



**CORPORATION OF THE TOWN OF HAWKESBURY**

**2003**  
**WATERWORKS**  
**ANNUAL REPORT**

(period from January 1, 2003 to December 31, 2003)

**PREPARED BY:**

**TOWN OF HAWKESBURY**  
**Technical Services Department**  
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**Hawkesbury, Ontario**  
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**SUBMITTED ON:**

**March 30, 2004**

**TABLE OF CONTENTS**

➤ **2003 ANNUAL REPORT**

- Overview of our System.....2-5
  - Description of water system
  - Where your water comes from
  - What is in your water
  - Types of treatment
  - Terms you need to know
  - Analysis and testing
  
- Reports of Adverse Water Quality.....5-6
  - First Quarter
  - Second Quarter
  - Third Quarter
  - Fourth Quarter
  
- Results of Analysis.....6-10
  - First Quarter
  - Second Quarter
  - Third Quarter
  - Fourth Quarter
  
- Corrective Actions Taken in 2003.....10-11
  - Third Quarter
  
- System Upgrades.....11-12
  - Waterworks Upgrades – Phase I
  - Waterworks Upgrades – Phase II
  
- Availability of Report.....12

- **Appendix “A”** – Report of Analysis for samples submitted on February 11, 2003
- **Appendix “B”** – Report of Analysis for samples submitted on May 22, 2003
- **Appendix “C”** – Report of Analysis for samples submitted on October 20, 2003
- **Appendix “D”** – Report of Analysis for samples submitted on November 20, 2003
- **Appendix “E”** – Report of Chemical Use for 2003

The Town of Hawkesbury is presenting to the citizens of the Town of Hawkesbury its first *Annual Report* for the period from January 1, 2003 to December 31, 2003. The province's Drinking Water System Regulation (O.Reg. 170/03) under the Safe Drinking Water Act, 2002 requires that we publish the report for your information.

## ***OVERVIEW OF OUR SYSTEM***

Our waterworks currently serves a population of 10,154 in Hawkesbury and a population of approximately 4,000 in the Township of Champlain. In accordance with its Official Plan, all development in the Town has been provided with municipal water and sewer services. Water is supplied by the Water Filtration Plant, which is owned and operated by the municipality, and sewage is treated at the Water Pollution Control Plant which is owned by the municipality and operated by the Ontario Clean Water Agency.

Our Water Filtration Plant is located at 670 Main Street West in Hawkesbury, Ontario. The plant was constructed in 1953 and upgraded and expanded in 1996. The system's upgrade and expansion consisted mainly of the following works:

- Construction and integration of a second clarifier unit in the treatment process complete with related piping, controls, etc...
- Construction and integration of a second 2,760 m<sup>3</sup> potable water underground storage complete with related piping, controls, etc...
- Construction of new settling and decanting tanks for clarifier sludge and backwash wastewater.
- Supply and installation of new high lift pumping equipment.
- Supply and installation of a new SCADA control system.
- Replacement and/or relocation of yard piping.

We also have a 5,454 cubic metre elevated storage reservoir in our distribution system located on Spence Avenue.

### **WHERE YOUR WATER COMES FROM**

Have you ever really thought about where your water comes from? In the Town of Hawkesbury, our source is the Ottawa River, a fairly large body of water. Our intake is located 90 metres from the river shore and is 4.5 metres in depth from the normal water level.

Because of the location and depth of the intake, the water quality does not change quickly. This makes it easier for waterworks staff to produce a consistently safe water. The outfall of the sewage plant discharges downstream from the water intake, and therefore has no impact on our water supply.

The source of water has to be treated to eliminate bacteria, turbidity, organic substances and colour (the natural colour in our water is elevated) in order to produce the best drinking water quality possible and having the lowest levels of aluminium, trihalomethanes (THMs), etc.... THMs are a byproduct of the chlorination of water with organic substances and colour content. By removing most of the organic substances and colour during treatment and monitoring our chlorine addition, we can control the formation of THMs.

### **WHAT IS IN YOUR WATER**

Some parameters may be present in source water before we treat it. Here is a description of the various groups of parameters.

*Microbiological parameters* such as bacteria may come from sewage plants, livestock operations, septic systems and wildlife. Microbiological quality is the most important aspect of drinking water quality because of its association with dangerous water-borne diseases which can strike quickly.

*Inorganic parameters* such as salts and metals can be naturally occurring or a result of urban storm runoff, industrial or domestic wastewater discharge, mining or agriculture. Some may be a result of treatment and distribution of water (for example, lead from old solder in pipes).

*Organic parameters* can be naturally occurring but most organics of concern are synthetic. They originate from industrial discharges, urban storm runoff and other sources. Included in this group are pesticides that originate from both rural and urban areas. Some may originate from treatment of drinking water (for example, chlorination byproducts such as trihalomethanes).

The municipality participates in the Drinking Water Surveillance Program for Ontario which is a monitoring program providing immediate, reliable, current information on drinking water quality. Laboratory analysis are conducted to detect the presence of over 120 parameters in the source water. The municipality is immediately advised when a problem is detected.

### **TYPES OF TREATMENT**

The conventional treatment used consists of the following :

- **Coagulation-floculation-decantation** : This process eliminates approximately 99 % of all organic substances, bacteria, color, etc... The chemicals used for this treatment are alum and activated silica.

- **Filtration** : This process eliminates the small particles not treated in above process.
- **Disinfection and fluoridation** : This process is carried out before the water is stored in the water tank. This chlorine disinfection ensures the elimination of all bacteria. A fluoridation is carried out simultaneously (the main purpose of the fluoridation is to prevent tooth decay in children). The disinfection process is a prime necessity to ensure that the quality of drinking water meets the Ontario Ministry of Environment regulations. Afterwards, the drinking water is pumped into the municipal water distribution system. The chemicals used for these treatments are chlorine, fluoride and lime.
- **Distribution** : The distribution is the final stage where the drinking water is distributed to residences, businesses, institutions and industries.

### **TERMS YOU NEED TO KNOW**

Here are some terms you should know about before reading the information on the report of analysis.

#### **DEFINITIONS:**

##### *MAC*

Maximum Acceptable Concentration. This is a health-related Ontario drinking water standard established for contaminants that have known or suspected adverse health effects when above a certain concentration. The length of time the MAC can be exceeded without injury to health will depend on the nature and concentration of the parameter.

##### *IMAC*

Interim Maximum Acceptable Concentration. This is a health-related Ontario drinking water standard established for contaminants when there are insufficient toxicological data to establish a MAC with reasonable certainty, or when it is not practical to establish a MAC at the desired level.

##### *Parameter*

This is a substance that we sample and analyze for in the water.

##### *mg/l*

milligrams per litre. This is a measure of the concentration of a parameter in water, sometimes called parts per million (ppm).

##### *µg/l*

micrograms per litre. This is a measure of the concentration of a parameter in water.

**ANALYSIS AND TESTING**

The water treatment at the Water Filtration Plant undergoes continuous monitoring. In fact, sophisticated and precise equipment ensures a quality of water that is conforming to the Ontario Ministry of Environment regulations. Furthermore, the equipment at the Water Filtration Plant is verified daily to ascertain its proper functioning by conducting laboratory testing.

Once a week, water bacterial analysis are carried out by an independent laboratory, certified by the Canadian Association of Environmental Analytical Laboratories and the Standard Council of Canada. The operator takes 7 samples at different areas throughout the municipality, one sample of raw water and one sample at the Water Filtration Plant. These samples are then sent to the laboratory for analysis.

The following analysis are carried out :

- total coliform bacteria
- E-Coli
- background colonies

It is to be noted that all written results are obtained within a delay of 48 hours. However, if a problem arises, the municipality is advised within a delay of 24 hours, being the incubation period.

Samples from the distribution water, decanted water, filtered water and raw water are analysed for total coliform bacteria once a week by the personnel of the Waterworks Department of the Town of Hawkesbury. Various testing is also conducted daily, such as pH, turbidity, alkaline, hardness, chlorine, etc...).

## **REPORTS OF ADVERSE WATER QUALITY**

### **First Quarter**

Period from January 1, 2003 to March 31, 2003

During this period, no indicator of adverse water quality has been reported.

### **Second Quarter**

Period from April 1, 2003 to June 30, 2003

During this period, no indicator of adverse water quality has been reported.

### **Third Quarter**

Period from July 1, 2003 to September 30, 2003

During this period, a Notification of Adverse Water Quality has been issued on August 13, 2003 with reference to Sample no. 3 taken on August 11, 2003 at the Municipal Garage located at 855 Main Street East in Hawkesbury, Ontario. The analysis result showed background colonies >200.

The Technical Services proceeded with verbal and written notifications on August 13, 2003 as per O.Reg. 170/03, and initiated resampling procedures on August 13, 2003 and August 15, 2003. Sample analysis was carried out by the Waterworks Department which showed negative results. Samples were also sent to an accredited laboratory for analysis. The laboratory report received on August 19, 2003 showed negative results.

The Ministry of the Environment and the local Medical Officer of Health were notified of the negative results on August 20, 2003.

**Fourth Quarter**

Period from October 1, 2003 to December 31, 2003

During this period, no indicator of adverse water quality has been reported.

**RESULTS OF ANALYSIS**

**First Quarter**

Period from January 1, 2003 to March 31, 2003

During the reporting period of January 1, 2003 to March 31, 2003, the weekly analysis results for the nine samples collected of raw water, on the distribution system and at the Water Filtration Plant met the Ontario Drinking Water Standards. The raw water analysis results met the requirements as defined under the provisions of the Ontario Drinking Water Standards as for total coliforms, E-coli and background colonies.

<b>2003 First Quarter</b>	<b>Units</b>	<b>RAW WATER Minimum-maximum</b>	<b>PLANT TREATED Minimum-maximum</b>	<b>DISTRIBUTION Minimum-maximum</b>
<b><i>Date</i></b>		Jan. 6 – Mar. 24	Jan. 1 – Mar. 31	Jan. 1 – Mar. 31
Total coliform	cts/100mL	110 – 1100	0 – 0	0 – 0
<b><i>Date</i></b>		Mar. 24 – Feb. 10	Jan. 1 – Mar. 31	Jan. 1 – Mar. 31
E. coli	cts/100mL	23 – 64	0 – 0	0 – 0
<b><i>Date</i></b>		Feb. 4 – Mar. 18 & 24	Jan. 1 – Mar. 31	Jan. 1 – Mar. 31
Background	cts/100mL	0 – >2000	0 - 0	0 – 0
<b><i>Date</i></b>		--	Mar. 12 – Feb. 4	Feb. 10 – Feb. 24
Chlorine free	mg/L	--	0.67 – 0.88	0.11 – 0.88
<b><i>Date</i></b>		--	Mar. 12 – Feb. 4	Mar. 4 – Jan. 27
Chlorine total	mg/L	--	0.90 – 1.13	0.21 – 1.12

The Maximum Acceptable Concentration (MAC) objective for the trihalomethanes (THMs) is 100 µg/L or 0.1 mg/L. This standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.

