



The Corporation of the Municipality of Port Hope

Port Hope

Water Treatment Plant

New Water Treatment Plant

2005

Summary Report

March 8, 2005

Municipality of Port Hope
P.O. Box 117
56 Queen Street
Port Hope, ON
L1A 3V9

Attention: Mr. Peter Angelo, P. Eng., Director of Municipal Engineering Services

Dear Peter:

RE: 2005 Summary Report – Port Hope Water Treatment Plant

We are pleased to provide the *2005 Summary Report for the Port Hope Water Treatment Plant* as outlined in Schedule 22 of Ontario Regulation 170/03.

Sincerely,

Rick Trumper

Rick Trumper
Water Treatment Supervisor
Municipality of Port Hope
Water Department

Letter of Transmittal

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1. **INTRODUCTION**

1.1 **BACKGROUND**

The Municipality of Port Hope is located within Northumberland County, approximately 90 km east of Toronto. The Community of Port Hope has a population of 12,500 with combined residential, commercial, industrial and institutional use.

The old conventional Port Hope Water Treatment Plant (WTP) was originally constructed in 1938, with additions/upgrades in 1954 and in the 1970's. Given the Engineers' Report in February 2001, extensive upgrades were required for the old plant, resulting in the construction of a new membrane filtration plant, which was commissioned on August 23, 2005.

On June 1, 2003, the Province introduced Regulation 170/03 under the Ontario Safe Drinking Water Act. This new regulation requires all municipal water systems to complete an Annual Report (submitted to the Ministry of the Environment) and a Summary Report (submitted to Council) for their water treatment plants.

Given that the new plant was commissioned in the middle of 2005 and replaced the old plant, this report is an independent 2005 Summary Report for the new plant. Refer to the 2005 Summary Report for the old plant for information regarding the old plant.

1.2 **TERMS AND CONDITIONS OF THE CERTIFICATE OF APPROVAL**

Table 1-1 lists the headings of the Terms and Conditions of the latest CofA.

Table 1-1 Terms and Conditions of the CofA

Part No.	Heading
1	Drinking Water System Description
2	Definitions and Information
3	General
4	Performance
5	Monitoring and Recording
6	Operations and Maintenance
7	Future Alterations
8	Studies and Upgrades Required
9	Relief from Regulatory Requirements



2. CERTIFICATIONS

This section covers all certifications related to Port Hope WTP and distribution system, including:

- ◆ Certificates of approval;
- ◆ Permits to take water;
- ◆ Facility/distribution system classification; and,
- ◆ Operator classification.

2.1 CERTIFICATES OF APPROVAL

Table 2-1 summarizes the Certificates of Approval (CofA), which can be found in **Appendix A**.

Table 2-1 Certificates of Approval

Certificate Type	Certificate Number	Date Issued	Brief Description of Works Approved
Water Treatment Plant	3586-5T6QJL (Air)	Nov. 17/03	Installation and operation of a diesel generator
Water Treatment Plant	5488-6DNHC4	Aug. 25/05	Construction of a new 20,000 Cubic Metre per Day Ultrafiltration Water Treatment Plant.

2.2 PERMIT TO TAKE WATER

The Permit to Take Water (PTTW) for the Port Hope WTP is summarised in Table 2-2 and attached in **Appendix B**.

Table 2-2 Permit To Take Water (PTTW)

Permit Number	Source	Issued Date	Renewal Date	Permitted Amount of Taking
02-P-4040	Lake Ontario	July 12, 2002	July 12, 2012	20,000 m ³ /d

2.3 FACILITY CLASSIFICATION

Details of Port Hope facility certifications are presented in Table 2-3.

Table 2-3 Facility Classifications

Facility Type	Facility Name	Class	Certificate No.	Date of Issue
Plant	Port Hope Water Treatment Plant	II	WT #3552	July 26, 2005
Distribution	Port Hope Water Distribution System	II	WD #719	June 1988



2.4 OPERATOR CERTIFICATION

The Corporation of the Municipality of Port Hope currently operates the Port Hope Water Supply System (WSS). Staff members responsible for the water supply and distribution systems are licensed operators with their certifications presented in Table 2-4.

Table 2-4 Operator Certifications

Name	Position	Certificate Level			Certification Number			Expiry Date		
		T	D	WQA	T	D	WQA	T	D	WQA
Rick Trumper	Supervisor Water Treatment	III	III	I	421	422	11995	03/31/08	03/31/08	05/31/07
Mike Stewart	Treatment Operator	II	II	I	13137	15294	11998	10/31/06	03/31/07	05/31/07
Geoff Morgan	Treatment Operator	II	II	-	9907	14148	-	06/30/06	05/31/06	-
Jerry Lord	Treatment Operator	II	II	-	11529	15321	-	11/30/06	04/30/07	-
Ed Symons	Superintendent Water Distribution	II	III	-	5081	5082	-	05/14/06	03/31/09	-
Rick Held	Distribution Operator	II	II	-	4871	4872	-	04/30/06	02/28/07	-
Larry Green	Distribution Operator	II	II	-	9290	9291	-	02/28/06	02/28/06	-
BJ Coull	Distribution Operator	-	OIT	-	-	OT28 752	-	-	08/31/08	-
T = Treatment License D = Distribution License WQA = Water Quality Analyst License										



3. WATER FLOWS

3.1 OVERVIEW

This section gives a summary of records made relating to flow rate exceedances.

This section also gives a summary and discussion of the quantity of treated water supplied in 2005 compared to the rated capacity specified in the CofA, including monthly average and maximum daily flows.

Section 4.1 of the CofA states the following:

“The drinking water system shall not be operated to exceed the rated capacity for the maximum flow rates into the treatment system, trains, or stages set out below:

- *Maximum flow rate = 20,000 m³/d (Phase II)”*

Currently, there is sufficient membrane modules installed to produce Phase 1 flows of 12,000 m³/d. Note that this flow rate is a total net daily production of treated water.

Given the downtime for cleaning and pressure decay tests; and, on-site water usage for cleaning (backwashing, chemical enhanced backwashing and clean-in-place the membranes), the instantaneous flow rate into the membrane is higher than the plant rated capacity as defined above. Given the current recovery rate of 90%, the membrane instantaneous factor has been defined as 1.26, thus requiring an instantaneous flow rate into the membranes of 15,120 m³/d.

Note however, that the plant was designed for an ultimate rated capacity of 31,700 m³/d and a recovery rate of 85%, which requires an instantaneous factor of 1.42 and thus instantaneous flow rate of 45,000 m³/d.

Given the current recovery rate of 90%, the daily net raw water volume currently required is 13,333 m³/d. Given the ultimate recovery rate of 85%, the daily net raw water volume ultimately required 37,294 m³/d.

A summary of above is provided below:

- Current plant rated capacity (net treated water production)= 12,000 m³/d
- Current instantaneous flow rate from membranes = 175 L/s (15,120 m³/d)
- Current daily net raw water volume = 13,333 m³/d (relevant to PTTW)
- Ultimate plant rated capacity (net treated water production)= 31,700 m³/d
- Ultimate instantaneous flow rate from membranes = 521 L/s (45,000 m³/d)
- Ultimate daily net raw water volume = 37,294 m³/d (relevant to PTTW)

This section also accounts for the wastewater production from the water treatment process.

