2016 Hanover Water Department Annual Report

Drinking-Water System Number:	W210000167
Drinking-Water System Name:	Hanover Water Supply System
Drinking-Water System Owner:	Corporation of the Town of Hanover
Drinking-Water System Category:	Large Municipal (Level 2 Treatment and Distribution)
Period being reported:	January 1 st , 2016 to December 31 st , 2016

Complete if your Category is Large Municipal Residential or Small Municipal Residential	Complete for all other Categories.
Does your Drinking-Water System serve	Number of Designated Facilities served:
more than 10,000 people? Yes [] No [x]	N/A
Is your annual report available to the public	Did you provide a copy of your annual
at no charge on a web site on the Internet?	report to all Designated Facilities you
Yes [x] No []	serve?
Location where Summary Report required	Yes [] No []
under O. Reg. 170/03 Schedule 22 will be	Number of Interested Authorities you
available for inspection.	report to: N/A
Corporation of the Town of Hanover	Did you provide a copy of your annual
341 10 th Street, Hanover Ontario	report to all Interested Authorities you
N4N 1P5	report to for each Designated Facility?
Municipal Office – Reception Desk	Yes [] No []

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

Drinking Water System Name	Drinking Water System Number		

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [] No []

Indicate how you notified system users that your annual report is available, and is free of charge.

- [] Public access/notice via the web
- [] Public access/notice via Government Office
- [] Public access/notice via a newspaper
- [x] Public access/notice via Public Request
- [] Public access/notice via a Public Library
- [x] Public access/notice via other method <u>Water Billing</u>

Describe your Drinking-Water System

The Hanover Water Treatment Plant is a combination of ground water and surface water serving a population of 7400 people. Treatment process includes raw water pumped to a central treatment facility; Source water Ruhl Lake, Well #1 and Well #2 receives chemically aided filtration pretreatment. This combined water is disinfected with U.V and chlorine gas. Seasonally, enhanced U.V and hydrogen peroxide is used for taste and odor control. The treated water is combined in the storage clearwell and then pumped to the distribution system and stored in two elevated towers.

List all water treatment chemicals used over this reporting period

Aluminum sulfate – Coagulant to assist filtration. Note on September 30 2016 change in coagulant aid from aluminum sulfate to PAX XL 52. Chlorine gas – To inactivate disease causing organisms Hydrogen Peroxide – Strong oxidant to control taste and odor issues

Were any significant expenses incurred to?

- [] Install required equipment
- [x] Repair required equipment
- [x] Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

New actuators for valves WTP \$18,180.00 New high lift pump WTP \$29,630.01 New low lift pump for Ruhl Lake Pumping Station \$47,560.44 New sludge pump WTP \$15,808.70 Safety upgrades to 7th Avenue Water Tower \$35,000.00 Under water inspection of Ruhl Lake pumping station water intake pipe \$5892.54 Repairs made to berm around Ruhl Lake \$727.00 Chlorine and Chemicals-\$16,394.64 Analytical Service-\$12,089.07

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date

Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	156	(0)-(310)	(12)-(770)	N/A	
Treated	52	0	0	52	(0)-(40)
Distribution	208	0	0	52	(0)-(500)

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

	Number of Grab Samples	Range of Results	Unit of	NOTE: For
		(min #)-(ave#)-(max #)	Measure	continuous
Influent Turbidity	8760	(0.01)-(0.98)-(10.0)	NTU	monitors use 8760
Effluent Turbidity	8760	(0.03)-(0.07)-(0.79)	NTU	as the number of
Filter #1 Turbidity	8760	(0.03)-(0.10)-(1.62)	NTU	samples.
Filter #2 Turbidity	8760	(0.02)-(0.10)-(1.83)	NTU	
Filter #3 Turbidity	8760	(0.01)-(0.03)-(0.66)	NTU	
Influent Chlorine	8760	(0.00)-(1.76)-(5.00)	Mg/L	
Clearwell Chlorine	8760	(0.38)-(1.62)-(3.44)	Mg/L	
Effluent Chlorine	8760	(0.38)-(1.63)-(5.15)	Mg/L	
Distribution Samples	363	(0.16)-(2.13)	Mg/L	
Waste Water TSS	Quarterly	(6)-(11)	Mg/L	
			_	
Trojan UV Swift 24	Disinfection UV			
ECT System	transmittance 93%	Disinfection		
4.0 Log Crypto		Dose 40 m I/cm2		
Reduction at peak flow	Contaminant (T&O)			
180 l/s	$\mathbf{D} = \mathbf{D} \mathbf{D} \mathbf{D} \mathbf{D} \mathbf{D} \mathbf{D} \mathbf{D} \mathbf{D}$			
	Design 93% 0/0/cm			
Fluoride (If the DWS	N/A			
provides fluoridation)				

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Date of legal instrument issued April 15 2016	Parameter Blue Green Algae	Date Sampled June to October	Result (min)- (max)	Unit of Measure Ug/l
Ruhl Lake	Blue Green Algae	June to October 21 Samples	(0.05) (0.1)	Ug/l
Treated Water	Blue green Algae	June to October 21 Samples	(0.05) (0.1)	Ug/l