The running annual average for treated water for this period, being April 1, 2002 to March 31, 2003 is 55.08 µg/L or 0.055 mg/L at the Water Filtration Plant.

The running annual average in the distribution system for this period, being April 1, 2002 to March 31, 2003 is 75.18 µg/L or 0.075 mg/L.

The municipality did not exceed any standards during the reporting period, being January 1, 2003 to March 31, 2003.

*Attached as Appendix "A" is a copy of the quarterly report of analysis for samples submitted on February 11, 2003.*

**Second Quarter**

Period from April 1, 2003 to June 30, 2003

During the reporting period of April 1, 2003 to June 30, 2003, the weekly analysis results for the nine samples collected of raw water, on the distribution system and at the Water Filtration Plant met the Ontario Drinking Water Standards. The raw water analysis results met the requirements as defined under the provisions of the Ontario Drinking Water Standards as for total coliforms, E-coli and background colonies.

<b>2003 Second Quarter</b>	<b>Units</b>	<b>RAW WATER Minimum-maximum</b>	<b>PLANT TREATED Minimum-maximum</b>	<b>DISTRIBUTION Minimum-maximum</b>
<b><i>Date</i></b>		June 12 – June 18	April 1 – June 30	April 2 – June 30
Total coliform	cts/100mL	20 – 3300	0 – 0	0 – 0
<b><i>Date</i></b>		May 21 – June 18	April 1 – June 30	April 1 – June 30
E. coli	cts/100mL	<1– 25	0 – 0	0 – 0
<b><i>Date</i></b>		April 7 – June 18	April 1 – June 30	April 1 – June 25
Background	cts/100mL	>200 – >20000	0 – 0	0 – 36
<b><i>Date</i></b>		--	May 15 – April 2	April 14 – April 2
Chlorine free	mg/L	--	0.62 – 1.15	0.07 – 0.86
<b><i>Date</i></b>		--	May 15 – April 2	April 14 – May 15
Chlorine total	mg/L	--	0.02 – 1.39	0.18 – 1.30

The Maximum Acceptable Concentration (MAC) objective for the trihalomethanes (THMs) is 100 µg/L or 0.1 mg/L. This standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.

The running annual average for treated water for this period, being July 1, 2002 to June 30, 2003 is 59.90 µg/L or 0.060 mg/L at the Water Filtration Plant.

The running annual average in the distribution system for this period, being July 1, 2002 to June 30, 2003 is 80.90 µg/L or 0.081 mg/L.

However, the analysis results for June 11, 2003 show a level of trihalomethanes (THMs) higher than the maximum Acceptable Concentration (MAC) objective of 100. The following result was obtained: - June 11, 2003 - Sample 5 - 107.1 µg/L

The municipality was continuously monitoring the trihalomethanes (THMs).

*Attached as Appendix "B" is a copy of the quarterly report of analysis for samples submitted on May 22, 2003.*

**Third Quarter**

Period from July 1, 2003 to September 30, 2003

During the reporting period of July 1, 2003 to September 30, 2003, the weekly analysis results for the nine samples collected of raw water, on the distribution system and at the Water Filtration Plant met the Ontario Drinking Water Standards. The raw water analysis results met the requirements as defined under the provisions of the Ontario Drinking Water Standards as for total coliforms, E-coli and background colonies.

<b>2003 Third Quarter</b>	<b>Units</b>	<b>RAW WATER Minimum-maximum</b>	<b>PLANT TREATED Minimum-maximum</b>	<b>DISTRIBUTION Minimum-maximum</b>
<b>Date</b>		Aug. 6 – July 15	July 1 – Sept. 30	July 1 – Sept. 30
Total coliform	Cts/100mL	10 – 60	<1 – <1	<1 – <1
<b>Date</b>		July 1 – Aug. 11	July 1 – Sept. 30	July 1 – Sept. 30
E. coli	Cts/100mL	<1– 17	<1 – <1	<1 – <1
<b>Date</b>		Aug. 6 – Sept. 16	July 1 – Sept. 30	July 1 – Aug. 11
Background	Cts/100mL	>200 – >2000	<1 – <1	<1 – >200
<b>Date</b>		--	Aug. 20 – Sept. 9	July 29 – Sept. 3
Chlorine free	mg/L	--	0.79 – 1.12	0.05 – 0.98
<b>Date</b>		--	Aug. 20 – Sept. 9	July 7 – Sept. 3
Chlorine total	mg/L	--	0.79 – 1.34	0.20 – 1.02

The Maximum Acceptable Concentration (MAC) objective for the trihalomethanes (THMs) is 100 µg/L or 0.1 mg/L. This standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.

The running annual average for treated water for this period, being October 1, 2002 to September 30, 2003 is 57.73 µg/L or 0.058 mg/L at the Water Filtration Plant.

The running annual average in the distribution system for this period, being October 1, 2002 to September 30, 2003 is 78.68 µg/L or 0.079 mg/L.

The municipality did not exceed any standards during the reporting period, being July 1, 2003 to September 30, 2003.

*Attached as Appendix “C” is a copy of the quarterly report of analysis for samples submitted on October 20, 2003.*

**Fourth Quarter**

Period from October 1, 2003 to December 31, 2003

During the reporting period of October 1, 2003 to December 31, 2003, the weekly analysis results for the nine samples collected of raw water, on the distribution system and at the Water Filtration Plant met the Ontario Drinking Water Standards. The raw water analysis results met the requirements as defined under the provisions of the Ontario Drinking Water Standards as for total coliforms, E-coli and background colonies.

<b>2003 Fourth Quarter</b>	<b>Units</b>	<b>RAW WATER Minimum-maximum</b>	<b>PLANT TREATED Minimum-maximum</b>	<b>DISTRIBUTION Minimum-maximum</b>
<b><i>Date</i></b>		Oct. 3 – Nov. 5	Oct. 3 – Dec. 30	Oct. 3 – Dec. 30
Total coliform	cts/100mL	20 – 1070	<1 – <1	<1 – <1
<b><i>Date</i></b>		Oct. 7 – Oct. 31	Oct. 3 – Dec. 30	Oct. 3 – Dec. 30
E. coli	cts/100mL	10 – 75	<1 – <1	<1 – <1
<b><i>Date</i></b>		Oct. 3 – Dec. 30	Oct. 3 – Dec. 30	Oct. 3 – Nov. 13
Background	cts/100mL	860 – 2000	<1 – <1	<1 – >42
<b><i>Date</i></b>		--	Oct. 31 – Nov. 5	Dec. 30 – Dec. 10
Chlorine free	mg/L	--	0.71 – 1.09	0.18 – 0.95
<b><i>Date</i></b>		--	Oct. 16 – Dec. 10	Dec. 30 – Dec. 18
Chlorine total	mg/L	--	1.04 – 1.36	0.25 – 1.14

The Maximum Acceptable Concentration (MAC) objective for the trihalomethanes (THMs) is 100 µg/L or 0.1 mg/L. This standard is expressed as a running annual average of quarterly samples measured at a point reflecting the maximum residence time in the distribution system.

The running annual average for treated water for this period, being January 1, 2003 to December 31, 2003 is 51.3 µg/L or 0.0513 mg/L at the Water Filtration Plant.

The running annual average in the distribution system for this period, being January 1, 2003 to December 31, 2003 is 72.5 µg/L or 0.0725 mg/L.

The municipality did not exceed any standards during the reporting period, being October 1, 2003 to December 31, 2003.

*Attached as Appendix "D" is a copy of the quarterly report of analysis for samples submitted on November 20, 2003.*

Further to the Compliance Inspection held on September 23-24, 2003 carried out by Donald Munro, Inspector of the Drinking Water Inspection Program, M.O.E. Eastern Region, in his report submitted on February 6, 2004, it was noted that the Town of Hawkesbury was not sampling for the following inorganic parameters: Antimony, Barium, Boron, Cadmium, Chromium, Mercury, Selenium or Uranium outlined in Schedule 23 of the New Ontario Regulation 170/03 which requires the plant to now sample for.

In 2004, the Town of Hawkesbury will comply to Schedule 23 of the Drinking Water System Regulation 170/03 for above-mentioned parameters.

## **CORRECTIVE ACTIONS TAKEN IN 2003**

In 2003, only one indicator of adverse water quality was reported. The following corrective action was taken.

### **Third Quarter**

Period from July 1, 2003 to September 30, 2003

During this period, a Notification of Adverse Water Quality has been issued on August 13, 2003 with reference to Sample no. 3 taken on August 11, 2003 at the Municipal Garage located at 855 Main Street East in Hawkesbury, Ontario. The analysis result showed background colonies >200.

The Technical Services proceeded with verbal and written notifications on August 13, 2003 as per O.Reg. 170/03, and initiated resampling procedures on August 13, 2003 and August 15, 2003. Sample analysis was carried out by the Waterworks Department which showed negative results. Samples were also sent to an accredited laboratory for analysis. The laboratory report received on August 19, 2003 showed negative results.

The Ministry of the Environment and the local Medical Officer of Health were notified of the negative results on August 20, 2003.

Resampling was carried out as per the town's Policy no. ST-P-2000-01 – Notification Procedures and Remedial Actions for Adverse Water Quality.

## **SYSTEM UPGRADES**

### **Waterworks Upgrades – Phase I:**

The Town of Hawkesbury proceeded with Phase I of the upgrades at the Water Filtration Plant. Work began in 2002 and was completed in June 2003. The contract was awarded to Base Controls Ltd. for a total amount of \$169,711.70.

The contract objectives were the following:

1. To upgrade the DCS (Distributed Control System) to allow for some spare capacity.
2. To provide a reliable system for remote alarming.
3. To meet the requirements of the Certificate of Authorization and Engineer's Report.

The Scope of Work of the contract was as follows:

#### **1. Water Treatment Plant**

- .1 Supply and install components for Bristol Babcock DCS (Distributed Control System). Programming for DCS by Dakins Engineering under this contract.
- .2 Supply and install turbidity meters.
- .3 Supply and install chemical pump tachometers.
- .4 Supply and install alarm dialer.
- .5 Supply and install new SCADA (Supervisory Control and Data Acquisition) server, SCADA upgrade and modify SCADA interface.