Table 3-1 shows that the highest net daily raw water volume of 12,101 m³/d has not exceeded the flow allowed in the PTTW of 20,000 m³/d.



Table 3-1 Net Daily Raw Water Volumes

Item	Avg. Day (m ³ /d)	Max. Day (m ³ /d)
January	-	-
February	-	-
March	-	-
April	-	-
May	-	-
June	-	-
July	-	-
August ¹	8,141	11,751
September	8,796	12,101
October	7,219	8,465
November	6,988	8,274
December	7,269	9,566
Avg.	7682.6	-
Max.	-	12,101

Notes:
1. Data collected from August 23, 2005.

3.2 RAW WATER FLOWS

A summary of the daily quantities of water being taken from Lake Ontario (i.e., net daily raw water volumes) are shown in Table 3-1.

3.3 MEMBRANE INSTANTANEOUS FLOWRATE

A summary of the combined instantaneous flow rate from the membranes is shown in Table 3-2.

Table 3-2 shows that the maximum combined instantaneous flow rate from the membranes of 164 L/s (14,172 m³/d) has not exceeded the anticipated maximum flow rate of 175 L/s (15,120 m³/d) per Section 3.1.



Table 3-2 Combined Instantaneous Flow rate from Membranes

Item	Average		Maximum	
	L/s	m ³ /d	L/s	m ³ /d
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	-	-
May	-	-	-	-
June	-	-	-	-
July	-	-	-	-
August ¹	N/A	N/A	518	96,027
September	N/A	N/A	267	235,503
October	N/A	N/A	592	222,939
November	N/A	N/A	688	202,246
December	N/A	N/A	631	184,560
Avg.	N/A	N/A	539.2	188,255
Max.	-	-	688	235,503

Notes:

1. Data collected after August 23, 2005.
2. N/A – Data not available at time of report.

3.4 TREATED WATER FLOWS

The treated water flows are shown in Table 3-3.

Table 3-3 shows that the plant rated capacity of 20,000 m³/d was not exceeded. The maximum daily water demand has reached 49.9% of the plant rated capacity.

The maximum day factor (ratio of maximum day demand to average day demand) was approximately 1.44, while the peak hour factor (ratio of maximum peak hour demand to average day demand) was approximately 9.24.

Table 3-3 Treated Water Flows¹

Item	Avg. Day (m ³ /d)	Max. Day (m ³ /d)	% Max/ Rated Capacity	Max. Peak Hour (m ³ /h)
January	-	-	-	-
February	-	-	-	-
March	-	-	-	-
April	-	-	-	-



**SECTION 3
WATER FLOWS**

Item	Avg. Day (m ³ /d)	Max. Day (m ³ /d)	% Max/ Rated Capacity	Max. Peak Hour (m ³ /h)
May	-	-	-	-
June	-	-	-	-
July	-	-	-	-
August	8,336	9,977	83.14	551.45
September	7,259	8,233	68.60	496.09
October	6,720	7,300	60.83	446.76
November	6,260	7,069	58.90	752.40
December	6,189	7,948	66.23	583.20
Avg.	6,952.80	-	-	-
Max.	-	9,977	83.14	752.40
Notes:				
1. Data collected from August 23, 2005.				

3.5 WASTEWATER FLOWS

Wastewater is generated on-site from cleaning the membranes by the following processes: backwashing, chemical enhanced backwashing and clean-in-place cycles. It has been anticipated that 10% of the raw water volume is used for these processes, resulting in the plant recovery rate of 90%.

Table 3-4 shows that wastewater production in any given month has reached up to 6.4% of the raw water flows, which is less than the anticipated 10% wastewater production.

Table 3-4 Wastewater Flows¹

Item	Total Monthly Raw Water Volume (m ³)	Total Monthly Wastewater Volume (m ³)	% Wastewater/ Raw
January	-	-	-
February	-	-	-
March	-	-	-
April	-	-	-
May	-	-	-
June	-	-	-
July	-	-	-
August	72,181	4,599	6.4
September	263,869	11,864	4.5
October	216,582	1,016	.47
November	209,634	637	.30



**SECTION 3
WATER FLOWS**

Item	Total Monthly Raw Water Volume (m³)	Total Monthly Wastewater Volume (m³)	% Wastewater/ Raw
December	225,352	513	.23
Avg.	197,524	3,726	2.38
Max.	263,869	11,864	6.4
Notes: 1. Data collected from August 23, 2005.			



4. CHEMICALS

This section gives a summary of listing treatment chemicals used, including average dosage rates with special reference to any abnormal usage.

4.1 PROPERTIES

Table 4-1 shows the properties of the chemicals used at Port Hope WTP.

Table 4-1 Properties of Chemical Feed Systems

Chemical	Purpose	Concentration (%)	Specific Gravity (g/mL)	Target Dosage (mg/L)
Chlorine gas	◆ Zebra mussel control	100	-	◆ 1.2
	◆ Primary disinfection			◆ 1.0
	◆ Touch-up chlorination			◆ 0.3
Sodium bisulphite	◆ Dechlorinate the supernatant from the wastewater treatment process before it flows to the Lake	38	1.29	◆ 0.73

4.2 USAGE

Table 4-2 summarizes the annual chemical usage and monthly average dosages.

Table 4-2 Annual Chemical Usage at Port Hope WTP

Chemical	Volume (L) or Weight (kg)	Range of Monthly Avg. Dosages (mg/L)	Month with Highest Avg. Dosage	Comments of Any Abnormal Usage
Chlorine gas	741.9 kg	.04 – 2.00	Oct	-
Sodium bisulphite	957.60	.80 – 1.20	N/A	-



5. SAMPLING ANALYTICAL RESULTS

5.1 OVERVIEW

This section consists of a summary of analytical results of sampling required by Ontario Drinking Water Quality Standards (ODWQS) and Conditions 5.5 and 5.6 of the CofA in Appendix A.

Appendix B contains the sampling results, which are summarized in tables, which are identical to Schedules 23 and 24 in *Regulation 170/03, Drinking Water Systems Regulation*.

5.2 MICROBIOLOGICAL

The bacteriological data in the raw, treated and distribution water supply are shown in Tables D-5 to D-7.

Ontario Reg. 170/03, Schedule 10 states that samples of raw water do not need to be analysed for heterotrophic plate count (HPC) or background colonies (BKG).

If the treated or distribution water contains more than 500 colonies per mL on a HPC analysis or more than 200 BKG colonies on a total coliform membrane filter analysis, then the sample is considered adverse. Moreover, if either the treated or distribution water contain *any* total coliform (TC) or fecal coliform (FC), then the sample is considered adverse. The corrective action in all cases is to report, resample, analyze and follow the instructions as directed by the Medical Officer of Health.

There was three (3) adverse samples for 2005.