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	May 9, 2016	0.02<	Ug/L	
Arsenic	May 9, 2016	0.2	Ug/L	
Barium	May 9, 2016	34.2	Ug/L	
Boron	May 9, 2916	31	Ug/L	
Cadmium	May 9, 2016	0.003<	Ug/L	
Chromium	May 9, 2016	0.35	Ug/L	
*Lead	May 9, 2016	0.01<	Ug/L	
Mercury	May 9, 2016	0.01	Ug/L	
Selenium	May 9, 2016	0.15	Ug/L	
Sodium	November 8,	12.8	Mg/L	Over half mac
	2016			10 mg/L
Uranium	May 9, 2016	0.319	Ug/L	
Fluoride	August 8, 2016	0.15	Mg/L	
Nitrite	May 9, 2016	0.003<	Mg/L	
Nitrate	May 9, 2016	1.98	Mg/L	

*only for drinking water systems testing under Schedule 15.2; this includes large municipal nonresidential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Unit of Measure	Number of Exceedances
Plumbing	40	(0.15)-(5.70)	Ug/l	
Distribution	4	(0.15)-(0.65)	Ug/l	

Summary of Organic parameters sampled during this reporting period or the most recent sample results

Parameter	Sample Date	Result	Unit of	Exceedance
		Value	Measure	
Alachlor	May 9, 2016	0.02<	Ug/L	
Aldicarb	May 11, 2015	0.01<	Ug/L	
Aldrin + Dieldrin	May 11, 2015	0.01<	Ug/L	
Atrazine + N-dealkylated metobolites	May 9,2016	0.01<	Ug/L	
Azinphos-methyl	May 9, 2016	0.05	Ug/L	
Bendiocarb	May 11, 2015	0.01<	Ug/L	
Benzene	May 9, 2016	0.32	Ug/L	
Benzo(a)pyrene	May 9, 2016	0.004	Ug/L	
Bromoxynil	May 9, 2016	0.33	Ug/L	
Carbaryl	May 9, 2016	0.05	Ug/L	
Carbofuran	May 9, 2016	0.01	Ug/L	
Carbon Tetrachloride	May 9, 2016	0.16	Ug/L	
Chlordane (Total)	May 11, 2015	0.01<	Ug/L	
Chlorpyrifos	May 9, 2016	0.02<	Ug/L	
Cyanazine	May 11, 2015	0.03<	Ug/L	
Diazinon	May 9, 2016	0.02<	Ug/L	
Dicamba	May 9, 2016	0.20<	Ug/L	
1,2-Dichlorobenzene	May 9, 2016	0.41<	Ug/L	
1,4-Dichlorobenzene	May 9, 2016	0.36<	Ug/L	
Dichlorodiphenyltrichloroeth ane (DDT) + metabolites	May 11, 2015	0.01<	Ug/L	
1,2-Dichloroethane	May 9, 2016	0.35<	Ug/L	
1,1-Dichloroethylene (vinylidene chloride)	May 9, 2016	0.33<	Ug/L	
Dichloromethane	May 9, 2016	0.35<	Ug/L	
2-4 Dichlorophenol	May 9, 2016	0.15<	Ug/L	
2,4-Dichlorophenoxy acetic acid (2,4-D)	May 9, 2016	0.19<	Ug/L	
Diclofop-methyl	May 9, 2016	0.40<	Ug/L	
Dimethoate	May 9, 2016	0.03<	Ug/L	
Dinoseb	May 11, 2015	0.36<	Ug/L	
Diquat	May 9, 2016	1.0<	Ug/L	
Diuron	May 9, 2016	0.03<	Ug/L	
Glyphosate	May 9, 2016	1.0<	Ug/L	
Heptachlor + Heptachlor Epoxide	May 11, 2015	0.01<	Ug/L	
Lindane (Total)	May 11, 2015	0.01<	Ug/L	
Malathion	May 9, 2016	0.02<	Ug/L	
Methoxychlor	May 11, 2015	0.01<	Ug/L	
Metolachlor	May 9, 2016	0.01<	Ug/L	
Metribuzin	May 9, 2016	0.02<	Ug/L	
Monochlorobenzene	May 9, 2016	0.3<	Ug/L	
Paraquat	May 9, 2016	1.0<	Ug/L	

Parathion	May 11, 2015	0.02<	Ug/L
Pentachlorophenol	May 9, 2016	0.15<	Ug/L
Phorate	May 9, 2016	0.01<	Ug/L
Picloram	May 9, 2016	1.0<	Ug/L
Polychlorinated Biphenyls(PCB)	May 9, 2016	0.04<	Ug/L
Prometryne	May 9, 2016	0.03<	Ug/L
Simazine	May 9, 2016	0.01<	Ug/L
THM (NOTE: show latest annual average)	2016	39.7	Ug/L
Temephos	May 11, 2015	0.01<	Ug/L
Terbufos	May 9, 2016	0.01<	Ug/L
Tetrachloroethylene	May 9, 2016	0.35<	Ug/L
2,3,4,6-Tetrachlorophenol	May 9, 2016	0.20<	Ug/L
Triallate	May 9, 2916	0.01<	Ug/L
Trichloroethylene	May 9, 2016	0.44<	Ug/L
2,4,6-Trichlorophenol	May 9, 2016	0.25<	Ug/L
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)	May 11, 2015	0.22<	Ug/L
Trifluralin	May 9, 2016	0.02<	Ug/L
Vinyl Chloride	May 9, 2016	0.17<	Ug/l

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Ouality Standards.

Parameter	Result Value	Unit of Measure	Date of Sample
Sodium	12.8	Mg/L	November 8, 2016