

CITY OF HAMILTON
LYNDEN DRINKING WATER SYSTEM (DWS)
WATER QUALITY ANNUAL REPORT

2018



Ontario Regulation 170/03 Section 11

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Drinking Water System Number	Drinking Water System Name	Drinking Water System Owner	Drinking Water System Category	Period Being Reported
250001830	Lynden Drinking Water System FDL01	City of Hamilton	Large Municipal Residential	January 1, 2018 to December 31, 2018

Complete if your Category is "Large Municipal Residential" or "Small Municipal Residential"

Does your Drinking Water System serve more than 10,000 people? YES ☒ NO

Is your annual report available to the public at no charge on a website on the Internet? www.hamilton.ca/waterquality ☒ YES NO

Location where Summary Report required under Ontario Regulation 170/03 Schedule 22 will be available for inspection: 700 Woodward Administration Building, Compliance Support Group

Complete for all other Categories

Number of Designated Facilities served: N/A

Did you provide a copy of your annual report to all Designated Facilities you serve? N/A

Number of Interested Authorities you report to: N/A

Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? N/A





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
None other than Lynden System	250001830



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

NOT APPLICABLE



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

System users are notified through the local newspaper that the annual report is available online free of charge at www.hamilton.ca/waterquality.



LYNDEN DWS



The Lynden ground water supply system consists of one well, one well station, treatment, sampling and analysis which services a population of approximately 380 people.

Water Well:

Lynden Well FDL01 is a 200 mm diameter, approximately 54-meter-deep drilled ground water well.

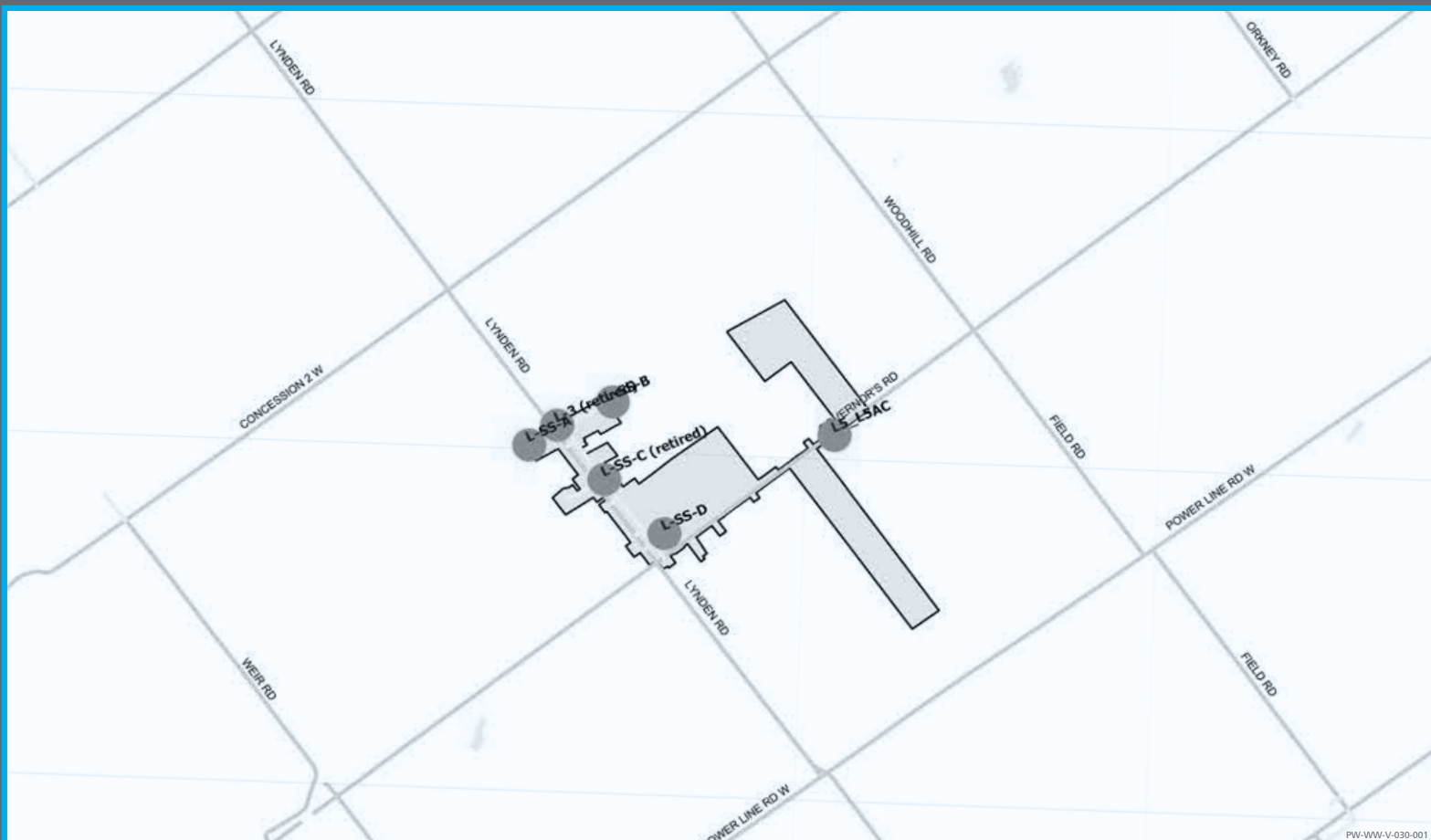
Treatment:

Water enters a dual cell reservoir in which compressed air is diffused into the first cell to reduce the levels of hydrogen sulfide in the water before chlorine (sodium hypochlorite) disinfection is carried out in the second cell. A secondary chlorine injection point is provided after primary disinfection to boost chlorine residual levels, when necessary, before the treated water goes to the distribution system.

Fluoridation is not carried out at the Lynden communal well system.

Sampling & Analysis:

Continuous chlorine residual analyzers and a turbidity analyzer are provided to monitor water quality at the well station. Raw, treated and distribution water is sampled and analyzed weekly. In addition, chlorine residual in the distribution system is analyzed daily.



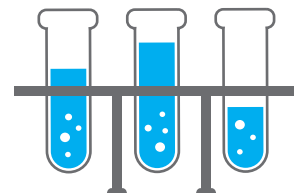
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LYNDEN DRINKING WATER SYSTEM



List all water treatment chemicals used over this reporting period:

→ Sodium Hypochlorite



Were any significant expenses incurred to:

Install required equipment	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Repair required equipment	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Replace required equipment	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO

2018 LYNDEN DRINKING WATER SYSTEM HIGHLIGHTS

Lynden New Well and Treatment Building detailed design \$362,000

Chlorine Analyzer Maintenance \$17,000

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.

Notification Date (m-d-y)	Location of Adverse	Adverse Water Quality Incident	Resolution
09-27-2018	Lynden Sampling Station D	Total Coliforms = 1 CFU/100mL (Regulatory requirement is 0 CFU/100mL)	→ Resampled adverse location, one upstream and one downstream location. All results passed. The adverse was not confirmed.

Microbiological testing done under Schedule 10, 11, 12 and 17, 18 of Regulation 170/03, during this reporting period.

SAMPLE TYPE	NUMBER OF SAMPLES	RANGE OF E.COLI RESULTS (MIN #) to (MAX #) CFU/100ML	RANGE OF TOTAL COLIFORM RESULTS (MIN #) to (MAX #) CFU/100ML	NUMBER OF HPC SAMPLES	RANGE OF HPC RESULTS (MIN #) to (MAX #) CFU/1ML
RAW	52	0	0	N/A	N/A
TREATED	54	0	0	53	0 to 57
DISTRIBUTION	158	0	0 to 1	156	0 to 46

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

NOTE: For continuous monitors use 8760 as the number of samples.