#### **2. Water Booster Station**

- .1 Install Owner-supplied chlorine analysis and chemical delivery systems.
- .2 Supply and install components for Bristol Babcock DCS (Distributed Control System).
- .3 Supply and install chlorine gas monitor.
- .4 Supply and install room ventilation.

#### **3. Provide start-up, commissioning and training.**

**Waterworks Upgrades – Phase II:**

J.L. Richards & Associates completed the final plans and specifications for the Waterworks Upgrades Phase II. The work includes the construction of a building addition for the expansion and relocation of the alum feed and storage system; installation of a new fluoridation system for the closing of hydrofluosilicic acid by replacing the existing solid sodium silicofluoride feed system with a liquid; and upgrading the activated silica feed system by installing new bulk storage for sodium aluminate.

On September 29, 2003, the Municipal Council of the Town of Hawkesbury adopted Resolution no. R-523-03 to authorize the Director of Technical Services to proceed with the call for tenders for the Waterworks Upgrades / Phase II.

The contract was awarded in December 2003 to ASCO Contruction Ltd. for an amount of \$473,550.00. The work started in January 2004.

***AVAILABILITY OF REPORT***

The Town of Hawkesbury will be advising the users of water from the system, through local newspapers, that the Annual Report and Summary Report will be available for review and inspection, free of charge, from March 31, 2004, at the following locations:

1.     ***Technical Services Department***  
Town of Hawkesbury  
600 Higginson Street  
Hawkesbury, Ontario  
K6A 1H1  
Tel. (613) 632-0106, ext. 2237
  
2.     ***Hawkesbury Public Library***  
550 Higginson Street  
Hawkesbury, Ontario  
K6A 1H1
  
3.     ***Town's website***  
[www.ville.hawkesbury.on.ca](http://www.ville.hawkesbury.on.ca)

Furthermore, a copy of the Annual Report and the Summary Report will also be forwarded to the Township of Champlain.

## ***APPENDIXES***

- APPENDIX “A”** - Report of Analysis for samples submitted on February 11, 2003
- APPENDIX “B”** - Report of Analysis for samples submitted on May 22, 2003
- APPENDIX “C”** - Report of Analysis for samples submitted on October 20, 2003
- APPENDIX “D”** - Report of Analysis for samples submitted on November 20, 2003
- APPENDIX “E”** - Report of Chemical Use for 2003

This 2003 Annual Report has been prepared and submitted on March 30, 2004 by:

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Martin Bonhomme, P.Eng.,CMA  
Chief Administrative Officer/  
Director of Technical Services  
Town of Hawkesbury  
600 Higginson Street  
Hawkesbury, Ontario K6A 1H1  
Tel. (613) 632-0106, ext. 2236  
Fax (613) 636-2094

***APPENDIX « A »***

# REPORT OF ANALYSIS

ARECO CANADA - A Division of Caduceon Enterprises Inc., 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	A230359	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	11-Feb-03	P.O. NUMBER:	-
DATE REPORTED:	06-Mar-03	REPORT TO:	Richard Guertin

WATERWORKS NUMBER: 220002832

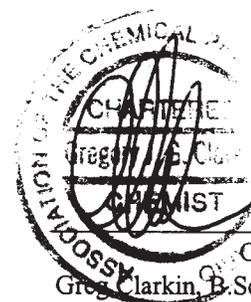
PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
Date Collected:	dd-mmm		10-Feb	10-Feb	10-Feb		
Laboratory I.D.			10	11	12		
<b>Physical:</b>							
Conductivity	µS/cm	1	98	-	-		
<b>Inorganics - Non-Metals:</b>							
Chloride	mg/L	0.5	6.7	7.5	6.6	250	AO
Fluoride	mg/L	0.1	-	0.1	0.1	1.5	MAC
Nitrate(N)	mg/L	0.1	0.3	0.3	0.3	10.0	MAC
Nitrite(N)	mg/L	0.1	ND	ND	ND	1.0	MAC
Nitrogen-Ammonia(N)	mg/L	0.01	0.11	0.03	0.04		
Nitrogen-Kjeldahl(N)	mg/L	0.05	0.36	0.10	0.10		
Nitrogen-Organic	mg/L	0.05	0.25	0.07	0.06	0.15	OG
Sulphate	mg/L	1	8	21	22	500	AO
<b>Inorganics - Metals:</b>							
Aluminum	mg/L	0.03	0.18	ND	0.06	0.10	OG
Arsenic	mg/L	0.001	ND	ND	ND	0.025	IMAC
Calcium	mg/L	0.03	9.45	16.9	17.4		
Copper	mg/L	0.01	ND	ND	ND	1.0	AO
Iron	mg/L	0.01	0.23	0.02	0.03	0.30	AO
Lead	mg/L	0.0002	0.0002	ND	0.0002	0.01	MAC
Manganese	mg/L	0.01	0.10	ND	ND	0.05	AO
Sodium	mg/L	0.2	5.2	4.8	4.4	200, 20	AO, MAC
Zinc	mg/L	0.01	ND	ND	0.05	5.0	AO

M.D.L. = Method Detection Limit

- = Not Requested/Analyzed

ND = Not Detected

<sup>^</sup> = Subcontracted to external laboratory



Certified by,  
Greg Clarkin, B.Sc., C.Chem.  
Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

# REPORT OF ANALYSIS

ARECO CANADA - A Division of Caduceon Enterprises Inc., 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	A230359	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	11-Feb-03	P.O. NUMBER:	-
DATE REPORTED:	06-Mar-03	REPORT TO:	Richard Guertin

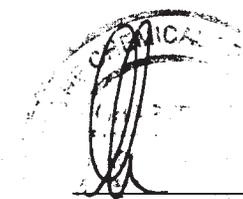
PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
<b>Organics:</b>							
DOC	mg/L	0.5	6.0	2.4	2.3	5.0	AO
Phenols	mg/L	0.001	ND	-	-		
<b>Volatile Organics:</b>							
Benzene	µg/L	0.5	-	ND	-	5	MAC
Carbon Tetrachloride	µg/L	0.2	-	ND	-	5	MAC
Chlorobenzene	µg/L	0.2	-	ND	-	80,30	MAC,AO
Dichlorobenzene, 1,2-	µg/L	0.1	-	ND	-	200,3	MAC,AO
Dichlorobenzene, 1,4-	µg/L	0.2	-	ND	-	5,1	MAC,AO
Dichloroethane, 1,2-	µg/L	0.1	-	ND	-	5	IMAC
Dichloroethylene, 1,1-	µg/L	0.1	-	ND	-	14	MAC
Ethylbenzene	µg/L	0.5	-	ND	-	2.4	AO
Methylene Chloride	µg/L	3.0	-	ND	-	50	MAC
Toluene	µg/L	0.5	-	ND	-	24	AO
Tetrachloroethylene	µg/L	0.2	-	ND	-	30	MAC
Trichloroethylene	µg/L	0.1	-	ND	-	50	MAC
Vinyl Chloride	µg/L	0.3	-	ND	-	2	MAC
Xylenes, o,m,p-	µg/L	2.0	-	ND	-	300	AO
Bromodichloromethane	µg/L	0.1	-	4.5	6.4		
Bromoform	µg/L	0.1	-	ND	ND		
Chloroform	µg/L	0.3	-	37.7	47.5		
Dibromochloromethane	µg/L	0.1	-	0.4	0.6		
<b>Trihalomethanes - Total</b>	µg/L	1.0	-	42.6	54.5	100	MAC
<b>Surrogate % Recovery</b>							
1,2-Dichloroethane-d4			-	109	111		
Toluene-d8			-	100	100		
4-Bromofluorobenzene			-	97	99		

M.D.L. = Method Detection Limit

- = Not Requested/Analyzed

ND = Not Detected

^ = Subcontracted to external laboratory



Certified by,  
 Greg Clarkin, B.Sc., C.Chem.  
 Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

# REPORT OF ANALYSIS

ARECO CANADA - A Division of Caduceon Enterprises Inc., 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

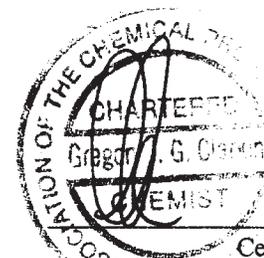
LABORATORY I.D.:	A230359	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	11-Feb-03	P.O. NUMBER:	-
DATE REPORTED:	06-Mar-03	REPORT TO:	Richard Guertin

PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
<b>Herbicides/Pesticides</b>							
Date Collected	dd-mmm		-	10-Feb	-		
Alachlor	µg/L	0.5	-	ND	-	5	IMAC
Aldicarb	µg/L	6	-	ND	-	9	MAC
Atrazine + N-dealkylated met.	µg/L	1	-	ND	-	5	IMAC
Azinphos-methyl	µg/L	2	-	ND	-	20	MAC
Bendiocarb	µg/L	5	-	ND	-	40	MAC
Bromoxynil	µg/L	0.5	-	ND	-	5	IMAC
Carbaryl	µg/L	5	-	ND	-	90	MAC
Carbofuran	µg/L	2	-	ND	-	90	MAC
Chlorpyrifos	µg/L	1	-	ND	-	90	MAC
Cyanazine	µg/L	1	-	ND	-	10	IMAC
Diazinon	µg/L	2	-	ND	-	20	MAC
Dicamba	µg/L	10	-	ND	-	120	MAC
Dichlorophenol, 2,4-	µg/L	0.2	-	ND	-	900	MAC
2,4-D	µg/L	10	-	ND	-	100	IMAC
Diclofop-methyl	µg/L	0.9	-	ND	-	9	MAC
Dimethoate	µg/L	2	-	ND	-	20	IMAC
Dinoseb	µg/L	1	-	ND	-	10	MAC
Diquat	µg/L	5	-	ND	-	70	MAC
Diuron	µg/L	10	-	ND	-	150	MAC
Glyphosate	µg/L	25	-	ND	-	280	IMAC
Malathion	µg/L	10	-	ND	-	190	MAC
Metolachlor	µg/L	5	-	ND	-	50	IMAC
Metribuzin	µg/L	5	-	ND	-	80	MAC
Paraquat	µg/L	1	-	ND	-	10	IMAC
Parathion	µg/L	5	-	ND	-	50	MAC
Pentachlorophenol	µg/L	0.2	-	ND	-	60, 30	MAC,AO
Phorate	µg/L	0.5	-	ND	-	2	IMAC
Picloram	µg/L	10	-	ND	-	190	IMAC
Prometryne	µg/L	0.2	-	ND	-	1	IMAC
Simazine	µg/L	1	-	ND	-	10	IMAC
Temephos	µg/L	25	-	ND	-	280	IMAC
Terbufos	µg/L	0.7	-	ND	-	1	IMAC
Tetrachlorophenol, 2,3,4,6-	µg/L	0.1	-	ND	-	100, 1	MAC,AO
Triallate	µg/L	20	-	ND	-	230	MAC
Trichlorophenol, 2,4,6-	µg/L	0.2	-	ND	-	5, 2	MAC,AO
2,4,5-T	µg/L	22	-	ND	-	280, 20	MAC,AO
Trifluralin	µg/L	1	-	ND	-	45	IMAC

