









**PRONTO EAST  
DRINKING WATER SYSTEM  
WATERWORKS # 260007491**

**ANNUAL & SUMMARY  
REPORTS 2018**

## Introduction

This Annual and Summary Report has been prepared in accordance with both Schedule 22 and section 11 of Ontario Regulation 170/03. In this manner, the requirements by regulation for each report have been consolidated into a single document. This Report is intended to brief the ownership and consumers of the Pronto East Drinking Water System on the system’s performance over the past calendar year from January 1<sup>st</sup> to December 31<sup>st</sup>, 2018.

This report encompasses all elements as required by O. Reg. 170/03. Each section explains the requirements for a Small Municipal Residential Drinking Water System (as it pertains to the Pronto East DWS) and how limits were met or if shortfalls were revealed. The last section contains a list of tables and definition of terms identified in this report.

 System Description	Page 3
 Water Quality	Page 4
 Compliance	Page 7
 Flows	Page 8
 Report Endorsement	Page 10
 Tables, Definition of Terms App: A/B	Page 11

## System Description

The Pronto East Water Treatment Plant is rated as a Class 1 Water Treatment subsystem, and is categorized under O. Reg. 170/03 as a Small Municipal Residential system. The raw water supply for the Pronto East subdivision of the Township of the North Shore is obtained from the North Channel of Lake Huron. The design capacity of the water treatment plant is 80m<sup>3</sup>/day.

The Pronto East WTP is supplied with raw water from Lake Huron through a 32 meter long, 300 mm diameter polyethylene intake pipe with a screened intake structure. Raw water flows into the wet well by gravity. There is a zebra mussel control system that pumps sodium hypochlorite to the intake structure in an attempt to keep zebra mussel infestation under control.

Raw water is pumped via one of the three low lift pumps, located in the wet well at the shore, to the treatment plant, where a strainer removes the larger objects. The water then gets distributed into a header assembly and flows into the nine ultra-filtration membrane units.

After the membrane filters, water then flows into another header assembly and into six ultra-violet (UV) irradiation contactors. Sodium hypochlorite is added immediately after UV, prior to the pressure tanks and contact main. Six pressure tanks provide storage and flow balancing for the pumps. The water is then routed through a contact loop, ensuring adequate contact time for the CT of the disinfection process, prior to discharge to the distribution system.

## Chemicals

Chemicals utilized at the Pronto East Treatment plant during 2018 include:

- Sodium Hypochlorite for primary and secondary disinfection

## 2018 Expenditures

During the year of 2018, expenses were incurred to maintain treatment and distribution functions:

- Quartz sleeves, lamps, ballasts, and sensors for UV operations
- Electrical Safety Authority Services
- Strainers for raw water pre-treatment
- Chemical metering pump
- Timer and instrument for auto flusher
- Backwash water pump
- 12 month surveillance audit for DWQMS

## 2018 Drinking Water System Changes

Form 1 – Record of Watermains Authorized as a Future Alteration

Form 2 – Record of Minor Modification or Replacements

- Chemical Metering Pump
- Backwash water pump

Form 3 – Record of addition, modification or replacement of equipment discharging a contaminant of concern to the atmosphere

## Water Quality

### Microbiological Sampling and Testing

Sampling is conducted weekly for the DWS at the frequencies and locations identified by Schedule 11 of O. Reg. 170/03 for Small Municipal Residential Systems.

**Table 1: Microbiological sampling requirements**

Location	Sample Analysis	# samples	Frequency
Raw	EC / TC	1 sample	monthly
Treated	N/A	0	-
Distribution	EC / TC/ HPC-25%	1 sample	bi-weekly

The Pronto East raw and treated water samples are collected from the WTP sample sink and the distribution samples are collected from either of the two sampling stations and from residential dwellings during the winter months.

**Table 1a: Microbiological Sample Results**

Type	# samples	EC (range)	TC (range)	# samples	HPC (range)
Raw	14	0 - 24	0 - 24	-	-
Distribution	45	0	0	41	0 - 80

*Distribution samples are collected more frequently (weekly) than required by regulation.*

### Operational Checks and Testing

Operational testing is completed as per Schedules 6 & 7 of O. Reg. 170/03 for Small Municipal Residential Systems. These checks and testing are completed on site at the water treatment facility by licensed operators. Continuous monitoring analyzers (collecting 5 minute readings) are utilized for measurement of filter turbidity and chlorine residuals.