Table 5-1 Adverse Microbiological Samples

Date	Location	Exceedances	Comments
August 24, 2005	Plant	> 1 NTU	Air entrained in plant discharge mains when Highlift pumps change duty. Install equipment to remove air.
August 26, 2005	Rent All Centre	450 background colonies	Immediately resample and analyze. There was good free chlorine residual at the time of original sample, which would indicate a poor sample location.
December 21, 2005	Plant	> 1 NTU	Air entrained in permeate discharge when trains start up. Adjust equipment to remove air.

5.3 TURBIDITY

Figure 5-1 plots raw water turbidity with raw water temperatures and flows between August 23 and December 31, 2005. As shown, turbidity is greatest during the spring run-off and fall turnover when temperatures and flows are low.

Based on an hourly analysis, the raw water turbidity reached as high as 100 NTU, and had an average of 2.78 NTU.

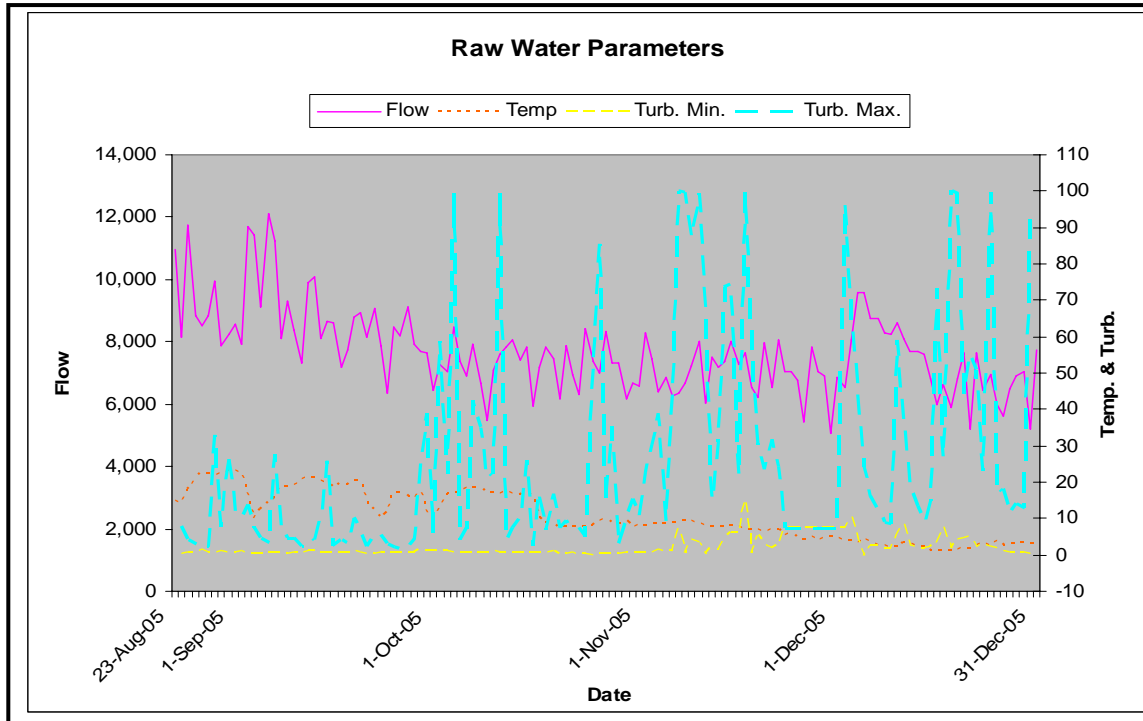


Figure 5-1 Plot of Raw Water Turbidity, Temperature and Flow

MOE Disinfection Procedure requires membrane plants to achieve the following treated water turbidity criteria per membrane train:

- <0.1 NTU, 95% of time
- <0.3 NTU, 100% of time

A statistical analysis of the hourly treated water turbidity data is presented in Table 5-2. As shown, treated water turbidity from each membrane train met the above criteria.

Table 5-2 Analysis of Hourly Treated Water Turbidity Data¹

Train No.	Sample Count	Average	Maximum	% of time < 0.1 NTU	% of time < 0.3 NTU
A	On-line	0.07	1.0	N/A	N/A
B	On-line	0.03	1.0	N/A	N/A
C	On-line	0.05	1.0	N/A	N/A
D	On-line	0.04	1.0	N/A	N/A

Notes: Maximum results were adverse and the result of entrained air in the sample line.



Train No.	Sample Count	Average	Maximum	% of time < 0.1 NTU	% of time < 0.3 NTU
1. Data collected from August 23, 2005 to December was not available for % of time at the time of report.					

5.4 DISTRIBUTION CHLORINE RESIDUALS

The Procedure for Disinfection of Drinking Water in Ontario states that “The distribution system must be operated such that at all times and at all locations within the distribution system there is at least a detectable free chlorine residual of 0.05 mg/L at a pH 8.5 or lower, or where monochloramine is used, a combined chlorine residual of 0.25 mg/L”.

O. Reg. 170/03, Schedule 16-3.4 requires and states that the distribution water quality is considered to be adverse if the free chlorine residual is measured to be less than 0.05 mg/L. The corrective action is to restore chlorination immediately and follow the instructions as directed by the Medical Officer of Health.

The Municipality has implemented the following procedures to comply with Reg. 170/03:

- Scheduled flushing of dead end water mains;
- Chlorine addition at the Zone two (2) Reservoir; and,
- Initiation of a “Capital Works” program to replace all 100 mm cast iron water main and loop dead ends within the next five (5) years.

A statistical analysis of the free chlorine residuals measured in the distribution system is presented in Table 5-3. Table 5-3 shows 3 samples being below 0.2 mg/L.

Table 5-3 Distribution Free Chlorine Residuals

Location	Sample Count	Minimum mg/L	Maximum mg/L	Average mg/L	% of time < 0.05 mg/L ¹	% of time < 0.2 mg/L ²
Distribution System	120	0.09	1.22	0.59	0	2.5
Notes:						
1. 3 samples were below 0.20 mg/L.						
2. 0 samples were below 0.05 mg/L						

5.5 SUPERNATANT TOTAL SUSPENDED SOLIDS

Condition 4.4 in the CofA states that the annual average concentration of suspended solids (TSS) in the effluent discharged from the backwash wastewater facilities shall not exceed 25 mg/L. Condition 5.6 requires sampling to occur monthly.

A statistical analysis of the supernatant total suspended solids (Table 5-4) shows that no samples exceeded the discharge limit of 25 mg/L.



Table 5-4 Supernatant Total Suspended Solids

Location	Sample Count	Minimum	Maximum	Average	% of time < 25 mg/L
Supernatant Discharge at Outfall	3	4	10	6.66	100

5.6 OTHER PARAMETERS

Table 5-5 lists the deviations or exceedances of other water samples summarized in **Appendix B** and deviations from Ontario Drinking Water Quality Standards (ODWQS) and Ontario Drinking Water Quality Objectives and Guidelines (ODWQOG).

Table 5-5 Deviations from ODWQS and ODWQOG

Parameter	Location	Limit	Exceedances	Comments
Treated Water				
Temperature	Treated water	15 C	88 samples above 15 C.	This is an Operational Guideline, which we have no control over.
Turbidity	Treated Water	1.0	August 24/05, High Turbidity, Discharge header Turbidity >1.0 NTU for 3 minutes	Air entrained in plant discharge mains when Highlift pumps change duty. Install equipment to remove air.
Distribution Water				
THM	Distribution	N/A	Missed taking 3 rd quarter sample.	This was a human error which has been cured by changing the sample schedule.