- = Not Requested/Analyzed

ND = Not Detected

<sup>A</sup> = Subcontracted to external laboratory



Certified by,  
 Greg Clarkin, B.Sc., C.Chem.  
 Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

# REPORT OF ANALYSIS

ARECO CANADA - A Division of Caduceon Enterprises Inc., 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	A230359	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	11-Feb-03	P.O. NUMBER:	-
DATE REPORTED:	06-Mar-03	REPORT TO:	Richard Guertin

PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
<b>OC Pesticides/PCB's</b>							
Date Collected	dd-mmm		-	10-Feb	-		
Aldrin & Dieldrin	µg/L	0.05	-	ND	-	0.7	MAC
Chlordane (Total)	µg/L	0.2	-	ND	-	7	MAC
DDT + metabolites	µg/L	0.46	-	ND	-	30	MAC
Heptachlor + Hept. Epoxide	µg/L	0.1	-	ND	-	3	MAC
Lindane	µg/L	0.1	-	ND	-	4	MAC
Methoxychlor	µg/L	10	-	ND	-	900	MAC
PCB's	µg/L	0.05	-	ND	-	3	IMAC

ND = Not Detected

tr = Trace amounts detected

M.D.L. = Method Detection Limit

ODWS = Ontario Drinking Water Standards, August 2000

AO = Aesthetic Objective

OG = Operational Guideline

MAC = Maximum Acceptable Concentration

IMAC = Interim Maximum Acceptable Concentration

<sup>^</sup> = Subcontracted to external laboratory



Certified by,  
Greg Clarkin, B.Sc., C.Chem.  
Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

CLIENT: Town of Hawkesbury  
ADDRESS: W.T.P. 670 Main St. West  
Hawkesbury, ON  
K6A 2J3

CLIENT JOB NUMBER: 9205

ATTENTION: Richard Guertin

REPORT DATE: 06-Mar-03

ANALYTICAL REPORT

ARECO LABORATORY I.D.: A230359

P.O. NUMBER: -

DATE RECEIVED: 11-Feb-03

TIME RECEIVED: 1:35 PM

SAMPLE MATRIX: Water

# OF SAMPLES RECEIVED: 3

ANALYSES	ANALYST	QTY	DATE EXTRACTED	DATE ANALYZED	TIME ANALYZED	ANALYTICAL METHOD	METHOD REFERENCE
Nitrogen - Ammonia (N)	S.L.	3	NA	12-Feb-03	2:13 PM	Colour-Automated	EPA 350.2
Nitrogen - Kjeldahl (N)	S.L.	3	12-Feb-03	12-Feb-03	4:50 PM	Colour-Automated	EPA 351.2
DOC	D.S.	3	NA	17-Feb-03	9:30 AM	Combustion-IR	EPA 415.1
Phenols	N.L.	1	NA	12-Feb-03	1:23 PM	Colour-Automated	EPA 420.2
Volatile Organic Cmpds	G.M.	3	16-Feb-03	16-Feb-03	9:25 PM	P & T GC/MS	EPA 8260

- = Not Requested/Analyzed

NA = Not Applicable

  
\_\_\_\_\_  
Greg Clarkin, B.Sc., C.Chem.  
Laboratory Director  
ARECO CANADA INC

### QUALITY CONTROL REPORT

ARECO CANADA - A Division of Caduceon Enterprises Inc., 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	A230359	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO:	9205
DATE SUBMITTED:	11-Feb-03	P.O. NUMBER:	-
DATE REPORTED:	06-Mar-03	REPORT TO:	Richard Guertin

PARAMETERS	QC DATA					
	Matrix Spike		Duplicate R.P.D.	Lab Blank	QC Sample	
	Found (% Rec.)	Limits (% Rec.)			Found (% Rec.)	Limits (% Rec.)
Nitrogen - Ammonia (N)	103	70-130	4.2	ND	102	89-111
Nitrogen - Kjeldahl (N)	97	62-138	1.0	ND	102	84-116
DOC	82	74-126	10.9	ND	100	82-119
Phenols	107	69-131	ND	ND	100	85-115

- = Not Requested/Analyzed

ND = Not Detected

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem.,  
Laboratory Director

**QUALITY CONTROL REPORT**

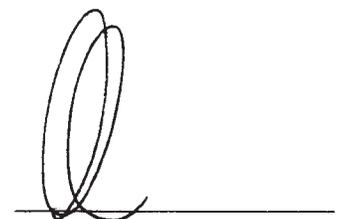
Lab Control Sample (LCS): V31602CS.1  
 Lab Method Blank: V31602MB.1  
 Lab Control Duplicate: V31602CD.1  
 Lab Matrix Spike: V31602MS.1

Instrument I.D.: Saturn 2000. 03964  
 Calibration File ID.: V32801CF.1

PARAMETERS	Matrix Spike (% Rec.)		Duplicate		Lab	LCS Sample (% Rec.)	
	Found	Limits	R.P.D.	Limits (%)	Blank	Found	Limits
Vinyl Chloride	113	66-134	ND	20	ND	113	67-133
1,1-Dichloroethene	114	58-142	ND	20	ND	117	36-164
Methylene Chloride	117	65-135	ND	20	ND	130	54-146
Chloroform	116	72-128	ND	20	ND	105	80-120
Benzene	107	82-118	ND	20	ND	91	82-118
Carbon Tetrachloride	112	77-123	ND	20	ND	110	80-120
Trichloroethene	116	81-119	ND	20	ND	105	85-115
Chlorobenzene	110	79-121	ND	20	ND	104	85-115
Bromodichloromethane	110	67-133	ND	20	ND	104	87-113
Toluene	107	79-121	ND	20	ND	105	79-121
Dibromochloromethane	117	70-130	ND	20	ND	105	85-115
Tetrachloroethene	119	78-122	ND	20	ND	111	74-126
1,2-Dichloroethane	96	76-124	ND	20	ND	110	87-113
Ethylbenzene	101	75-125	ND	20	ND	93	80-120
m,p-Xylene	116	71-129	ND	20	ND	98	79-121
o-Xylene	115	78-122	ND	20	ND	107	82-118
Bromoform	119	65-135	ND	20	ND	94	75-125
1,4-Dichlorobenzene	103	71-129	ND	20	ND	82	82-118
1,2-Dichlorobenzene	102	66-133	ND	20	ND	91	82-118
<b>Surrogate % Recovery</b>							
1,2-Dichloroethane-d4	107	82-118			98	113	78-122
Toluene-d8	98	81-119			100	100	85-115
4-Bromofluorobenzene	106	79-121			102	86	89-111

- = Not Requested/Analyzed  
 ND = Not Detected  
 NA = Not Applicable

  
 Gordon Murphy  
 Supervisor, Organic Chemistry

  
 Greg Clarkin, B.Sc., C.Chem.,  
 Lab Director

***APPENDIX «B »***

# REPORT OF ANALYSIS

CADUCEON ENVIRONMENTAL LABORATORIES, 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	230006465	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	22-May-03	P.O. NUMBER:	-
DATE REPORTED:	25-Jul-03	REPORT TO:	Richard Guertin

WATERWORKS NUMBER: 220002832

PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
Date Collected:	dd-mmm		21-May	21-May	21-May		
Laboratory I.D.			1	2	3		
<b>Physical:</b>							
Conductivity	µS/cm	1	83	116	155		
<b>Inorganics - Non-Metals:</b>							
Chloride	mg/L	0.5	8.0	9.8	10.6	250	AO
Fluoride	mg/L	0.1	-	ND	ND	1.5	MAC
Nitrate(N)	mg/L	0.1	0.4	0.3	0.4	10.0	MAC
Nitrite(N)	mg/L	0.1	ND	ND	ND	1.0	MAC
Nitrogen-Ammonia(N)	mg/L	0.01	0.03	ND	ND		
Nitrogen-Kjeldahl(N)	mg/L	0.05	0.31	0.12	0.11		
Nitrogen-Organic	mg/L	0.05	0.28	0.12	0.11	0.15	OG
Sulphate	mg/L	1	9	25	26	500	AO
<b>Inorganics - Metals:</b>							
Aluminum	mg/L	0.03	0.23	0.03	0.04	0.10	OG
Arsenic	mg/L	0.001	0.001	0.001	ND	0.025	IMAC
Calcium	mg/L	0.03	13.4	19.6	19.5		
Copper	mg/L	0.01	ND	ND	ND	1.0	AO
Iron	mg/L	0.02	0.33	0.03	0.04	0.30	AO
Lead	mg/L	0.0002	ND	ND	ND	0.01	MAC
Manganese	mg/L	0.01	0.02	0.01	0.020	0.05	AO
Sodium	mg/L	0.2	6	6.5	7	200, 20	AO, MAC
Zinc	mg/L	0.01	ND	ND	ND	5.0	AO

M.D.L. = Method Detection Limit

- = Not Requested/Analyzed

ND = Not Detected

<sup>A</sup> = Subcontracted to external laboratory

J.B.