**Table 2: Monthly Filter Turbidity Results**

Month	Train 1	Train 2	Train 3	Range (NTU)	Monthly Filter Efficiency
	Avg (NTU)	Avg (NTU)	Avg (NTU)		
January	0.030	0.050	0.028	0.007 - 0.382	99.85
February	0.029	0.041	0.026	0.013 - 0.550	99.99
March	0.026	0.037	0.036	0.004 - 0.560	99.93
April	0.030	0.029	0.042	0.010 - 0.298	99.92
May	0.034	0.032	0.046	0.013 - 0.183	99.98
June	0.034	0.041	0.063	0.023 - 0.138	99.97
July	0.036	0.048	0.075	0.007 - 0.356	99.40
August	0.021	0.041	0.048	0.007 - 0.283	99.57
September	0.025	0.048	0.045	0.007 - 0.199	99.97
October	0.022	0.053	0.043	0.004 - 0.372	99.32
November	0.025	0.043	0.025	0.013 - 0.209	99.64
December	0.026	0.042	0.023	0.013 - 0.411	99.88

*Filter Efficiency is monitored by tracking the turbidity readings above and below 0.10 NTU during filter run time.*

*Pronto East DWS maintains filter compliance each month above 99%, the required limit for membrane filtration to achieve necessary filtration credits for primary disinfection.*

**Table 3: Treated Chlorine Residuals**

Month	Average Chlorine Residual (mg/L)	Chlorine Residual Range (mg/L)
January	1.56	0.03*- 4.67
February	1.83	0.50 - 3.39
March	1.22	0.00*- 3.07
April	1.12	0.00*- 2.36
May	1.57	0.00*- 4.48
June	1.10	0.03 - 3.37
July	1.19	0.06 - 2.70
August	1.25	0.15 - 2.55
September	1.48	0.05 - 2.73
October	1.61	0.48 - 3.29
November	1.28	0.59 - 3.01
December	1.03	0.48 - 2.33

Chlorine residuals are continuously monitored and data is recorded as real time.

\*AWQI's were reported for low cl not meeting CT on Jan 6, Jan 21, Mar 24, Mar 26, Apr 27, May 1, May 5, May 6, and May 7<sup>th</sup>,

### Chemical Sampling and Testing

Schedule 13 of O. Reg. 170/03 outlines chemical sampling regiments for Small Municipal Residential systems. Schedules 23 (inorganics) and 24 (organics) are collected every 60 months as well as sodium and fluoride. This system requires quarterly sampling for Nitrites/Nitrates and THM's. Schedule 15.1 outlines the requirements for semi-annual lead testing (two periods per year). Pronto East's lead sampling follows the reduced sampling requirements every third year.

**Table 4: Schedule 23 - Inorganics**

Parameter	Sample Date	Result Value (µg/L)	Units	ODWS
Antimony	28-Mar-14	< 0.60	µg/L	6
Arsenic	28-Mar-14	< 1.0	µg/L	25
Barium	28-Mar-14	18.0	µg/L	1000
Boron	28-Mar-14	< 50	µg/L	5000
Cadmium	28-Mar-14	< 0.10	µg/L	5
Chromium	28-Mar-14	< 1.0	µg/L	50
Fluoride	26-Apr-14	0.031	mg/L	1.5
Mercury	28-Mar-14	< 0.10	µg/L	1
Selenium	28-Mar-14	< 1.0	µg/L	10
Sodium	28-Mar-14	7.02	mg/L	20
Uranium	28-Mar-14	< 2.0	µg/L	20

All results for inorganic parameters are within the maximum acceptable concentrations (MAC) of the Ontario Drinking Water Quality Standards as defined in O. Reg. 169/03. No result is above the half MAC.

**Table 5: Nitrite/ Nitrate Results**

Date	ODWS	28-Mar-18	04-Jun-18	12-Sep-18	23-Nov-18
Unit	mg/L	mg/L	mg/L	mg/L	mg/L
Nitrite	1.0	<0.010	<0.010	<0.010	<0.010
Nitrate	10	0.197	0.200	0.149	0.199

All quarterly results for Nitrites and Nitrates are well below ODWS.