5.7 MINISTRY OF THE ENVIRONMENT ORDERS

Table 5-6 lists Ministry of the Environment orders and actions taken to resolve these orders.

Table 5-6 Ministry of the Environment Orders

Date of notification	Location	Order No.	Description	Comments
N/A	-	-	-	-



6. COMPLIANCE WITH TERMS AND CONDITIONS OF THE CERTIFICATE OF APPROVAL (COFA)

This section provides a statement as to compliance with all of the terms and conditions of the Certificate of Approval (CofA), and a detailed description of the measures taken to ensure compliance with the CofA, including any supporting data or other information.

Statement as to Compliance with Terms and Conditions of CofA

- 6.1.1 A checklist was used throughout the year to determine compliance with the latest CofA. This checklist includes the requirements of all the Terms and Conditions of this Certificate.

6.2 MEASURES TAKEN TO ENSURE COMPLIANCE WITH TERMS AND CONDITIONS OF COFA

Section 7 lists all the non-compliance items extracted from the checklist with explanations for the non-compliance.



SECTION 7
NON-COMPLIANCE WITH TERMS AND CONDITIONS
OF THE CERTIFICATE OF APPROVAL

7. **NON-COMPLIANCE WITH TERMS AND CONDITIONS OF THE CERTIFICATE OF APPROVAL (COFA)**

This section provides details of any non-compliance in 2005 with the Terms and Conditions of the latest Certificate of Approval (CofA), as well as details of how and when the non-compliance was corrected.

Table 7-1 Non-Compliance Items in the Terms and Conditions of the CofA

Item No.	Description	Date of Occurrence	Date of Correction	Method of Correction
1	Missed taking Decembers Total Suspended Solids Sample	December 2005	N/A	This was a human error which has been cured by changing the sample schedule.
2	-	-	-	-

As shown, ***with the exception of item number 1 in Table 7-1***, the Port Hope Water Treatment Plant **is fully compliant** with the Terms and Conditions of the latest CofA.



8. REFERENCES

- | | |
|-----------|--|
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APPENDICES

APPENDICES

APPENDIX A

SAMPLING PROGRAM

APPENDIX A

Table A-1 Sampling Protocol

Parameter	Frequency	Parameters Analyzed
Raw Water		
Required		
Microbiological	Weekly	E. Coli, Total Coliform, (excluding HPC or BKG), Ont. Reg. 170/03, Schedule 10
Turbidity	Continuous	Turbidity
pH	Continuous	pH
Sodium	Twice Daily	Sodium
Temperature	Continuous at Low Lift, Twice Daily	Temperature
Additional		
Inorganics	Annually	Ont. Reg. 170/03, Schedule 23
Pesticides & PCB	Annually	Ont. Reg. 170/03, Schedule 24
Radionuclides	Annually	Gross alpha, gross beta and tritium
Objective Parameters	Annually	Table 4 in Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines.
Treated Water		
Required		
Microbiological	Weekly	E. Coli, Total Coliform, Background colonies, Ont. Reg. 170/03, Schedule 10
Turbidity	Continuous	Turbidity
Chlorine	Continuous	Free Chlorine
Volatile Organics	Annual (THMs monthly) ¹	Ont. Reg. 170/03, Schedule 24
Inorganics	Annually	Ont. Reg. 170/03, Schedule 23
Nitrates/Nitrites	Quarterly	Nitrates/Nitrites
Pesticides & PCB	Annually	Ont. Reg. 170/03, Schedule 24
pH	Continuous	pH
Sodium	Twice Daily	Sodium
Temperature	Twice Daily	Temperature
Arsenic ²	Weekly	Arsenic
Uranium ²	Weekly	Uranium
Additional		
Radionuclides	Annually	Gross alpha, gross beta and tritium

APPENDIX A

Parameter	Frequency	Parameters Analyzed
Objective Parameters	Annually	Table 4 in Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines.
Distribution Water		
Required		
Microbiological	Weekly (Total of 21 Monthly) ³	E. Coli, Total Coliform, Background colonies, Ont. Reg. 170/03, Schedule 10
Chlorine	Grab samples simultaneous to microbiological samples	Free Chlorine
Volatile Organics	Quarterly (THMs at a point reflecting maximum residence time in the distribution system)	Only THMs
Inorganics	Annually (Lead at a point reflecting maximum residence time in the distribution system)	Only Lead
Additional		
-	-	-
Backwash/Wastewater Effluent to Lake Ontario		
Required		
Total Suspended Solids	Monthly (composite)	Total Suspended Solids
Total Chlorine	Twice daily	Total Chlorine
Additional		
-	-	-
<p>Note:</p> <ol style="list-style-type: none"> 1. Monthly sampling of THMs required in amended CofA. 2. Sampled by Port Hope staff weekly for the Health Protection Branch of Health Canada, and quarterly when inorganic sampling is done. 3. Ont. Reg. 170/03, 10-2,(a) if the system serves 100,000 people or less, at least eight distribution samples, plus one additional sample for every 1000 people served by the system, are taken every month, with at least one of the samples being taken in each week . Given a population of 12,500, this equals to a minimum of 21 samples. 		

APPENDIX A

Table A-2 Schedules 23 and 24 in Regulation 170/03, Drinking Water Systems made under Safe Drinking Water Act.

Schedule 23 – Inorganic Parameters		
Antimony Arsenic Barium	Boron Cadmium Chromium	Mercury Selenium Uranium
Schedule 24– Organic Parameters		
Alachlor Aldicarb Aldrin + Dieldrin Atrazine+N-dealkylated metabolites Azinphos-methyl Bendiocarb Benzene Benzo(a)pyrene Bromate Bromoxynil Carbaryl Carbofuran Carbon Tetrachloride Chlordane (Total) Chlorpyrifos Cyanazine Diazinon 1,2-Dichlorobenzene 1,4-Dichlorobenzene Dicamba Dichlorodiphenyltrichloroethane(DDT)+metabolites	1,2-dichloroethane 1,1-Dichloroethylene (vinylidene chloride) Dichloromethane 2-4-Dichlorophenol 2,4-Dichlorophenoxy acetic acid (2,4-D) Diclofop-methyl Dimethoate Dinoseb Diquat Diuron Glyphosate Heptachlor+ Heptachlor Epoxide Lindane (Total) Malathion Methoxychlor Metolachlor Metribuzin Microcystin-LR	Monochlorobenzene Paraquat Parathion Pentachlorophenol Phorate Picloram Polychlorinated Biphenyls (PCB) Prometryne Simazine Temephos Terbufos Tetrachloroethylene (perchloroethylene) 2,3,4,6-Tetrachlorophenol Triallate Trichloroethylene 2,4,6-Trichlorophenol 2,4,5-Trichlorophenoxy acetic acid- (2,4,5-T) Trifluralin Vinyl Chloride