PARAMETER - SAMPLE TYPE	NUMBER OF GRAB SAMPLES	RANGE OF RESULTS (MIN #) to (MAX #)	UNIT OF MEASURE
TURBIDITY - TREATED	52	0.07 to 0.33	NTU
FREE CHLORINE - TREATED	8,760	1.27 to 2.78	mg/L
FREE CHLORINE - DISTRIBUTION	365	0.43 to 2.42	mg/L

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

PARAMETER	NO. OF SAMPLES	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE
LEAD - TREATED	25	2018-01-03 to 2018-12-20	<0.0010 to 0.0002	mg/L
LEAD - DISTRIBUTION	75	2018-01-03 to 2018-12-20	<0.0010 to 0.0010	mg/L



Summary of Inorganic parameters required by Regulation 170/03 and tested during this reporting period.

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
LYNDEN WELL TREATED				
ANTIMONY	2018-05-16 to 2018-10-17	<0.0001	mg/L	0
ARSENIC	2018-05-16 to 2018-10-17	0.0001	mg/L	0
BARIUM	2018-01-22 to 2018-10-17	0.580 to 0.592	mg/L	0
BORON	2018-05-16 to 2018-10-17	0.428 to 0.460	mg/L	0
CADMIUM	2018-05-16 to 2018-10-17	<0.0001	mg/L	0
CHROMIUM	2018-05-16 to 2018-10-17	<0.0001	mg/L	0
FLUORIDE	2018-05-16 to 2018-10-17	0.65 to 0.68	mg/L	0
MERCURY	2018-05-16 to 2018-10-17	<0.00005	mg/L	0
NITRATE AS N	2018-01-22 to 2018-10-17	0.02 to 0.03	mg/L	0
NITRITE AS N	2018-01-22 to 2018-10-17	<0.01	mg/L	0
SELENIUM	2018-05-16 to 2018-10-17	<0.0001	mg/L	0
SODIUM	2018-05-16 to 2018-10-17	58.8 to 60.8	mg/L	0
URANIUM	2018-05-16 to 2018-10-17	<0.002 to 0.003	ug/L	0

Summary of lead testing under Schedule 15.1 during this reporting period.

LOCATION TYPE	NO. OF POINTS SAMPLED	NO. OF SAMPLES TAKEN	RANGE OF pH RESULTS (min #) to (max #) pH Units	RANGE OF ALKALINITY RESULTS (min #) to (max #) mg/L	RANGE OF LEAD RESULTS (min #) to (max #) mg/L	NO. OF LEAD AWQIs	NO. OF POINTS OF LEAD EXCEEDANCES
PLUMBING-NR	2	2	8.88	N/A	<0.0010	0	0
PLUMBING-R	10	10	8.76 to 8.90	N/A	<0.0010	0	0
DISTRIBUTION	2	2	8.76 to 8.92	95 to 96	<0.0010	0	0

NR - Non Residential R - Residential

Summary of Organic parameters required by Regulation 170/03 and tested during this reporting period.