**Table 5a: THM/HAA Results**

Date	ODWS	Q1	Q2	Q3	Q4	RAA
Unit	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
THM	100	105.5	94.95	55.4	62.8	79.7
HAA	80	105	108	44.1	79	84.0

ODWS established a MAC of 80 for HAAs effective January 1, 2020.

**Table 6: Schedule 24 – Organics**

Parameter	Date	Result	Unit	ODWS
Alachlor	28-Mar-14	< 0.10	µg/L	5
Aldicarb	28-Mar-14	< 1.0	µg/L	9
Aldrin + Dieldrin	28-Mar-14	< 0.04	µg/L	0.7
Atrazine + N-dealkylated metabolites	28-Mar-14	< 0.20	µg/L	5
Azinphos-methyl	28-Mar-14	< 0.10	µg/L	20
Bendiocarb	28-Mar-14	< 0.20	µg/L	40
Benzene	28-Mar-14	< 0.50	µg/L	5
Benzo(a)pyrene	28-Mar-14	< 0.01	µg/L	0.01
Bromoxynil	28-Mar-14	< 0.20	µg/L	5
Carbaryl	28-Mar-14	< 0.20	µg/L	90
Carbofuran	28-Mar-14	< 0.20	µg/L	90
Carbon Tetrachloride	28-Mar-14	< 0.50	µg/L	5
Chlordane (Total)	28-Mar-14	< 0.30	µg/L	7
Chlorpyrifos	28-Mar-14	< 0.10	µg/L	90
Cyanazine	28-Mar-14	< 0.10	µg/L	10
Diazinon	28-Mar-14	< 0.10	µg/L	20
Dicamba	28-Mar-14	< 0.20	µg/L	120
1,2-Dichlorobenzene	28-Mar-14	< 0.50	µg/L	200
1,4-Dichlorobenzene	28-Mar-14	< 0.50	µg/L	5
Dichlorodiphenyltrichloroethane (DDT) + metabolites	28-Mar-14	< 0.02	µg/L	30
1,2-Dichloroethane	28-Mar-14	< 0.50	µg/L	5
1,1-Dichloroethylene (vinylidene chloride)	28-Mar-14	< 0.50	µg/L	14
Dichloromethane	28-Mar-14	< 5.0	µg/L	50
2,4-Dichlorophenol	28-Mar-14	< 0.30	µg/L	900
2,4-Dichlorophenoxy acetic acid	28-Mar-14	< 0.20	µg/L	100
Diclofop-methyl	28-Mar-14	< 0.20	µg/L	9
Dimethoate	28-Mar-14	< 0.10	µg/L	20
Dinoseb	28-Mar-14	< 0.20	µg/L	10

Parameter	Date	Result	Unit	ODWS
Diquat	28-Mar-14	< 1.0	µg/L	70
Diuron	28-Mar-14	< 1.0	µg/L	150
Glyphosate	28-Mar-14	< 5.0	µg/L	280
Heptachlor + Heptachlor Epoxide	28-Mar-14	< 0.20	µg/L	3
Lindane (Total)	28-Mar-14	< 0.10	µg/L	4
Malathion	28-Mar-14	< 0.10	µg/L	190
Methoxychlor	28-Mar-14	< 0.10	µg/L	900
Metolachlor	28-Mar-14	< 0.10	µg/L	50
Metribuzin	28-Mar-14	< 0.10	µg/L	80
Monochlorobenzene	28-Mar-14	< 0.50	µg/L	80
Paraquat	28-Mar-14	< 1.0	µg/L	10
Parathion	28-Mar-14	< 0.10	µg/L	50
Pentachlorophenol	28-Mar-14	< 0.50	µg/L	60
Phorate	28-Mar-14	< 0.10	µg/L	2
Picloram	28-Mar-14	< 0.20	µg/L	190
Polychlorinated Byphenols (PCB)	28-Mar-14	< 0.035	µg/L	3
Prometryne	28-Mar-14	< 0.10	µg/L	1
Simazine	28-Mar-14	< 0.10	µg/L	10
Temephos	28-Mar-14	< 0.10	µg/L	280
Terbufos	28-Mar-14	< 0.20	µg/L	1
Tetrachloroethylene	28-Mar-14	< 0.50	µg/L	30
2,3,4,6-Tetrachlorophenol	28-Mar-14	< 0.50	µg/L	100
Triallate	28-Mar-14	< 0.10	µg/L	230
Trichloroethylene	28-Mar-14	< 0.50	µg/L	5
2,4,6-Trichlorophenol	28-Mar-14	< 0.50	µg/L	5
2,4,5-Trichlorophenoxy acetic acid	28-Mar-14	< 0.20	µg/L	280
Trifluralin	28-Mar-14	< 0.10	µg/L	45
Vinyl Chloride	28-Mar-14	< 0.20	µg/L	2