APPENDIX B

SAMPLING RESULTS

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SAMPLING RESULTS

This Appendix contains the following tables:

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B-3	Schedule 23, Treated Water
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Table B-1 Legends for Tables B-2 to B-13

Legend	Definition
AO	Aesthetic Objective
Average	Refers to the Average value measured
D	Deteriorating
Exceed.'s	Refers to the number of exceedances detected for the sample period described
IMAC	Interim Maximum Acceptable Concentration
MAC	Maximum Acceptable Concentration
Maximum	Refers to the maximum value measured
Minimum	Refers to the minimum value measured
<MDL	Parameter results are lower than the method detectable limit
NA	Not Applicable
ND	Not Detected
NT	Not Tested

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OG	Operational Guideline
S	Safe
SC	Samples Collected
US	Unsafe

Table B-2 Schedule 23, Inorganic Parameters, Raw Water

Parameter	(mg/L unless noted)	2005		
		# of Samples	Results (mg/L)	Exceedance
Antimony	0.006 (MAC)	0	-	-
Arsenic	0.025 (IMAC)	0	-	-
Barium	1.0 (MAC)	0	-	-
Boron	5.0 (IMAC)	0	-	-
Cadmium	0.005 (MAC)	0	-	-
Chromium	0.05 (MAC)	0	-	-
Mercury	0.001 (MAC)	0	-	-
Selenium	0.01 (MAC)	0	-	-
Uranium	0.02 (MAC)	0	-	-

Table D-2A Schedule 24, Organic Parameters, Raw Water

Parameter	(mg/L unless noted)	2005		
		# of Samples	Results (mg/L)	Exceedance
Alachlor	0.005 (IMAC)	0	-	-
Aldicarb	0.009 (MAC)	0	-	-
Aldrin + Dieldrin	0.0007 (MAC)	0	-	-
Atrazine + N-dealkylated metabolites	0.005 (IMAC)	0	-	-
Azinphos-methyl	0.02 (MAC)	0	-	-
Bendiocarb	.04 (MAC)	0	-	-
Benzene	0.005 (MAC)	0	-	-
Benzo(a)pyrene	0.00001 (MAC)	0	-	-
Bromoxynil	0.005 (MAC)	0	-	-
Carbaryl	0.09 (MAC)	0	-	-
Carbofuran	0.09 (MAC)	0	-	-
Carbon Tetrachloride	0.005 (MAC)	0	-	-
Chlordane (Total)	0.007 (MAC)	0	-	-
Chlorpyrifos	0.09 (MAC)	0	-	-

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Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Cyanazine	0.01 (IMAC)	0	-	-
Diazinon	0.02 (MAC)	0	-	-
Dicamba	0.12 (MAC)	0	-	-
1,2-Dichlorobenzene	0.2 (MAC),	1	0.00056<MDL	No
1,4-Dichlorobenzene	0.005 (MAC), 0.001 (AO)	1	0.00025<MDL	No
Dichlorodiphenyltrichloro ethane (DDT) + metabolites	0.03 (MAC)	0		-
1,2-dichloroethane	0.005 (IMAC)	0		-
1,1-Dichloroethylene (vinylidene chloride)	0.014 (MAC)	0	-	-
Dichloromethane	0.05 (MAC)	0		-
2,4-Dichlorophenol	0.9 (MAC), 0.0003 (AO)	1	.00015<MDL	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	0.1 (IMAC)	0	-	-
Diclofop-methyl	0.009 (MAC)	0	-	-
Dimethoate	0.02 (IMAC)	0	-	-
Dinoseb	0.010 (IMAC)	0	-	-
Diquat	0.07 (MAC)	0	-	-
Diuron	0.15 (MAC)	0	-	-
Glyphosate	0.28 (IMAC)	0	-	-
Heptachlor + Heptachlor Epoxide	0.003 (MAC)	0	-	-
Lindane (Total)	0.004 (MAC)	0	-	-
Malathion	0.19 (MAC)	0	-	-
Methoxychlor	0.9 (MAC)	0	-	-
Metolachlor	0.05 (IMAC)	0	-	-
Metribuzin	0.08 (MAC)	0	-	-
Monochlorobenzene	0.08 (MAC), 0.03 (AO)	1	.000046<MDL	No
Paraquat	0.01 (IMAC)	0	-	-
Parathion	0.05 (MAC)	0	-	-
Pentachlorophenol	0.06 (MAC) 0.03 (AO)	1	.00015<MDL	No
Phorate	0.002 (IMAC)	0	-	-

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Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Picloram	0.19 (IMAC)	0	-	-
Polychlorinated Biphenyls (PCB)	0.003 (IMAC)	0	-	-
Prometryne	0.001 (IMAC)	0	-	-
Simazine	0.01 (IMAC)	0	-	-
Temephos	0.28 (IMAC)	0	-	-
Terbufos	0.001 (IMAC)	0	-	-
Tetrachloroethylene (perchloroethylene)	0.030 (MAC)	0	-	-
2,3,4,6-Tetrachlorophenol	0.10 (MAC) .001 (OG/AO)	0	.00014<MDL	No
Triallate	0.23 (MAC)	0	-	-
Trichloroethylene	0.05 (MAC)	0	-	-
2,4,6-Trichlorophenol	0.005 (MAC) 0.002 (AO)	0	.00025<MDL	No
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	0.28 (MAC) 0.02 (AO)	0	-	-
Trifluralin	0.045 (IMAC)	0	-	-
Vinyl Chloride	0.002 (MAC)	0	-	-

Table D-3 Schedule 23, Inorganic Parameters, Treated Water

Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Antimony	0.006 (MAC)	1	0.0006<MDL	NO
Arsenic	0.025 (IMAC)	1	0.002<MDL	NO
Barium	1.0 (MAC)	1	0.023	NO
Boron	5.0 (IMAC)	1	0.021	NO
Cadmium	0.005 (MAC)	1	0.0001MDL	NO
Chromium	0.05 (MAC)	1	0.003<MDL	NO
Mercury	0.001 (MAC)	1	0.00002<MDL	NO
Selenium	0.01 (MAC)	1	0.003<MDL	NO
Uranium	0.02 (MAC)	1	0.00041	NO

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Table D-3A Schedule 24, Organic Parameters, Treated Water

Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Alachlor	0.005 (IMAC)	1	0.00011 <MDL	NO
Aldicarb	0.009 (MAC)	1	0.00030 <MDL	NO
Aldrin + Dieldrin	0.0007 (MAC)	1	0.000067 <MDL	NO
Atrazine + N-dealkylated metabolites	0.005 (IMAC)	1	0.00012 <MDL	NO
Azinphos-methyl	0.02 (MAC)	1	0.00021 <MDL	NO
Bendiocarb	.04 (MAC)	1	0.00013 <MDL	NO
Benzene	0.005 (MAC)	1	0.00036 <MDL	NO
Benzo(a)pyrene	0.00001 (MAC)	1	0.000004 <MDL	NO
Bromoxynil	0.005 (MAC)	1	0.000094 <MDL	NO
Carbaryl	0.09(MAC)	1	0.00016 <MDL	NO
Carbofuran	0.09 (MAC)	1	0.00037 <MDL	NO
Carbon Tetrachloride	0.005 (MAC)	1	0.00034 <MDL	NO
Chlordane (Total)	0.007 (MAC)	1	0.00011 <MDL	NO
Chlorpyrifos	0.09 (MAC)	1	0.00018 <MDL	NO
Cyanazine	0.01 (IMAC)	1	0.00018 <MDL	NO
Diazinon	0.02 (MAC)	1	0.000081 <MDL	NO
Dicamba	0.12 (MAC)	1	0.00017 <MDL	NO
1,2-Dichlorobenzene	0.2 (MAC),	1	0.00056 <MDL	NO
1,4-Dichlorobenzene	0.005 (MAC), 0.001 (AO)	1	0.00025 <MDL	NO
Dichlorodiphenyltrichloroethane (DDT) + metabolites	0.03 (MAC)	1	0.00014 <MDL	NO
1,2-dichloroethane	0.005 (IMAC)	1	0.00032 <MDL	NO
1,1-Dichloroethylene (vinylidene chloride)	0.014 (MAC)	1	0.00052 <MDL	NO
Dichloromethane	0.05 (MAC)	1	0.00117 <MDL	NO
2-4-Dichlorophenol	0.9 (MAC), 0.0003 (AO)	1	0.00015	NO

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Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
2,4-Dichlorophenoxy acetic acid (2,4-D)	0.1 (IMAC)	1	0.00019 <MDL	NO
Diclofop-methyl	0.009 (MAC)	1	0.00013 <MDL	NO
Dimethoate	0.02 (IMAC)	1	0.00012 <MDL	NO
Dinoseb	0.010 (IMAC)	1	0.00084 <MDL	NO
Diquat	0.07 (MAC)	1	0.001 <MDL	NO
Diuron	0.15 (MAC)	1	0.00087 <MDL	NO
Glyphosate	0.28 (IMAC)	1	0.006 <MDL	NO
Heptachlor + Heptachlor Epoxide	0.003 (MAC)	1	0.00011 <MDL	NO
Lindane (Total)	0.004 (MAC)	1	0.00056 <MDL	NO
Malathion	0.19 (MAC)	1	0.000091 <MDL	NO
Methoxychlor	0.9 (MAC)	1	0.00014 <MDL	NO
Metolachlor	0.05 (IMAC)	1	0.000092 <MDL	NO
Metribuzin	0.08 (MAC)	1	0.00012 <MDL	NO
Monochlorobenzene	0.08 (MAC), 0.03 (AO)	1	0.00046 <MDL	NO
Paraquat	0.01 (IMAC)	1	0.001 <MDL	NO
Parathion	0.05 (MAC)	1	0.00018 <MDL	NO
Pentachlorophenol	0.06 (MAC) 0.03 (AO)	1	0.00015 <MDL	NO
Phorate	0.002 (IMAC)	1	0.00011 <MDL	NO
Picloram	0.19 (IMAC)	1	0.00020 <MDL	NO
Polychlorinated Biphenyls (PCB)	0.003 (IMAC)	1	0.00004 <MDL	NO
Prometryne	0.001 (IMAC)	1	0.00023 <MDL	NO
Simazine	0.01 (IMAC)	1	0.00015 <MDL	NO
Temephos	0.28 (IMAC)	1	0.00031 <MDL	NO
Terbufos	0.001 (IMAC)	1	0.00012 <MDL	NO
Tetrachloroethylene (perchloroethylene)	0.030 (MAC)	1	0.00048 <MDL	NO
2,3,4,6-Tetrachlorophenol	0.10 (MAC)	1	0.00014	NO
Triallate	0.23 (MAC)	1	0.00010 <MDL	NO

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Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Trichloroethylene	0.05 (MAC)	1	0.00054 <MDL	NO
2,4,6-Trichlorophenol	0.005 (MAC) 0.002 (AO)	1	0.00025	NO
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	0.28 (MAC) 0.02 (AO)	1	0.00014	NO
Trifluralin	0.045 (IMAC)	1	0.00012 <MDL	NO
Vinyl Chloride	0.002 (MAC)	1	0.00008 <MDL	NO

Table D-3B Treated Water Parameters not previously identified

Parameter	(mg/L unless noted)	2005				
		SC	Minimum	Maximum	Average	Exceed's
Fluoride	1.5	0	-	-	-	-
Nitrite	1	1	0.005 <MDL	0.005 <MDL	0.005 <MDL	NO
Nitrate	10	1	.544	.544	0.544	NO
Trihalomethanes	0.100	4	.016	.033	.024.25	NO

Table D-4 Schedule 23, Inorganic Parameters, Distribution Water

Parameter	(mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Antimony	0.006 (MAC)	-	-	-
Arsenic	0.025 (IMAC)	-	-	-
Barium	1.0 (MAC)	-	-	-
Boron	5.0 (IMAC)	-	-	-
Cadmium	0.005 (MAC)	-	-	-
Chromium	0.05 (MAC)	-	-	-
Mercury	0.001 (MAC)	-	-	-
Selenium	0.01 (MAC)	-	-	-
Uranium	0.02 (MAC)	-	-	-

Table D-4A Schedule 24, Organic Parameters, Distribution Water

Parameter	ODWS (mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Alachlor	0.005 (IMAC)	0	-	-
Aldicarb	0.009 (MAC)	0	-	-

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Parameter	ODWS (mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Aldrin + Dieldrin	0.0007 (MAC)	0	-	-
Atrazine + N-dealkylated metabolites	0.005 (IMAC)	0	-	-
Azinphos-methyl	0.02 (MAC)	0	-	-
Bendiocarb	.04 (MAC)	0	-	-
Benzene	0.005 (MAC)	1	-	-
Benzo(a)pyrene	0.00001 (MAC)	0	-	-
Bromoxynil	0.005 (MAC)	0	-	-
Carbaryl	0.09(MAC)	0	-	-
Carbofuran	0.09 (MAC)	0	-	-
Carbon Tetrachloride	0.005 (MAC)	1		
Chlordane (Total)	0.007 (MAC)	0	-	-
Chlorpyrifos	0.09 (MAC)	0	-	-
Cyanazine	0.01 (IMAC)	0	-	-
Diazinon	0.02 (MAC)	0	-	-
Dicamba	0.12 (MAC)	0	-	-
1,2-Dichlorobenzene	0.2 (MAC),	1		
1,4-Dichlorobenzene	0.005(MAC), 0.001 (AO)	1	-	-
Dichlorodiphenyltrichloroethane (DDT) + metabolites	0.03 (MAC)	0	-	-
1,2-dichloroethane	0.005 (IMAC)	1		
1,1-Dichloroethylene (vinylidene chloride)	0.014 (MAC)	0	-	-
Dichloromethane	0.05 (MAC)	1		
2-4-Dichlorophenol	0.9(MAC), 0.0003 (AO)	0	-	-
2,4-Dichlorophenoxy acetic acid (2,4-D)	0.1 (IMAC)	0	-	-
Diclofop-methyl	0.009 (MAC)	0	-	-
Dimethoate	0.02 (IMAC)	0	-	-
Dinoseb	0.010 (IMAC)	0	-	-

