	noon - 7 pm	Ted Meilleur, family reunion	EAST
Aug 20	Sunday	noon - 3 pm	Debra Longstaff, birthday party	EAST
Aug 26	Saturday	noon - 5 pm	Leta Hutton, family gathering	EAST
Aug 27	Sunday	7 am - 7 pm	Old Fashion Family Picnic	Park
Sept 2	Saturday	1 - 3 pm	Courtney Caterpillar, birthday party	EAST

**March 9, 2009**

**REPORT TO OPERATIONS COMMITTEE – March 18, 2009**

**2009-038-03  
ROTARY POOL BUILDING  
BROCKVILLE GYMNASTICS  
ACADEMY**

**VALERIE HARVEY, DIRECTOR  
PARKS & RECREATION**

**RECOMMENDATION**

THAT Council authorize a five year lease agreement with the Brockville Gymnastics Academy for the Rotary Pool Building for the term April 1, 2009 – March 31, 2014 at a lease amount of \$1,501.28 per month with annual CPI increases; and

THAT By-Law XXX-2009 (attached as Schedule A) be authorized to declare the property exempt from taxes for municipal and school purposes and other local improvement rates during the term of this lease agreement.

**PURPOSE**

The purpose of this report is to formalize a lease agreement.

**BACKGROUND**

The Rotary Pool Building has been leased by Brockville Gymnastics Academy since 1996. The club provides gymnastics programming to the youth of our community.

**ANALYSIS/OPTIONS**

The current three year lease agreement, with monthly payments of \$1,466.09, expires on March 31, 2009. The proposed lease amount reflects the CPI increase of 2.4% bringing the new monthly lease payment to \$1,501.28.

The Brockville Gymnastics Academy has requested that the lease agreement be increased from a three to a five year term as it is their intention to remain at this site. The club is contemplating doing interior renovations, at their cost, to improve the functionality of floor space and comply with future accessibility deadlines that have been set by the province. Any such renovations would be brought back to Council for authorization.

The only change to the current lease agreement is the addition of a clause permitting the club to erect an exterior sign depicting the club's name. All costs associated with the installation and maintenance of the sign would be borne by the Brockville Gymnastics Academy. The design of the sign would be approved by City staff and it would comply with the City's Sign By-law.

### **POLICY IMPLICATIONS**

Entering into this lease agreement is at the sole discretion of the City.

### **FINANCIAL**

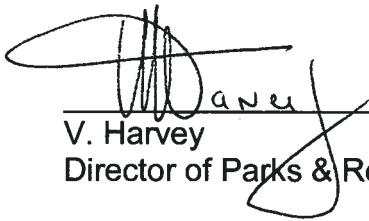
Revenue generated from this lease agreement will result in 2009 gross revenues as follows:

\$ 4,398.27            \$1,466.09 x 3 months (January - March 2009)

13,511.52            \$1,501.28 x 9 months (April – December 2009)

\$17,909.79            Total Net Revenue

Funds in the amount of \$17,879 have been allocated in the 2009 budget account G7510 1410 0859.



V. Harvey  
Director of Parks & Recreation



D. Cyr  
Director of Finance



B. Casselman  
City Manager

**THE CORPORATION OF THE CITY OF BROCKVILLE**

**By-Law Number xxx-2009**

*By-law to Exempt Municipally Owned Property  
from Taxation (10 Gilmour Street)*

---

WHEREAS the Municipal Act, S.O. 2001, c.25 Section 8 provides municipalities with natural persons powers for making arrangements and entering into contracts; and,

WHEREAS Section 110 (6) of the Municipal Act, S.O. 2001, c. 25 provides for the exemption from assessment of certain municipal properties; and,

WHEREAS it is deemed expedient to declare certain municipal properties from taxation.

NOW THEREFORE BE IT ENACTED by the Corporation of the City of Brockville as follows:

1. THAT the following property is declared exempt from taxes for municipal and school purposes other than local improvement rates so long as the property is leased from the City of Brockville, occupied and used solely for the purposes of carrying on the operation of providing gymnastics teaching and training as provided by the Brockville Gymnastics Academy.