**All results for the required organic sampling of schedule 24 are below the MAC. Parameters exceeding half MAC are noted in Table 6a.**

**Table 6a: Organics - Sampling exceeding half MAC**

Date of Sample	Parameter	Result Value
14-Mar-2018	THM	128 µg/L
21-Mar-2018	THM	83 µg/L
04-Jun-2018	THM	111 µg/L
21-Jun-2018	THM	78.9 µg/L
12-Sep-2018	THM	55.4 µg/L
23-Nov-2018	THM	78.5 µg/L

Lead Sampling: The maximum acceptable concentration for lead in drinking water is 10µg/L. This applies to water at the point of consumption since lead is only present as a result of corrosion of lead solder, brass containing lead fittings or lead pipes which are found close to or in domestic plumbing and the service connection to buildings.

**Table 7: Community Lead Sampling Results**

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	n/a		
Distribution	n/a		

Lead samples are collected during the two prescribed periods each year (Dec 15 – Mar15 and June 15 – Oct 15).

Sample results revealed zero exceedances during year 2016, sampling relief extends to 2019.

## Compliance

### Adverse Water Quality Incidents

During 2018, the Pronto East DWS reported 15 incidents of adverse water quality.

**Table 8: Adverse Water Quality Incidents**

Date	Incident Reported
06-Jan-2018	Low chlorine, CT not met
21-Jan-2018	Low chlorine, CT not met
16-Mar-2018	Loss of distribution pressure
23-Mar-2018	Low chlorine, CT not met
26-Mar-2018	Low chlorine, CT not met
15 Apr-2018	Loss of distribution pressure
27-Apr-2018	Low chlorine, CT not met
01-May-2018	Low chlorine, CT not met
05-May-2018	Low chlorine, CT not met
06-May-2018	Low chlorine, CT not met
07-May-2018	Low chlorine, CT not met
28-Aug-2018	Loss of distribution pressure
21-Sep-2018	Loss of data due to generator failure
09-Nov-2018	Loss of distribution pressure, extended planned outage
01-Dec-2018	Loss of data, SCADA shut down

### Annual Drinking Water System Inspection

The annual DWS inspection took place on September 12, 2018 by MECP Drinking Water inspector Stephanie Robbins. Zero non-conformances, and zero recommendations and best practices were identified.

**The DWS received a final inspection rating of 100.0 %**

## Flows

The Permit to Take Water authorizes the municipality to draw water from Lake Huron at a rate not to exceed 100m<sup>3</sup>/d.

**The maximum daily volume taken was 30.95 m<sup>3</sup>, 31% of the permit limit.**

Municipal Drinking Water Licence: 282-102 specifies a maximum intake capacity of 80m<sup>3</sup>/d.

**The max flow rate reported was 30.95m<sup>3</sup>/d, 38% of the rated capacity.**

**The Pronto East WTP treated and distributed a total of 3.94ML during the year of 2018. The average daily treated flow demand was 10.8m<sup>3</sup>/d, and maximum day flow was 30.1m<sup>3</sup>/d on July 17<sup>th</sup>, 2018.**