Certified by,  
**Greg Clarkin, B.Sc., C.Chem.**  
 Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

# REPORT OF ANALYSIS

CADUCEON ENVIRONMENTAL LABORATORIES, 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	230006465	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	22-May-03	P.O. NUMBER:	-
DATE REPORTED:	25-Jul-03	REPORT TO:	Richard Guertin

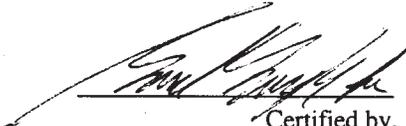
PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
<b>Organics:</b>							
DOC	mg/L	0.5	5.3	2.5	2.3	5.0	AO
Phenols	mg/L	0.001	ND	-	-		
<b>Volatile Organics:</b>							
Benzene	µg/L	0.5	-	ND	-	5	MAC
Carbon Tetrachloride	µg/L	0.2	-	ND	-	5	MAC
Chlorobenzene	µg/L	0.2	-	ND	-	80,30	MAC,AO
Dichlorobenzene, 1,2-	µg/L	0.1	-	ND	-	200,3	MAC,AO
Dichlorobenzene, 1,4-	µg/L	0.2	-	ND	-	5,1	MAC,AO
Dichloroethane, 1,2-	µg/L	0.1	-	ND	-	5	IMAC
Dichloroethylene, 1,1-	µg/L	0.1	-	ND	-	14	MAC
Ethylbenzene	µg/L	0.5	-	ND	-	2.4	AO
Methylene Chloride	µg/L	3.0	-	ND	-	50	MAC
Toluene	µg/L	0.5	-	ND	-	24	AO
Tetrachloroethylene	µg/L	0.2	-	ND	-	30	MAC
Trichloroethylene	µg/L	0.1	-	ND	-	50	MAC
Vinyl Chloride	µg/L	0.3	-	ND	-	2	MAC
Xylenes, o,m,p-	µg/L	2.0	-	ND	-	300	AO
Bromodichloromethane	µg/L	0.1	-	5.4	7.8		
Bromoform	µg/L	0.1	-	ND	ND		
Chloroform	µg/L	0.3	-	62.1	84.0		
Dibromochloromethane	µg/L	0.1	-	0.3	0.5		
<b>Trihalomethanes - Total</b>	<b>µg/L</b>	<b>1.0</b>	<b>-</b>	<b>67.8</b>	<b>92.3</b>	<b>100</b>	<b>MAC</b>
<b>Surrogate % Recovery</b>							
1,2-Dichloroethane-d4			-	98	97		
Toluene-d8			-	107	107		
4-Bromofluorobenzene			-	99	101		

M.D.L. = Method Detection Limit

- = Not Requested/Analyzed

ND = Not Detected

<sup>A</sup> = Subcontracted to external laboratory



Certified by,  
Greg Clarkin, B.Sc., C.Chem.  
Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

# REPORT OF ANALYSIS

CADUCEON ENVIRONMENTAL LABORATORIES, 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.: 230006465  
 SAMPLE MATRIX: Water  
 DATE SUBMITTED: 22-May-03  
 DATE REPORTED: 25-Jul-03

CLIENT: Town of Hawkesbury  
 JOB/PROJECT NO.: 9205  
 P.O. NUMBER: -  
 REPORT TO: Richard Guertin

PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
Date Collected	dd-mmm		-	21-May	-		
Alachlor	µg/L	0.5	-	ND	-	5	IMAC
Aldicarb	µg/L	6	-	ND	-	9	MAC
Atrazine + N-dealkylated met.	µg/L	1	-	ND	-	5	IMAC
Azinphos-methyl	µg/L	2	-	ND	-	20	MAC
Bendiocarb	µg/L	5	-	ND	-	40	MAC
Bromoxynil	µg/L	0.5	-	ND	-	5	IMAC
Carbaryl	µg/L	5	-	ND	-	90	MAC
Carbofuran	µg/L	2	-	ND	-	90	MAC
Chlorpyrifos	µg/L	1	-	ND	-	90	MAC
Cyanazine	µg/L	1	-	ND	-	10	IMAC
Diazinon	µg/L	2	-	ND	-	20	MAC
Dicamba	µg/L	10	-	ND	-	120	MAC
Dichlorophenol, 2,4-	µg/L	0.2	-	ND	-	900	MAC
2,4-D	µg/L	10	-	ND	-	100	IMAC
Diclofop-methyl	µg/L	0.9	-	ND	-	9	MAC
Dimethoate	µg/L	2	-	ND	-	20	IMAC
Dinoseb	µg/L	1	-	ND	-	10	MAC
Diquat	µg/L	5	-	ND	-	70	MAC
Diuron	µg/L	10	-	ND	-	150	MAC
Glyphosate	µg/L	25	-	ND	-	280	IMAC
Malathion	µg/L	10	-	ND	-	190	MAC
Metolachlor	µg/L	5	-	ND	-	50	IMAC
Metribuzin	µg/L	5	-	ND	-	80	MAC
Paraquat	µg/L	1	-	ND	-	10	IMAC
Parathion	µg/L	5	-	ND	-	50	MAC
Pentachlorophenol	µg/L	0.2	-	ND	-	60, 30	MAC,AO
Phorate	µg/L	0.5	-	ND	-	2	IMAC
Picloram	µg/L	10	-	ND	-	190	IMAC
Prometryne	µg/L	0.2	-	ND	-	1	IMAC
Simazine	µg/L	1	-	ND	-	10	IMAC
Temephos	µg/L	25	-	ND	-	280	IMAC
Terbufos	µg/L	0.7	-	ND	-	1	IMAC
Tetrachlorophenol, 2,3,4,6-	µg/L	0.1	-	ND	-	100, 1	MAC,AO
Triallate	µg/L	20	-	ND	-	230	MAC
Trichlorophenol, 2,4,6-	µg/L	0.2	-	ND	-	5, 2	MAC,AO
2,4,5-T	µg/L	22	-	ND	-	280, 20	MAC,AO
Trifluralin	µg/L	1	-	ND	-	45	IMAC

- = Not Requested/Analyzed

ND = Not Detected

<sup>A</sup> = Subcontracted to external laboratory



Certified by,  
 Greg Clarkin, B.Sc., C.Chem.  
 Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

# REPORT OF ANALYSIS

CADUCEON ENVIRONMENTAL LABORATORIES, 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	230006465	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	22-May-03	P.O. NUMBER:	-
DATE REPORTED:	25-Jul-03	REPORT TO:	Richard Guertin

PARAMETERS	UNITS	M.D.L.	RESULTS			ODWS	
			Raw Water	Treated Water	Distribution Water	Objective	Type of Objective
<b>OC Pesticides/PCB's</b>							
Date Collected	dd-mmm		-	21-May	-		
Aldrin & Dieldrin	µg/L	0.05	-	ND	-	0.7	MAC
Chlordane (Total)	µg/L	0.2	-	ND	-	7	MAC
DDT + metabolites	µg/L	0.46	-	ND	-	30	MAC
Heptachlor + Hept. Epoxide	µg/L	0.1	-	ND	-	3	MAC
Lindane	µg/L	0.1	-	ND	-	4	MAC
Methoxychlor	µg/L	10	-	ND	-	900	MAC
PCB's	µg/L	0.05	-	ND	-	3	IMAC

ND = Not Detected

tr = Trace amounts detected

M.D.L. = Method Detection Limit

ODWS = Ontario Drinking Water Standards, August 2000

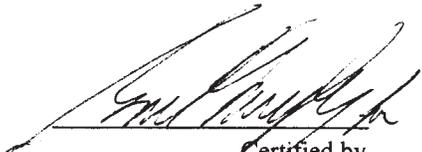
AO = Aesthetic Objective

OG = Operational Guideline

MAC = Maximum Acceptable Concentration

IMAC = Interim Maximum Acceptable Concentration

<sup>A</sup> = Subcontracted to external laboratory



Certified by,  
**Greg Clarkin, B.Sc., C.Chem.**  
 Laboratory Director

Address all Inquiries to the Laboratory Director/Manager.

CLIENT: Town of Hawkesbury  
ADDRESS: W.T.P. 670 Main St. West  
Hawkesbury, ON  
K6A 2J3

CLIENT JOB NUMBER: 9205

ATTENTION: Richard Guertin

REPORT DATE: 25-Jul-03

ANALYTICAL REPORT

ARECO LABORATORY I.D.: 230006465

P.O. NUMBER: -

DATE RECEIVED: 22-May-03

TIME RECEIVED: -

SAMPLE MATRIX: Water

# OF SAMPLES RECEIVED: 3

ANALYSES	ANALYST	QTY	DATE EXTRACTED	DATE ANALYZED	TIME ANALYZED	ANALYTICAL METHOD	METHOD REFERENCE
Nitrogen - Ammonia (N)	S.L.	3	NA	27-May-03	3:02 PM	Colour-Automated	EPA 350.2
Nitrogen - Kjeldahl (N)	S.L.	3	26-May-03	27-May-03	11:11 AM	Colour-Automated	EPA 351.2
DOC	S.C.	3	NA	30-May-03	2:00PM	UV/Oxidation-IR	EPA 415.1
Phenols	N.L.	1	NA	27-May-03	11:37 AM	Colour-Automated	EPA 420.2
Volatile Organic Cmpds	S.T.	3	28-May-03	28-May-03	2:01 AM	P & T GC/MS	EPA 8260

- = Not Requested/Analyzed  
NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem.  
Laboratory Director  
ARECO CANADA INC

## QUALITY CONTROL REPORT

CADUCEON ENVIRONMENTAL LABORATORIES, 40 CAMELOT DR., NEPEAN, ONTARIO, K2G 5X8

TELEPHONE: (613) 228-1145

FACSIMILE: (613) 228-1148

LABORATORY I.D.:	230006465	CLIENT:	Town of Hawkesbury
SAMPLE MATRIX:	Water	JOB/PROJECT NO.:	9205
DATE SUBMITTED:	22-May-03	P.O. NUMBER:	-
DATE REPORTED:	25-Jul-03	REPORT TO:	Richard Guertin

PARAMETERS	QC DATA					
	Matrix Spike		Duplicate R.P.D.	Lab Blank	QC Sample	
	Found (% Rec.)	Limits (% Rec.)			Found (% Rec.)	Limits (% Rec.)
Nitrogen - Ammonia (N)	104	70-130	0.8	ND	98	89-111
Nitrogen - Kjeldahl (N)	114	62-138	ND	ND	96	84-116
DOC	108	74-126	52.63	0.4	111	82-119
Phenols	97	69-131	ND	ND	100	85-115

- = Not Requested/Analyzed

ND = Not Detected

NA = Not Applicable

  
 \_\_\_\_\_  
 Greg Clarkin, B.Sc., C.Chem.,  
 Laboratory Director

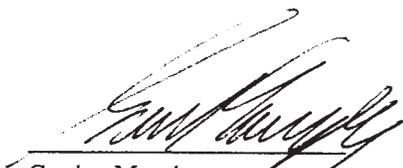
**QUALITY CONTROL REPORT**

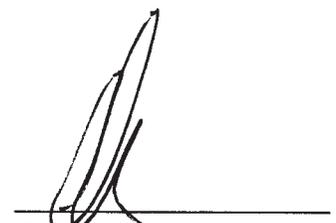
Lab Control Sample (LCS): V32705CS.1  
 Lab Method Blank: V32705MB.1  
 Lab Control Duplicate: V32705CD.1  
 Lab Matrix Spike: V32705MS.1