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Parameter	ODWS (mg/L unless noted)			
		# of Samples	Results (mg/L)	Exceedance
Diquat	0.07 (MAC)	0	-	-
Diuron	0.15 (MAC)	0	-	-
Glyphosate	0.28 (IMAC)	0	-	-
Heptachlor + Heptachlor Epoxide	0.003 (MAC)	0	-	-
Lindane (Total)	0.004 (MAC)	0	-	-
Malathion	0.19 (MAC)	0	-	-
Methoxychlor	0.9 (MAC)	0	-	-
Metolachlor	0.05 (IMAC)	0	-	-
Metribuzin	0.08 (MAC)	0	-	-
Monochlorobenzene	0.08(MAC), 0.03 (AO)	0	-	-
Paraquat	0.01 (IMAC)	0	-	-
Parathion	0.05 (MAC)	0	-	-
Pentachlorophenol	0.06(MAC) .03(AO)	0	-	-
Phorate	0.002 (IMAC)	0	-	-
Picloram	0.19 (IMAC)	0	-	-
Polychlorinated Biphenyls (PCB)	0.003 (IMAC)	0	-	-
Prometryne	0.001 (IMAC)	0	-	-
Simazine	0.01 (IMAC)	0	-	-
Temephos	0.28 (IMAC)	0	-	-
Terbufos	0.001 (IMAC)	0	-	-
Tetrachloroethylene (perchloroethylene)	0.030 (MAC)	0	-	-
2,3,4,6-Tetrachlorophenol	0.10 (MAC)	0	-	-
Triallate	0.23 (MAC)	0	-	-
Trichloroethylene	0.05 (MAC)	2		
2,4,6-Trichlorophenol	0.005(MAC) 0.002 (AO)	0	-	-
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	0.28 MAC) 0.02 (AO)	0	-	-

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Parameter	ODWS (mg/L unless noted)	# of Samples	Results (mg/L)	Exceedance
Vinyl Chloride	0.002 (MAC)	0	-	-

Table D-4B Distribution Water Parameters not previously identified

Parameter	(mg/L unless noted)	2005				
		SC	Minimum	Maximum	Average	Exceed's
Lead	0.010	1	0.0006	0.0006	0.0006	No
Trihalomethanes	0.100	1	.033	.033	.033	No

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Table D-5 Raw Water Bacteriological Data

Year	Total Coliform (org/100 mL)					Fecal Coliform/ <i>Escherichia coli</i> (org/100 mL)				
	SC	0	< 200	> 200	> 300	SC	0	< 200	> 200	> 300
January										
February										
March										
April										
May										
June										
July										
August	7	5	2	0	0	7	5	2	0	0
September	5	3	2	0	0	5	5	0	0	0
October	4	0	4	0	0	4	4	0	0	0
November	5	1	4	0	0	5	1	4	0	0
December	4	0	4	0	0	4	3	1	0	0
TOTAL	25	9	16	0	0	25	18	7	0	0

Table D-6 Treated Water Bacteriological Data

Year	Total Coliform			Fecal Coliform/ <i>Escherichia coli</i>			BKG			
	SC	S	US	SC	S	US	SC	S	US	D
January										
February										
March										
April										
May										
June										
July										
August	7	7	0	7	7	0	7	7	0	0
September	5	5	0	5	5	0	5	5	0	1
October	4	4	0	4	4	0	4	4	0	0
November	5	5	0	5	5	0	5	5	0	0
December	4	4	0	4	4	0	4	4	0	0
TOTAL	25	25	0	25	25	0	25	25	0	1

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Table D-7 Distribution Water Bacteriological Data

Year	Total Coliform			Fecal Coliform/ <i>Escherichia coli</i>			BKG			
	SC	S	US	SC	S	US	SC	S	US	D
January										
February										
March										
April										
May										
June										
July										
August	36	36	0	36	36	0	36	35	1	1
September	24	24	0	24	24	0	24	24	0	0
October	24	24	0	24	24	0	24	24	0	0
November	30	30	0	30	30	0	30	30	0	0
December	24	24	0	24	24	0	24	24	0	0
TOTAL	138	138	0	138	138	0	138	137	1	1
Notes:										
1.										

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Table D-8 Radionuclide Analysis for the Raw Water

Parameter	ODWS	2005				
		SC	Minimum	Maximum	Average	Exceedances
Gross Alpha Emissions	0.1 Bq/L	1	-	-	-	-
Gross Beta Emissions	1 Bq/L	1	-	-	-	-
Tritium	7000 Bq/L	1	-	-	-	-

Table D-9 Radionuclide Analysis for the Treated Water

Parameter	ODWS	2005				
		SC	Minimum	Maximum	Average	Exceedances
Gross Alpha Emissions	0.1 Bq/L	1	-	<0.1	0.10	No
Gross Beta Emissions	1 Bq/L	1	-	0.1	0.10	No
Tritium	7000 Bq/L	1	-	<1000	1000.00	No

Table D-10 Radionuclide Analysis for the Distribution Water

Parameter	ODWS	2005				
		SC	Minimum	Maximum	Average	Exceedances
Gross Alpha Emissions	0.1 Bq/L	0	-	-	-	-
Gross Beta Emissions	1 Bq/L	0	-	-	-	-
Tritium	7000 Bq/L	0	-	-	-	-

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Table D-11 Non-Health Related Chemical/Physical Characteristics for the Raw Water

Parameter	ODWS (mg/L unless noted)	# of Samples	Results	Exceedances
Alkalinity (as CaCO ₃)	30-500 (OG)	1	93	No
Aluminium	0.1 (OG)	1	.053	No
Calcium		1	35.1	No
Chloride	250 (AO)	1	25	No
Colour	5 TCU (AO)	1	3<MDL	No
Copper	1.0 (AO)	1	.500<MDL	No
Dissolved Organic Carbon	5.0 (AO)	1	1.2	No
Ethylbenzene	0.0024 (AO)	1	.00047<MDL	No
Hardness (as CaCO ₃)	80-100 (AO)	1	123	No
Iron	0.3 (AO)	1	.082	No
Manganese	0.05 (AO)	1	.005	No
Methane	3 L/m (AO)	1	.006<MDL	No
Odour		-	-	-
Organic Nitrogen	0.15 (OG)	1	.23	No
pH	6.5-8.5 (OG)	257	7.54 – 8.59	No
Sodium	200 (OG)	261	8.62 – 18.62	No
Sulphate	500 (OG)	1	27	No
Sulphide	0.05 (OG)	1	.004<MDL	No
Taste	inoffensive	-	-	-
Temperature	15 (OG)	261	.56 – 23.0	Yes
Toluene	0.024 (OG)	1	.00058<MDL	No
Total Dissolved Solids	500 (OG)	1	180	No
Turbidity	NTU	1	3.88	No
Xylenes	0.3 (OG)	1	.00058<MDL	No
Zinc	5.0 (OG)	1	.400<MDL	No

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Table D-12 Non-Health Related Chemical/Physical Characteristics for the Treated Water