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
LYNDEN WELL TREATED				
1,1-DICHLOROETHYLENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
1,2-DICHLOROBENZENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
1,2-DICHLOROETHANE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
1,4-DICHLOROBENZENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
BENZENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
CARBON TETRACHLORIDE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
CHLOROBENZENE	2018-05-16 to 2018-10-17	<0.3	ug/L	0
DICHLOROMETHANE	2018-10-17	<0.5	ug/L	0
ETHYLBENZENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
TETRACHLOROETHYLENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
TOLUENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
TRICHLOROETHYLENE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
VINYL CHLORIDE	2018-05-16 to 2018-10-17	<0.2	ug/L	0
XYLENE	2018-05-16 to 2018-10-17	<0.3	ug/L	0
2,3,4,6-TETRACHLOROPHENOL	2018-05-16	<0.2	ug/L	0
2,4,6-TRICHLOROPHENOL	2018-05-16	<0.25	ug/L	0
2,4-D	2018-05-16	<0.19	ug/L	0
2,4-DICHLOROPHENOL	2018-05-16	<0.15	ug/L	0
ALACHLOR	2018-05-16	<0.02	ug/L	0
ATRAZINE + DESETHYL-ATRAZINE	2018-05-16	<0.01	ug/L	0
AZINPHOS-METHYL	2018-05-16	<0.05	ug/L	0
BENZO[A]PYRENE	2018-05-16	<0.004	ug/L	0
BROMOXYNIL	2018-05-16	<0.33	ug/L	0
CARBARYL	2018-05-16	<0.05	ug/L	0
CARBOFURAN	2018-05-16	<0.01	ug/L	0
CHLORPYRIFOS (DURSBAN)	2018-05-16	<0.02	ug/L	0
DIAZINON	2018-05-16	<0.02	ug/L	0
DICAMBA	2018-05-16	<0.20	ug/L	0
DICLOFOP-METHYL	2018-05-16	<0.40	ug/L	0

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Summary of Organic parameters required by Regulation 170/03 and tested during this reporting period. (continued)...

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE	NO. OF AWQIs
DIMETHOATE	2018-05-16	<0.03	ug/L	0
DIQUAT	2018-05-16	<1	ug/L	0
DIURON	2018-05-16	<0.03	ug/L	0
GLYPHOSATE	2018-05-16	<1	ug/L	0
MALATHION	2018-05-16	<0.02	ug/L	0
MCPA (2-METHYL-4-CHLOROPHENOXYACETIC ACID)	2018-05-16	<0.00012	mg/L	0
METOLACHLOR	2018-05-16	<0.01	ug/L	0
METRIBUZIN (SENCOR)	2018-05-16	<0.02	ug/L	0
PARAQUAT	2018-05-16	<1	ug/L	0
PCBSTOTAL	2018-05-16	<0.05	ug/L	0
PENTACHLOROPHENOL	2018-05-16	<0.15	ug/L	0
PHORATE	2018-05-16	<0.01	ug/L	0
PICLORAM	2018-05-16	<1	ug/L	0
PROMETRYNE	2018-05-16	<0.03	ug/L	0
SIMAZINE	2018-05-16	<0.01	ug/L	0
TERBUFOS	2018-05-16	<0.01	ug/L	0
TRIALATE	2018-05-16	<0.01	ug/L	0
TRIFLURALIN	2018-05-16	<0.02	ug/L	0

DISTRIBUTION

TOTAL TRIHALOMETHANES*	Running annual average for the last four quarters.	69.5	ug/L	0
HALOACETIC ACIDS	2018-01-22 to 2018-10-17	<5.3 to 7.3	ug/L	N/A

* The Maximum Acceptable Concentration for Trihalomethanes in the distribution is based on a running average of the results from all sampling events in the past four quarters. This running average can be found in the result value column.

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards (O.Reg. 169/03).

PARAMETER	SAMPLE DATE	RESULT VALUE	UNIT OF MEASURE
TOTAL TRIHALOMETHANES	2018-05-16	58	ug/L
TOTAL TRIHALOMETHANES	2018-08-01	108	ug/L
TOTAL TRIHALOMETHANES	2018-10-17	72	ug/L
BARIUM	2018-01-22	0.580	mg/L
BARIUM	2018-10-17	0.586	mg/L
BARIUM	2018-05-16	0.588	mg/L
BARIUM	2018-08-01	0.592	mg/L

(Only if DWS category is large municipal residential, small municipal residential, large municipal non residential, non municipal year round residential, large non municipal non residential)

DEFINITIONS:

AWQI: Adverse Water Quality Incident
mg/L: milligrams per litre
ug/L: micrograms per litre

CFU: Colony Forming Unit
mL: millilitre

HPC: Heterotrophic Plate Count
N/A: Not Applicable