Instrument I.D.: Saturn 2000.03964  
 Calibration File ID.: V31405CF.1

PARAMETERS	Matrix Spike (% Rec.)		Duplicate		Lab	LCS Sample (% Rec.)	
	Found	Limits	R.P.D.	Limits (%)	Blank	Found	Limits
Vinyl Chloride	109	66-134	ND	20	ND	94	67-133
1,1-Dichloroethene	94	58-142	ND	20	ND	87	36-164
Methylene Chloride	117	65-135	ND	20	ND	111	54-146
Chloroform	113	72-128	ND	20	ND	105	80-120
Benzene	99	82-118	ND	20	ND	104	82-118
Carbon Tetrachloride	93	77-123	ND	20	ND	93	80-120
Trichloroethene	113	81-119	ND	20	ND	105	85-115
Chlorobenzene	104	79-121	ND	20	ND	113	85-115
Bromodichloromethane	115	67-133	ND	20	ND	104	87-113
Toluene	108	79-121	ND	20	ND	109	79-121
Dibromochloromethane	123	70-130	ND	20	ND	105	85-115
Tetrachloroethene	105	78-122	ND	20	ND	100	74-126
1,2-Dichloroethane	107	76-124	ND	20	ND	105	87-113
Ethylbenzene	101	75-125	ND	20	ND	98	80-120
m,p-Xylene	90	71-129	ND	20	ND	99	79-121
o-Xylene	96	78-122	ND	20	ND	103	82-118
Bromoform	126	65-135	ND	20	ND	94	75-125
1,4-Dichlorobenzene	102	71-129	ND	20	ND	109	82-118
1,2-Dichlorobenzene	104	66-133	ND	20	ND	108	82-118
<b>Surrogate % Recovery</b>							
1,2-Dichloroethane-d4	91	82-118			98	86	78-122
Toluene-d8	109	81-119			100	110	85-115
4-Bromofluorobenzene	98	79-121			102	94	89-111

- = Not Requested/Analyzed  
 ND = Not Detected  
 NA = Not Applicable

  
 Gordon Murphy  
 Supervisor, Organic Chemistry

  
 Greg Clarkin, B.Sc., C.Chem.,  
 Lab Director

***APPENDIX « C »***



C.O.C.: 41356

## CERTIFICATE OF ANALYSIS

### Final Report

REPORT No. B03-7365

**Report To:**

**Hawkesbury, Town of**  
670 Main St. West  
Hawkesbury Ontario K6A 2J3  
**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**

40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 21-Aug-03  
DATE REPORTED: 20-Oct-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

<b>Client I.D.:</b>	Raw	Treated Water	Distribution	
<b>Sample I.D.:</b>	B03-7365-1	B03-7365-2	B03-7365-3	
<b>Date Collected:</b>	20-Aug-2003	20-Aug-2003	20-Aug-2003	

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Raw	Treated Water	Distribution
Conductivity	µMho/cm	1	SM 2510	22-Aug-03	67	103	104
Fluoride	mg/L	0.1	EPA 300.0	26-Aug-03	--	0.2	0.3
Chloride	mg/L	0.5	EPA 300.0	26-Aug-03	3.1	5.4	5.6
Nitrite (N)	mg/L	0.1	EPA 300.0	26-Aug-03	< 0.1	< 0.1	< 0.1
Nitrate (N)	mg/L	0.1	EPA 300.0	26-Aug-03	0.2	0.2	0.2
Sulphate	mg/L	1	EPA 300.0	26-Aug-03	6	18	18
Aluminum	mg/L	0.005	SM 3120	22-Aug-03	0.206	0.029	0.029
Antimony	mg/L	0.001	SM 3114	22-Aug-03	< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.001	SM 3114	22-Aug-03	< 0.001	< 0.001	< 0.001
Calcium	mg/L	0.02	SM 3120	22-Aug-03	7.39	12.6	13.1
Copper	mg/L	0.002	SM 3120	22-Aug-03	0.002	< 0.002	0.005
Iron	mg/L	0.005	SM 3120	22-Aug-03	0.246	0.014	0.011
Lead	mg/L	0.0002	SM 3113	22-Aug-03	< 0.0002	0.0004	< 0.0002
Manganese	mg/L	0.001	SM 3120	22-Aug-03	0.014	0.007	0.009
Sodium	mg/L	0.2	SM 3120	22-Aug-03	3.2	3.7	3.8
Zinc	mg/L	0.005	SM 3120	22-Aug-03	0.005	< 0.005	0.005
Total Ammonia (N)	mg/L	0.01	EPA 350.2	22-Aug-03	< 0.01	0.03	0.01
Total Kjeldahl Nitrogen	mg/L	0.05	EPA 351.2	27-Aug-03	0.25	1.00	0.09
Phenol	mg/L	0.001	EPA 420.2	26-Aug-03	< 0.001	--	--
DOC	mg/L	1.0	EPA 415.1	25-Aug-03	6.0	--	--
DOC	mg/L	0.4	Subcontract	08-Sep-03	--	2.9	2.8
Benzene	µg/L	0.5	EPA 8260	02-Sep-03	--	< 0.5	--
Carbon Tetrachloride	µg/L	0.3	EPA 8260	02-Sep-03	--	< 0.3	--
Chlorobenzene	µg/L	0.1	EPA 8260	02-Sep-03	--	< 0.1	--
Dichlorobenzene, 1,2-	µg/L	0.4	EPA 8260	02-Sep-03	--	< 0.4	--

Greg Clarkin, BSc, C.Chem  
Lab Manager - Ottawa District

MDL = Method Detection Limit

Accredited by the Standards Council of Canada and CAEAL for specific tests.

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.

C.O.C.: 41356

## CERTIFICATE OF ANALYSIS Final Report

REPORT No. B03-7365

**Report To:**

**Hawkesbury, Town of**  
670 Main St. West  
Hawkesbury Ontario K6A 2J3  
**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**  
40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 21-Aug-03  
DATE REPORTED: 20-Oct-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

Client I.D.:	Raw	Treated Water	Distribution
Sample I.D.:	B03-7365-1	B03-7365-2	B03-7365-3
Date Collected:	20-Aug-2003	20-Aug-2003	20-Aug-2003

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Raw	Treated Water	Distribution
Dichlorobenzene, 1,4-	µg/L	0.4	EPA 8260	02-Sep-03	--	< 0.4	--
Dichloroethane, 1,2-	µg/L	0.2	EPA 8260	02-Sep-03	--	< 0.2	--
Dichloroethene, 1,1-	µg/L	0.3	EPA 8260	02-Sep-03	--	< 0.3	--
Ethylbenzene	µg/L	0.3	EPA 8260	02-Sep-03	--	< 0.3	--
Methylene Chloride	µg/L	0.3	EPA 8260	02-Sep-03	--	< 0.3	--
Tetrachloroethene	µg/L	0.2	EPA 8260	02-Sep-03	--	< 0.2	--
Trichloroethene	µg/L	0.1	EPA 8260	02-Sep-03	--	< 0.1	--
Toluene	µg/L	0.5	EPA 8260	02-Sep-03	--	< 0.5	--
Vinyl Chloride	µg/L	0.4	EPA 8260	02-Sep-03	--	< 0.4	--
Xylene, m,p,o-	µg/L	2.0	EPA 8260	02-Sep-03	--	< 2.0	--
Bromodichloromethane	µg/L	0.1	EPA 8260	02-Sep-03	--	4.2	5.1
Bromoform	µg/L	0.1	EPA 8260	02-Sep-03	--	< 0.1	< 0.1
Chloroform	µg/L	0.3	EPA 8260	02-Sep-03	--	69.3	82.8
Dibromochloromethane	µg/L	0.1	EPA 8260	02-Sep-03	--	0.2	0.2
Total Trihalomethanes	µg/L	0.3	EPA 8260	02-Sep-03	--	66.7	88.1
Dichloroethane-d4,1,2-	%		EPA 8260	02-Sep-03	--	107	108
Toluene-d8	%		EPA 8260	02-Sep-03	--	104	105
Bromofluorobenzene,4-	%		EPA 8260	02-Sep-03	--	101	97
Alachlor	µg/L	0.5	EPA 8270	09-Sep-03	--	< 0.5	--
Aldicarb	µg/L	6	EPA 8270	09-Sep-03	--	< 6	--
Atrazine + Metabolites	µg/L	1	EPA 8270	09-Sep-03	--	< 1	--
Azinphos-methyl	µg/L	2	EPA 8270	09-Sep-03	--	< 2	--
Bendiocarb	µg/L	5	EPA 8270	09-Sep-03	--	< 5	--
Benzo(a)pyrene	µg/L	0.01	EPA 8270	09-Sep-03	--	< 0.01	--
Bromoxynil	µg/L	0.5	EPA 8270	09-Sep-03	--	< 0.5	--



Greg Clarkin, BSc, C.Chem  
Lab Manager - Ottawa District

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C.O.C.: 41356

## CERTIFICATE OF ANALYSIS Final Report

REPORT No. B03-7365

**Report To:**

Hawkesbury, Town of  
670 Main St. West  
Hawkesbury Ontario K6A 2J3

**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**

40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 21-Aug-03  
DATE REPORTED: 20-Oct-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

Client I.D.:	Raw	Treated Water	Distribution	
Sample I.D.:	B03-7365-1	B03-7365-2	B03-7365-3	
Date Collected:	20-Aug-2003	20-Aug-2003	20-Aug-2003	

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Raw	Treated Water	Distribution
Carbaryl	µg/L	5	EPA 8270	09-Sep-03	--	< 5	--
Carbofuran	µg/L	2	EPA 8270	09-Sep-03	--	< 2	--
Chlorpyrifos	µg/L	1	EPA 8270	09-Sep-03	--	< 1	--
Cyanazine	µg/L	1	EPA 8270	09-Sep-03	--	< 1	--
Diazinon	µg/L	2	EPA 8270	09-Sep-03	--	< 2	--
Dicamba	µg/L	10	EPA 8270	09-Sep-03	--	< 10	--
Dichlorophenol, 2,4-	µg/L	0.2	EPA 8270	09-Sep-03	--	< 0.2	--
Diclofop-methyl	µg/L	0.9	EPA 8270	09-Sep-03	--	< 0.9	--
Dimethoate	µg/L	2	EPA 8270	09-Sep-03	--	< 2	--
Dinoseb	µg/L	1	EPA 8270	09-Sep-03	--	< 1	--
Diuron	µg/L	10	EPA 8270	09-Sep-03	--	< 10	--
Malathion	µg/L	10	EPA 8270	09-Sep-03	--	< 10	--
Metolachlor	µg/L	5	EPA 8270	09-Sep-03	--	< 5	--
Metribuzin	µg/L	5	EPA 8270	09-Sep-03	--	< 5	--
Parathion	µg/L	5	EPA 8270	09-Sep-03	--	< 5	--
Pentachlorophenol	µg/L	0.2	EPA 8270	09-Sep-03	--	< 0.2	--
Phorate	µg/L	0.5	EPA 8270	09-Sep-03	--	< 0.5	--
Picloram	µg/L	10	EPA 8270	09-Sep-03	--	< 10	--
Prometryne	µg/L	0.2	EPA 8270	09-Sep-03	--	< 0.2	--
Simazine	µg/L	1	EPA 8270	09-Sep-03	--	< 1	--
Temephos	µg/L	25	EPA 8270	09-Sep-03	--	< 25	--
Terbufos	µg/L	0.7	EPA 8270	09-Sep-03	--	< 0.7	--
Tetrachlorophenol, 2,3,4,6-	µg/L	0.1	EPA 8270	09-Sep-03	--	< 0.1	--
Triallate	µg/L	20	EPA 8270	09-Sep-03	--	< 20	--
Trichlorophenol 2,4,6-	µg/L	0.2	EPA 8270	09-Sep-03	--	< 0.2	--



Greg Clarkin, BSc, C.Chem  
Lab Manager - Ottawa District

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Accredited by the Standards Council of Canada and CAEAL for specific tests.