Parameter	ODWS (mg/L unless noted)	# of Samples			Results	Exceedances
Alkalinity (as CaCO ₃)	30-500 (OG)	1			91	No
Aluminium	0.1 (OG)	1			.0005 <MDL	No
Chloride	250 (AO)	1			28	No
Colour	5 TCU (AO)	1			3 <MDL	No
Copper	1.0 (AO)	1			.500 <MDL	No
Dissolved Organic Carbon	5.0 (AO)	1			.06	No
Ethylbenzene	0.0024 (AO)	1			.00047 <MDL	No
Hardness (as CaCO ₃)	80-100 (AO)	1			127	No
Iron	0.3 (AO)	1			.010 <MDL	No
Manganese	0.05 (AO)	1			.001 <MDL	No
Methane	3 L/m (AO)	1			.006 <MDL	No
Odour	Inoffensive (AO)	-			-	-
Organic Nitrogen	0.15 (OG)	1			.25	No
pH	6.5-8.5 (OG)	261			7.13 – 7.97	No
Sodium	200 (OG)	260			8.80 – 18.69	No
Sulphate	500 (OG)	1			27	No
Sulphide	0.05 (OG)	1			.004 <MDL	No
Taste	(OG)	-			-	-
Temperature	15 (OG)	260			3.0 – 23.0	Yes
Toluene	0.024 (OG)	1			.00058 <MDL	No
Total Dissolved Solids	500 (OG)	1			186	No
Turbidity	1 NTU	Continuous			.17	No
Xylenes	.3 (OG)	1			.00058 <MDL	No
Zinc	5	1			.400 <MDL	No

APPENDIX B

Table D-13 Non-Health Related Chemical/Physical Characteristics for the Distribution Water

Parameter	ODWS (mg/L unless noted)			
		# of Samples	Results	Exceedances
Alkalinity (as CaCO ₃)	30-500 (OG)	0	-	-
Aluminium	0.1 (OG)	0	-	-
Chloride	250 (AO)	0	-	-
Colour	5 TCU (AO)	0	-	-
Copper	1.0 (AO)	0	-	-
Dissolved Organic Carbon	5.0 (AO)	0	-	-
Ethylbenzene	0.0024 (AO)	0	-	-
Hardness (as CaCO ₃)	80-100 (AO)	0	-	-
Iron	0.3 (AO)	0	-	-
Manganese	0.05 (AO)	0	-	-
Methane	3 L/m (AO)	0	-	-
Odour	Inoffensive (AO)	0	-	-
Organic Nitrogen	0.15 (OG)	0	-	-
pH	6.5-8.5 (OG)	0	-	-
Sodium	200 (OG)	0	-	-
Sulphate	500 (OG)	0	-	-
Sulphide	0.05 (OG)	0	-	-
Taste	(OG)	0	-	-
Temperature	15 (OG)	1	20.2	yes
Toluene	0.024 (OG)	0	-	-
Total Dissolved Solids	500 (OG)	0	-	-
Xylenes	0.3 (OG)	0	-	-
Zinc	5.0 (OG)	0	-	-

APPENDIX C

Correspondence

APPENDIX C

Memorandum

To: Whom it my concern
CC: Peter Angelo
From: Rick Trumper
Date: Aug. 24, 2005
Re: Adverse water quality, **AWQI # 58424**

Hello,

This is written notice of an Adverse water quality incident at the “new” Port Hope Water Treatment Plant. Plant ID Number is 260058006.

Air is being entrained in the sampling system and as a result it has a direct affect on our on-line instrumentation.

We will be installing additional equipment to remove the air from the system and flushing the sampling system at this location due to a parameter exceedance on August 23, 2005, AWQI No. 58424, of Turbidity.

If you or any of the MOE staff have any questions please call me at the numbers provided.

Yours Truly,

Rick Trumper
Water Treatment Supervisor
Municipality of Port Hope
Water Department

Phone (905) 885 –2209
Fax (905) 885-7509
Cell (905) 375-8004

APPENDIX C

Memorandum

To: Whom it my concern
CC: Peter Angelo
From: Rick Trumper
Date: August 25, 2005
Re: Adverse water quality incident **AWQI #58508**

Hello,

This is written notice of an adverse water quality incident (AWQI # 58508) for 450 background colonies dated August 25/2005 at the Rent All Centre located on Peter St. in the community of Port Hope.

We will re-sample the system at the original and other locations for two consecutive samples 24 hours apart.

If you or any of the MOE staff have any questions please contact me at the numbers provided.

Yours Truly,

Rick Trumper
Water Treatment Supervisor
Municipality of Port Hope
Water Department

Phone (905) 885 -2209
Fax (905) 885-7509
Cell (905) 375-8004

APPENDIX C

Memorandum

To: Whom it my concern
CC: Peter Angelo
From: Rick Trumper
Date: August 29, 2005
Re: Resolution to Adverse water quality **AWQI #58508**

Hello,

This is written notice of resolution to an Adverse water quality incident dated August 25/2005 at the Rent All Centre located on Peter St. in the community of Port Hope.

We have sampled the system at the original and other locations and the results returned show that the parameter in question has returned below the MAC value.

We are requesting that this adverse incident be resolved.

If you or any of the MOE staff have any questions please contact me at the numbers provided.

Yours Truly,

Rick Trumper
Water Treatment Supervisor
Municipality of Port Hope
Water Department

Phone (905) 885 -2209

Fax (905) 885-7509

Cell (905) 375-8004

APPENDIX C

Memorandum

To: Whom it my concern
CC: Peter Angelo
From: Rick Trumper
Date: December 21, 2005
Re: Adverse water quality, **AWQI # 61696**

Hello,

This is written notice of an Adverse water quality incident at the “new” Port Hope Water Treatment Plant. Plant ID Number is 260058006.

Air is being entrained in the sampling system for train 2 and as a result it has a direct affect on our on-line instrumentation.

We will be installing additional equipment to remove the air from the system and flushing the sampling system at this location due to a parameter exceedance on December 21, 2005, AWQI No. 61696, of Turbidity.

If you or any of the MOE staff have any questions please call me at the numbers provided.

Yours Truly,

Rick Trumper
Water Treatment Supervisor
Municipality of Port Hope
Water Department

Phone (905) 885 -2209
Fax (905) 885-7509
Cell (905) 375-8004

APPENDIX C

Memorandum

To: Whom it my concern
CC: Peter Angelo
From: Rick Trumper
Date: January 21, 2006
Re: Adverse water quality, **AWQI # 61696**

Hello,

This is written notice of a resolution to an Adverse water quality incident at the “new” Port Hope Water Treatment Plant. Plant ID Number is 260058006.

Air was being entrained in the sampling system for all trains and as a result it had a direct affect on our on-line instrumentation.

We have adjusted and installed additional equipment to remove the air from the system at this location due to a parameter exceedance on December 21, 2005, AWQI No. 61696, of Turbidity.

We would therefore request that the incident be resolved.

If you or any of the MOE staff have any questions please call me at the numbers provided.

Yours Truly,

Rick Trumper
Water Treatment Supervisor
Municipality of Port Hope
Water Department

Phone (905) 885 –2209

Fax (905) 885-7509

Cell (905) 375-8004