<u>Roll Number</u>	<u>Address</u>	<u>Legal Description</u>
0802 030 065 29700 000	10 Gilmour Street	Plan 67 Blk 44 pt Lots A to D

2. THAT the Municipal Property Assessment Corporation be so advised.
3. THAT the appropriate School Board be so advised.
4. THAT this by-law expires March 31, 2014

Given under the Seal of the  
Corporation of the City of Brockville  
and passed this 24<sup>th</sup> day of March, 2009

---

MAYOR

---

CLERK



**March 09, 2009**

**REPORT TO OPERATIONS COMMITTEE – MARCH 18, 2009**

**2009-039-03  
ENGINEERING SERVICES FOR  
KING STREET RECONSTRUCTION  
BEECHER ST. TO CEDAR STREET**

**C.J. COSGROVE, P.ENG.  
DIRECTOR OF OPERATIONS  
P.E. RAABE, P.ENG.  
MUNICIPAL ENGINEER**

**RECOMMENDED**

THAT Council accept the proposal from Genivar in the amount of Twenty-three Thousand, Seven Hundred and Seventy Dollars (\$23,770.00) plus GST to provide engineering consulting services for the reconstruction of King Street from Beecher Street to Cedar Street and Mabel Street from King Street southerly; and

THAT the funds be allocated from C3011-KW08 and C4030-MABE.

**PURPOSE**

To retain the services of an engineering consultant to complete the design of King Street West from Beecher Street to Cedar Street and Mabel Street from King Street southerly and prepare the necessary tender drawings and documents.

**BACKGROUND**

In 2004 the City completed a section of King Street West from Kingston Bridge to Beecher Street. For 2009, it is proposed to complete the adjacent section of King Street from Beecher Street to Cedar Street including Mabel Street from King Street southerly to its end.

This section of King Street has under sized storm sewers with a capacity of less than a 2 year storm event. The storm and sanitary sewers share a number of manholes and reconstruction would allow the sewers to be separated reducing the amount of storm water infiltration into the sanitary sewer. It is estimated that approximately 21,000 m<sup>3</sup> of storm water would be diverted from the sanitary sewer system, freeing up capacity at the City's sewage treatment plant, an equivalent of approximately 65 new residential homes. Both sewers are constructed of vitrified clay which is brittle and susceptible to breakage resulting in groundwater infiltration.

The existing 150 mm diameter cast iron watermain was installed in the early 1900's and has out lived its lifespan. This type of pipe is known for its susceptibility to breaking and interior encrustation which can affect both water quality and hydraulic performance of the pipe.

The pavement on this section of roadway is in poor condition with poor roadbed drainage.

The infrastructure on Mabel Street is also in poor condition. In 2004 Council approved a project to replace the watermain. Further investigation of the storm and sanitary sewers revealed that they too needed to be replaced. As a result it was decided to complete both projects at the same time to take advantage of the scale of the King Street work.

The proposed work will include the reconstruction of storm sewers, sanitary sewers, water mains and service laterals. The existing roadway will be reconstructed including granular materials, asphalt pavement, concrete sidewalks, concrete curb and gutter and restoration work.

### **ANALYSIS/OPTIONS**

Proposals were requested from a number of consultants to complete the required design and prepare the tender drawings and documents. The following is a summary of the proposals received by the City:

- |                                   |             |
|-----------------------------------|-------------|
| 1. Genivar .....                  | \$23,770.00 |
| 2. Eastern Engineering Group..... | \$49,560.00 |
| 3. Thompson Rosemount Group.....  | Declined    |

Genivar were the consultants who completed the engineering design and construction administration for the previous phase of work completed on King Street in 2004 and has successfully completed other similar type projects for the City.

The following is a list of the project's milestones:

- |                                 |                  |
|---------------------------------|------------------|
| 1. Advertise Tender.....        | May 4, 2009      |
| 2. Tender Opening .....         | June 1, 2009     |
| 3. Operations Committee .....   | June 17, 2009    |
| 4. Council Meeting .....        | June 23, 2009    |
| 5. Start of Construction .....  | July 13, 2009    |
| 6. Construction Completion..... | October 30, 2009 |

Engineering staff are working on a number of other 2009 capital projects and in order to ensure that the King Street project meets the above noted milestones, the resources of a consulting firm are required.

### **POLICY IMPLICATIONS**

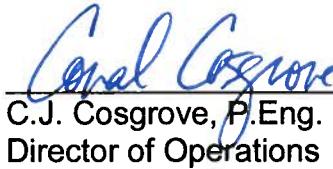
The City's Consultant Selection Policy, for a project of this type and fee value, requires as a minimum one written proposal. Acceptance of the proposal from Genivar requires Council's approval.

## **FINANCIAL CONSIDERATIONS**

This project was approved in the City's 2009 Capital Budget at a total cost estimate of \$1,836,500.00 of which \$170,000.00 was allocated for engineering design and construction administrative services. There are sufficient funds available to accommodate the engineering design and the preparation of the tender drawings and documents. Depending on City staff's work load and availability, the construction administrative portion of the project may be done in-house or by a consultant.

## **CONCLUSION**

It is recommended that the services of Genivar be retained to provide engineering services for the design and preparation of tender drawings and documents for the reconstruction of King Street from Beecher Street to Cedar Street.



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



P.E. Raabe, P.Eng.  
Municipal Engineer



D. Cyr  
Director of Finance



B. Casselman  
City Manager