Chart 1: 5 Year Flow Comparison

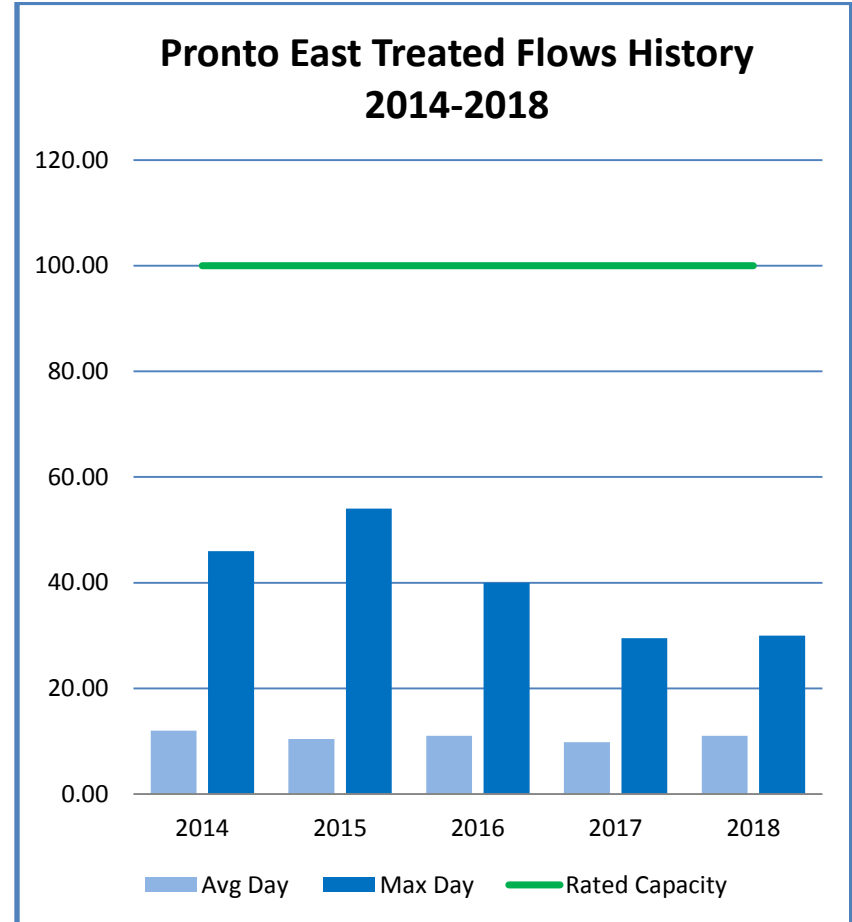
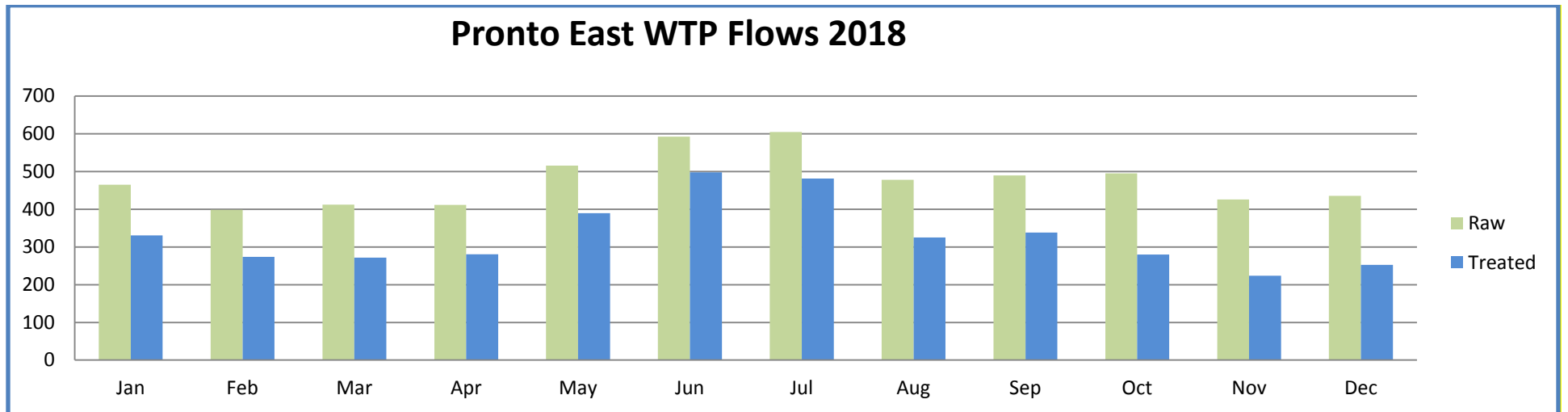