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C.O.C.: 41356

**CERTIFICATE OF ANALYSIS**  
**Final Report**

REPORT No. B03-7365

**Report To:**

**Hawkesbury, Town of**  
670 Main St. West  
Hawkesbury Ontario K6A 2J3

**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**

40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 21-Aug-03  
DATE REPORTED: 20-Oct-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

Client I.D.:	Raw	Treated Water	Distribution	
Sample I.D.:	B03-7365-1	B03-7365-2	B03-7365-3	
Date Collected:	20-Aug-2003	20-Aug-2003	20-Aug-2003	

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Raw	Treated Water	Distribution
Trichlorophenoxy acetic acid, 2,4,5	µg/L	22	EPA 8270	09-Sep-03	--	< 22	--
Trifluralin	µg/L	1	EPA 8270	09-Sep-03	--	< 1	--
Aldrin & Dieldrin	µg/L	0.05	EPA 8080	09-Sep-03	--	< 0.05	--
Chlordane (Total)	µg/L	0.6	EPA 8080	09-Sep-03	--	< 0.6	--
Dichlorophenoxy acetic acid, 2,4- (2,4 D)	µg/L	10	EPA 8080	09-Sep-03	--	< 10	--
Heptachlor + Heptachlor Epoxide	µg/L	0.1	EPA 8080	09-Sep-03	--	< 0.1	--
Lindane (total)	µg/L	0.1	EPA 8080	09-Sep-03	--	< 0.1	--
Methoxychlor	µg/L	10	EPA 8080	09-Sep-03	--	< 10	--
PCB	µg/L	0.05	EPA 8080	09-Sep-03	--	< 0.05	--
DDT+Metabolites	µg/L	1	EPA 8080	09-Sep-03	--	< 1	--
Diquat	µg/L	5	EPA 549.1	09-Sep-03	--	< 5	--
Paraquat	µg/L	1	EPA 549.1	09-Sep-03	--	< 1	--
Glyphosate	µg/L	25	EPA 547	09-Sep-03	--	< 25	--



Greg Clarkin, BSc, C.Chem  
Lab Manager - Ottawa District

MDL = Method Detection Limit

Accredited by the Standards Council of Canada and CAEAL for specific tests.

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.

***APPENDIX « D »***

O.C.: 48504

## CERTIFICATE OF ANALYSIS Final Report

REPORT No. B03-12570

**Report To:**

Hawkesbury, Town of  
670 Main St. West  
Hawkesbury Ontario K6A 2J3  
**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**  
40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 20-Nov-03  
DATE REPORTED: 18-Dec-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Client I.D.:	Raw	Treated	Distribution
					Sample I.D.:	B03-12570-1	B03-12570-2	B03-12570-3
					Date Collected:	19-Nov-2003	19-Nov-2003	19-Nov-2003
Conductivity	µMho/cm	1	SM 2510	25-Nov-03		115	167	170
Fluoride	mg/L	0.1	EPA 300.0	21-Nov-03		--	0.6	0.6
Chloride	mg/L	0.5	EPA 300.0	24-Nov-03		5.0	7.0	8.4
Nitrite (N)	mg/L	0.1	EPA 300.0	24-Nov-03		< 0.1	< 0.1	< 0.1
Nitrate (N)	mg/L	0.1	EPA 300.0	24-Nov-03		0.4	0.4	0.4
Sulphate	mg/L	1	EPA 300.0	24-Nov-03		9	29	29
Calcium	mg/L	0.02	SM 3120	21-Nov-03		13.5	21.0	20.9
Sodium	mg/L	0.2	SM 3120	21-Nov-03		4.8	5.7	6.6
Aluminum	mg/L	0.005	SM 3120	21-Nov-03		0.311	0.024	0.021
Antimony	mg/L	0.001	SM 3114	21-Nov-03		< 0.001	< 0.001	< 0.001
Arsenic	mg/L	0.001	SM 3114	21-Nov-03		< 0.001	< 0.001	< 0.001
Barium	mg/L	0.001	SM 3120	21-Nov-03		0.023	0.017	0.018
Boron	mg/L	0.005	SM 3120	21-Nov-03		0.010	0.010	0.010
Cadmium	mg/L	0.0001	SM 3113	21-Nov-03		< 0.0001	< 0.0001	< 0.0001
Copper	mg/L	0.002	SM 3120	21-Nov-03		< 0.002	< 0.002	0.004
Iron	mg/L	0.005	SM 3120	21-Nov-03		0.428	0.014	0.021
Lead	mg/L	0.0002	SM 3113	21-Nov-03		< 0.0002	< 0.0002	< 0.0002
Manganese	mg/L	0.001	SM 3120	21-Nov-03		0.026	0.013	0.014
Mercury	mg/L	0.0001	SM 3112	24-Nov-03		< 0.0001	< 0.0001	< 0.0001
Selenium	mg/L	0.001	SM 3114	21-Nov-03		< 0.001	< 0.001	< 0.001
Uranium	mg/L	0.0001	EPA 200.8	21-Nov-03		0.0003	0.0002	0.0001
Zinc	mg/L	0.005	SM 3120	21-Nov-03		< 0.005	< 0.005	0.005
Total Ammonia (N)	mg/L	0.01	EPA 350.2	21-Nov-03		0.08	0.04	0.04
Total Kjeldahl Nitrogen	mg/L	0.05	EPA 351.2	25-Nov-03		0.34	0.09	0.10
Phenol	mg/L	0.001	EPA 420.2	21-Nov-03		< 0.001	--	--
DOC	mg/L	1.0	EPA 415.1	25-Nov-03		9.0	5.0	5.0



Greg Clarkin  
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit

Accredited by the Standards Council of Canada and CAEL for specific tests.

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior written consent from Caduceon Environmental Laboratories.



O.C.: 48504

## CERTIFICATE OF ANALYSIS Final Report

REPORT No. B03-12570

**Report To:**

Hawkesbury, Town of  
670 Main St. West  
Hawkesbury Ontario K6A 2J3  
**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**  
40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 20-Nov-03  
DATE REPORTED: 18-Dec-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

					Client I.D.:	Raw	Treated	Distribution	
					Sample I.D.:	B03-12570-1	B03-12570-2	B03-12570-3	
					Date Collected:	19-Nov-2003	19-Nov-2003	19-Nov-2003	
Parameter	Units	M.D.L.	Reference Method	Date Analyzed					
Benzene	µg/L	0.5	EPA 8260	24-Nov-03	--	< 0.5	--		
Carbon Tetrachloride	µg/L	0.2	EPA 8260	24-Nov-03	--	< 0.2	--		
Chlorobenzene	µg/L	0.2	EPA 8260	24-Nov-03	--	< 0.2	--		
Dichlorobenzene,1,2-	µg/L	0.1	EPA 8260	24-Nov-03	--	< 0.1	--		
Dichlorobenzene,1,4-	µg/L	0.2	EPA 8260	24-Nov-03	--	< 0.2	--		
Dichloroethane,1,2-	µg/L	0.1	EPA 8260	24-Nov-03	--	< 0.1	--		
Dichloroethene,1,1-	µg/L	0.1	EPA 8260	24-Nov-03	--	< 0.1	--		
o-thylbenzene	µg/L	0.5	EPA 8260	24-Nov-03	--	< 0.5	--		
Methylene Chloride	µg/L	0.3	EPA 8260	24-Nov-03	--	< 0.3	--		
Tetrachloroethene	µg/L	0.2	EPA 8260	24-Nov-03	--	< 0.2	--		
Toluene	µg/L	0.5	EPA 8260	24-Nov-03	--	< 0.5	--		
Trichloroethene	µg/L	0.1	EPA 8260	24-Nov-03	--	< 0.1	--		
Vinyl Chloride	µg/L	0.3	EPA 8260	24-Nov-03	--	< 0.3	--		
Xylene, m,p-	µg/L	1.0	EPA 8260	24-Nov-03	--	< 1.0	--		
Xylene, m,p,o-	µg/L	2.0	EPA 8260	24-Nov-03	--	< 2.0	--		
Xylene, o-	µg/L	0.5	EPA 8260	24-Nov-03	--	< 0.5	--		
Bromodichloromethane	µg/L	0.1	EPA 8260	24-Nov-03	--	2.6	4.5		
Bromoform	µg/L	0.1	EPA 8260	24-Nov-03	--	< 0.1	< 0.1		
Chloroform	µg/L	0.3	EPA 8260	24-Nov-03	--	25.2	50.5		
Dibromochloromethane	µg/L	0.1	EPA 8260	24-Nov-03	--	< 0.1	< 0.1		
Total Trihalomethanes	µg/L	0.3	EPA 8260	24-Nov-03	--	27.9	54.9		
Dichloroethane-d4,1,2-	%		EPA 8260	24-Nov-03	--	99	97		
Toluene-d8	%		EPA 8260	24-Nov-03	--	99	96		
Bromofluorobenzene,4-	%		EPA 8260	24-Nov-03	--	103	95		
Alachlor	µg/L	0.5	EPA 8270	25-Nov-03	--	< 0.5	--		
Aldicarb	µg/L	6	EPA 8270	25-Nov-03	--	< 6	--		

Greg Clarkin  
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit

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O.C.: 48504

## CERTIFICATE OF ANALYSIS Final Report

REPORT No. B03-12570

**Report To:**

Hawkesbury, Town of  
670 Main St. West  
Hawkesbury Ontario K6A 2J3

**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**

40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 20-Nov-03

DATE REPORTED: 18-Dec-03

SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:

P.O. NUMBER: Hawkesbury WTP

WATERWORKS NO. 220002832

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Client I.D.:			
					Raw	Treated	Distribution	
					Sample I.D.:			
					B03-12570-1	B03-12570-2	B03-12570-3	
					Date Collected:			
					19-Nov-2003	19-Nov-2003	19-Nov-2003	
Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Raw	Treated	Distribution	
Atrazine + Metabolites	µg/L	1	EPA 8270	25-Nov-03	--	< 1	--	
Azinphos-methyl	µg/L	2	EPA 8270	25-Nov-03	--	< 2	--	
Bendiocarb	µg/L	5	EPA 8270	25-Nov-03	--	< 5	--	
Benzo(a)pyrene	µg/L	0.01	EPA 8270	25-Nov-03	--	< 0.01	--	
Bromoxynil	µg/L	0.094	EPA 8270	25-Nov-03	--	< 0.094 <sup>2</sup>	--	
Carbaryl	µg/L	5	EPA 8270	25-Nov-03	--	< 5	--	
Carbofuran	µg/L	2	EPA 8270	25-Nov-03	--	< 2	--	
Chlorpyrifos	µg/L	1	EPA 8270	25-Nov-03	--	< 1	--	
Cyanazine	µg/L	1	EPA 8270	25-Nov-03	--	< 1	--	
Diazinon	µg/L	2	EPA 8270	25-Nov-03	--	< 2	--	
Dicamba	µg/L	10	EPA 8270	25-Nov-03	--	< 10	--	
Dichlorophenol, 2,4-	µg/L	0.2	EPA 8270	25-Nov-03	--	< 0.2	--	
Diclofop-methyl	µg/L	0.9	EPA 8270	25-Nov-03	--	< 0.9	--	
Dimethoate	µg/L	2	EPA 8270	25-Nov-03	--	< 2	--	
Dinoseb	µg/L	1	EPA 8270	25-Nov-03	--	< 1	--	
Diuron	µg/L	10	EPA 8270	25-Nov-03	--	< 10	--	
Malathion	µg/L	10	EPA 8270	25-Nov-03	--	< 10	--	
Metolachlor	µg/L	5	EPA 8270	25-Nov-03	--	< 5	--	
Metribuzin	µg/L	0.12	EPA 8270	25-Nov-03	--	< 0.12 <sup>2</sup>	--	
Parathion	µg/L	5	EPA 8270	25-Nov-03	--	< 5	--	
Pentachlorophenol	µg/L	0.2	EPA 8270	25-Nov-03	--	< 0.2	--	
Phorate	µg/L	0.5	EPA 8270	25-Nov-03	--	< 0.5	--	
Picloram	µg/L	10	EPA 8270	25-Nov-03	--	< 10	--	
Prometryne	µg/L	0.2	EPA 8270	25-Nov-03	--	< 0.2	--	
Simazine	µg/L	0.15	EPA 8270	25-Nov-03	--	< 0.15 <sup>2</sup>	--	
Temephos	µg/L	25	EPA 8270	25-Nov-03	--	< 25	--	

Greg Clarkin

Lab Manager - Ottawa District

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O.C.: 48504

## CERTIFICATE OF ANALYSIS Final Report

REPORT No. B03-12570

**Report To:**

Hawkesbury, Town of  
670 Main St. West  
Hawkesbury Ontario K6A 2J3  
**Attention:** Richard Guertin

**Caduceon Environmental Laboratories**  
40 Camelot Drive  
Ottawa Ontario K2G 5X8  
Tel: 228-1145  
Fax 228-1148

DATE SUBMITTED: 20-Nov-03  
DATE REPORTED: 18-Dec-03  
SAMPLE MATRIX: Drinking Water

JOB/PROJECT NO.:  
P.O. NUMBER: Hawkesbury WTP  
WATERWORKS NO. 220002832

Parameter	Units	M.D.L.	Reference Method	Date Analyzed	Client I.D.:	Raw	Treated	Distribution
					Sample I.D.:	B03-12570-1	B03-12570-2	B03-12570-3
					Date Collected:	19-Nov-2003	19-Nov-2003	19-Nov-2003
Terbufos	µg/L	0.7	EPA 8270	25-Nov-03	--	< 0.7	--	
Tetrachlorophenol, 2,3,4,6-	µg/L	0.14	EPA 8270	25-Nov-03	--	< 0.14	<sup>2</sup>	--
Triallate	µg/L	20	EPA 8270	25-Nov-03	--	< 20	--	
Trichlorophenol 2,4,6-	µg/L	0.2	EPA 8270	25-Nov-03	--	< 0.2	--	
Trichlorophenoxy acetic acid, 2,4,5	µg/L	22	EPA 8270	25-Nov-03	--	< 22	--	
Trifluralin	µg/L	1	EPA 8270	25-Nov-03	--	< 1	--	
Aldrin & Dieldrin	µg/L	0.06	EPA 8080	24-Nov-03	--	< 0.06	<sup>1</sup>	--
Chlordane (Total)	µg/L	0.11	EPA 8080	24-Nov-03	--	< 0.11	<sup>2</sup>	--
Dichlorophenoxy acetic acid, 2,4- (2,4 D)	µg/L	10	EPA 8080	24-Nov-03	--	< 10	--	
DDT+Metabolites	µg/L	1	EPA 8080	24-Nov-03	--	< 1	--	
Heptachlor + Heptachlor Epoxide	µg/L	0.11	EPA 8080	24-Nov-03	--	< 0.11	<sup>2</sup>	--
Lindane (total)	µg/L	0.1	EPA 8080	24-Nov-03	--	< 0.1	--	
Methoxychlor	µg/L	10	EPA 8080	24-Nov-03	--	< 10	--	
PCB	µg/L	0.05	EPA 8080	24-Nov-03	--	< 0.05	--	
Diquat	µg/L	5	EPA 549.1	27-Nov-03	--	< 5	--	
Paraquat	µg/L	1	EPA 549.1	27-Nov-03	--	< 1	--	
Glyphosate	µg/L	25	EPA 547	25-Nov-03	--	< 25	--	

1 Aldrin Subcontracted to SGS Lakefield

2 Subcontracted to SGS Lakefield

Greg Clarkin  
Lab Manager - Ottawa District

M.D.L. = Method Detection Limit

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***APPENDIX « E »***

MONTH		CHLORINE				SILICA			LIME		ALUM		FLUOR		
		Monthly (kg)	Dosage (mg/l)	Chateau (kg)	Chateau (mg/l)	Silica (c) (litre)	Alum. (c) (litre)	Dosage SiO <sub>2</sub> (mg/l)	Lime (c.) (kg)	Dosage (mg/l)	Alum (litre)	Dosage (mg/l)	Fluor(b) (lbs)	FluorⓄ (kg)	Dosage (mg/l)
JAN	Avg.		2.96		0.00			1.40		12.22					
	Max		4.84		0.00			1.99		13.21		90.54			1.82
	Min		1.56		0.00			0.85		11.71		42.36			0.00
	Total	870.0		0.0		1,038	516		3,622.8		26,983.9		160.0	110.6	
FEV	Avg.		2.67		0.00			1.07		12.69		55.31			0.04
	Max		4.06		0.00			1.48		15.78		72.51			1.00
	Min		1.36		0.00			0.86		11.35		44.17			0.00
	Total	640.0		0.0		645	322		3,040.4		20,489.0		15.0	9.7	
MARS	Avg.		2.95		0.00			1.03		12.25		57.48			0.00
	Max		5.13		0.00			1.27		13.93		82.61			0.00
	Min		1.05		0.00			0.88		11.39		41.86			0.00
	Total	795.0		0.0		697	347		3,316.1		23,836.9		5.0	0.0	
APRIL	Avg.		2.96		0.00			1.06		12.62		61.21			0.00
	Max		4.07		0.00			1.23		13.93		78.25			0.00
	Min		2.13		0.00			0.88		11.30		41.33			0.00
	Total	815.0		0.0		733	369		3,477.6		25,966.1		0.0	0.0	
MAY	Avg.		2.88		0.00			0.99		10.81		57.26			0.00
	Max		4.40		0.00			1.19		11.30		75.63			0.00
	Min		1.04		0.00			0.75		10.67		28.25			0.00
	Total	895.0		0.0		773	386		3,368.0		27,425.8		0.0	0.0	
JUNE	Avg.		3.22		0.00			0.78		10.82		53.64			0.00
	Max		4.47		0.00			0.95		11.00		75.78			0.00
	Min		2.04		0.00			0.60		10.18		35.08			0.00
	Total	1,090.0		0.0		658	327		3,660.1		27,720.4		0.0	0.0	
JULY	Avg.		3.69		0.00			0.66		10.61		45.91			0.24
	Max		7.25		0.00			0.84		11.28		71.99			1.00
	Min		0.00		0.00			0.41		10.09		12.75			0.00
	Total	1,210.0		0.0		546	275		3,497.2		23,502.1		101.0	116.1	
AUGUST	Avg.		3.36		0.00			0.80		9.57		45.24			0.13
	Max		4.35		0.00			0.97		10.27		59.43			1.56
	Min		2.62		0.00			0.58		8.78		37.89			0.00
	Total	1,180.0		0.0		705	348		3,373.6		24,546.6		20.0	44.0	
SEPT.	Avg.		2.97		0.00			0.91		9.76		57.42			0.00
	Max		3.76		0.00			1.26		11.22		82.10			0.00
	Min		1.88		0.00			0.51		8.78		32.27			0.00
	Total	980.0		0.0		744	373		3,210.3		28,858.7		0.0	0.0	
OCTO.	Avg.		2.74		0.00			0.94		10.99		59.43			0.07
	Max		4.71		0.00			1.14		12.11		77.29			1.12
	Min		0.00		0.00			0.66		10.18		38.25			0.00
	Total	835.0		0.0		726	363		3,390.9		28,108.8		50.0	22.0	
NOV.	Avg.		2.64		0.00			1.06		12.58		70.53			1.11
	Max		4.40		0.00			1.23		13.66		85.96			2.06
	Min		0.48		0.00			0.82		10.18		33.90			0.00
	Total	720.0		0.0		732	0		3,475.6		29,863.0		575.0	305.5	
DEC.	Avg.		2.38		0.00			1.03		13.38		70.83			1.13
	Max		4.62		0.00			1.25		13.96		94.49			1.85
	Min		0.00		0.00			0.00		12.80		0.00			0.00
	Total	765.0		0.0		833	420		4,161.7		34,992.0		605.0	368.4	
	Avg.			0.00				0.98		11.52		57.66			0.25
	Max			0.00				1.99		15.78		94.49			2.06
	Min			0.00				0.00		8.78		0.00			0.00
	Total	10,795.0		0.0		8,829	4,045		41,594		322,293		1,531	976	