Table 9: Raw and Treated Water Flows 2018

2018 Month	Raw Water Flows					Treated Water Flows			
	Raw Water (m <sup>3</sup> )	Minimum Day (m <sup>3</sup> /d)	Maximum Day (m <sup>3</sup> /d)	Average Day (m <sup>3</sup> /d)	% Max. Flow Day of PTTW	Treated Water (m <sup>3</sup> )	Minimum Day (m <sup>3</sup> /d)	Maximum Day (m <sup>3</sup> /d)	Average Day (m <sup>3</sup> /d)
January	465.0	11.4	19.5	15.0	19.5	330.2	6.5	20.3	10.7
February	398.0	12.7	16.6	14.2	16.6	273.6	8.0	12.5	9.8
March	411.9	10.8	16.2	13.3	16.2	271.8	6.8	12.2	8.8
April	411.4	11.1	22.0	13.7	22.0	280.4	6.3	19.9	9.3
May	515.8	11.9	21.8	16.6	21.8	389.2	7.4	19.7	12.6
June	592.5	14.4	29.1	19.8	29.1	497.7	8.7	28.8	16.6
July	604.5	13.2	31.0	19.5	31.0	481.4	7.2	30.1	15.5
August	478.1	12.0	20.7	15.4	20.7	325.3	6.2	17.0	10.5
September	489.2	7.8	27.5	16.3	27.5	337.9	6.2	25.5	11.3
October	495.1	6.5	21.1	16.0	21.1	279.8	6.6	12.6	9.0
November	425.5	12.4	16.0	14.2	12.4	223.4	5.0	10.1	7.4
December	435.1	12.5	18.2	14.0	12.5	252.4	6.3	18.2	8.1

Chart 2: Pronto East WTP Flows



## Report Endorsement

### Report Availability

Section 11 of O. Reg. 170/03 defines that this Annual Report must be given, without charge, to every person who requests a copy. Effective steps must also be taken to advise users of water from the system that copies of the report are available, without charge, and of how a copy may be obtained. This Annual Report shall be made available for inspection by the public on the Township Office.

Township of the North Shore  
1385 Hwy 17, P.O. Box 108,  
Algoma Mills, ON  
P0R 1A0

In accordance with Schedule 22 of O. Reg. 170/03, this Annual Report must be given to the members of the municipal council. Section 19 (Standard of care, municipal drinking-water system) of Ontario’s Safe Drinking Water Act also places certain responsibilities upon those municipal officials who oversee an accredited operating authority or exercise decision-making authority over a system.

### Report Endorsement

This Summary report for The Pronto East Drinking Water System for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2018 has been prepared in accordance to Schedule 22 of O. Reg. 170/03. The report has been reviewed and accepted by the Township of North Shore council.

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**Date**

## Tables, Definition of Terms

### Appendix A: List of Tables/ Charts

<b>Table 1:</b>	Microbiological sampling requirements
<b>Table 1a:</b>	Microbiological Sample Results
<b>Table 2:</b>	Monthly Filter Turbidity Results
<b>Table 3:</b>	Treated Chlorine Residuals
<b>Table 4:</b>	Schedule 23 - Inorganics
<b>Table 5:</b>	Nitrite/ Nitrate Results
<b>Table 5a:</b>	THM/HAA Results
<b>Table 6:</b>	Schedule 24 - Organics
<b>Table 6a:</b>	Organics - Sampling exceeding half MAC
<b>Table 7:</b>	Community Lead Sampling Results
<b>Table 8:</b>	Adverse Water Quality Incidents
<b>Table 9:</b>	Raw and Treated water Flows 2018
<b>Chart 1:</b>	5 year Flow Comparison
<b>Chart 2:</b>	Pronto East WTP Flows 2018

### Appendix B: Definition of Terms

Acronym	Definition
<b>AWQI</b>	Adverse water quality incident
<b>DWS</b>	Drinking water system
<b>EC</b>	E. Coli
<b>HAA</b>	Haloacetic acids
<b>HPC</b>	Heterotrophic plate count
<b>MAC</b>	Maximum Acceptable Concentration
<b>m<sup>3</sup></b>	Cubic metres
<b>m<sup>3</sup>/d</b>	Cubic metres per day
<b>mg/L</b>	Milligram per litre (part per million)
<b>ML</b>	Megalitre (1000 m <sup>3</sup> )
<b>NTU</b>	Nephelometric turbidity unit
<b>ODWS</b>	Ontario Drinking Water Standards
<b>O. Reg. 170/03</b>	Ontario Regulation 170/03
<b>PTTW</b>	Permit to take water
<b>SCADA</b>	Supervisory control and data acquisition
<b>TC</b>	Total coliforms
<b>THM</b>	Trihalomethane
<b>µg/L</b>	Microgram per litre (part per billion)
<b>WTP</b>	Water treatment plant