



February 28, 2023

Municipality of West Grey
402813 Grey Road 4
RR#2
Durham, ON
N0G 1R0

Attention: Geoff Aitken, Public Works Manager

**RE: Durham Drinking Water System
2022 Annual Report**

Geoff,

Please find attached the 2022 Annual Operations Report for the Durham drinking water system, in accordance with Section 11(1) of O. Reg. 170/03. This report covers the period from January 1 to December 31 and meets the requirement of being prepared by February 28 of this year.

Please ensure that a copy of this report is given, without charge, to every person who requests a copy. In addition, please make certain that effective steps are taken to advise residents that copies of the report are available, and of how a copy can be obtained.

Finally, as per Schedule 22 of O. Reg. 170/03, please ensure that at least a copy of the Summary Report is given to the members of municipal council no later than March 31, 2023.

If you have any questions regarding the report, we would be pleased to address them and you should contact the undersigned accordingly.

Sincerely,

VEOLIA WATER CANADA INC.

A handwritten signature in black ink, appearing to be "GP" or "GPrangley", written in a cursive style.

Greg Prangley
Project Manager

Veolia North America

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Montreal, QC H2Z 1B1

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2022 ANNUAL REPORT FOR WATER SYSTEMS

Part 1 – ANNUAL REPORT (as required by O. Reg. 170/03, Section 11)

Drinking-Water System Number:	220001771
Drinking-Water System Name:	Durham Drinking Water System
Drinking-Water System Owner:	Municipality of West Grey
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 – December 31, 2022

Complete if your Category is Large Municipal Residential or Small Municipal Residential	Complete for all other Categories
Does your Drinking-Water System serve more than 10,000 people? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number of Designated Facilities served: n/a
Is your annual report available to the public at no charge on a website on the Internet? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did you provide a copy of your annual report to all Designated Facilities you serve? <input type="checkbox"/> Yes <input type="checkbox"/> No
Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection. Municipality of West Grey 402813 Grey Road #4 Durham, ON NOG 1R0	Number of Designated Facilities served: n/a Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? <input type="checkbox"/> Yes <input type="checkbox"/> No

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
n/a	

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?

n/a

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

<input checked="" type="checkbox"/> Public access/notice via the Web	<input checked="" type="checkbox"/> Public access/notice via Government Office	<input type="checkbox"/> Public access/notice via a newspaper
<input type="checkbox"/> Public access/notice via Public Request	<input type="checkbox"/> Public access/notice via a Public Library	<input type="checkbox"/> Public access/notice via other method

Describe your Drinking Water System

Well No. 1B Pumphouse

A groundwater well, 300mm diameter and 77 m deep equipped with a VFD submersible well pump rated at 15.9 L/s at a TDH of 71-133 m. The pumphouse enclosure building is 4.9 m x 3.1 m x 3.3 m high and houses the water treatment equipment including, but not limited to, flow meters, UV disinfection system, cartridge filters, sodium hypochlorite disinfection system, online chlorine and turbidity analyzers, low level alarms, autodialer and backup diesel generator.

Well No. 2 Pumphouse

A GUDI well, 300mm diameter and 74.7 m deep equipped with a VFD submersible well pump rated at 17 L/s at a TDH of 75-139 m. The pumphouse contains the water treatment equipment including, but not limited to, flow meters, UV disinfection system, cartridge filters, sodium hypochlorite disinfection system, online chlorine and turbidity analyzers, low level alarms, autodialer and backup power source available.

Well #2A is located just outside the well#2 pumphouse. It is a 250mm diameter well about 68m deep. The variable speed submersible pump has a capacity of 1134L/min. The capacity of the wellhouse is 18.9L/s

List all water treatment chemicals used over this reporting period

Sodium Hypochlorite -12%

Please provide a brief description and a breakdown of monetary expenses incurred (prices approximate)

Parts for UV system \$2481
 Chemical pump parts \$1286
 Replacement filters \$11,898
 Calibrations \$1934
 Rebuild pressure relief valves at Durham booster station \$4,695
 Repairs at Durham water tower \$8,645
 Leak detection services \$3,616
 SCADA radio replacement \$19,713
 Inspection of Durham reservoir (and Neustadt water tower) \$7,345
 Durham well #1 pump inspection, repairs \$5,116

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	Corrective Action	Corrective Action Date
None in 2022				

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 Results (min #) - (max #)	Range of Total Coliform Results (min #) - (max #)	Number of HPC Samples	Range of HPC Results (min #) - (max #)
Raw (well 1B)	52	0	0-4	n/a	n/a
Raw (well 2)	48*	0	0	n/a	n/a
Raw (well #2A)	52	0	0	n/a	n/a
Treated POE 1	52	0	0	52	<10 - 10
Treated POE 2	52	0	0	52	<10 - 20
Distribution	156	0	0	52	<10 - 10

*well offline in December so no samples were collected

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 (min #) – (max #)	Units
Turbidity – well 1B Treated	8760	0.01-0.74	NTU
Turbidity – Well 2 Treated	8760	0.03-1.29	NTU
Chlorine – Well 1B Treated	8760	0.00-2.00	mg/L
Chlorine – Well 2 Treated	8760	0.51-2.00	mg/L
Chlorine - Distribution	468	0.71-1.53	mg/L

There were no instances of untreated water being delivered into the distribution system. Well pumps automatically shut off when chlorine levels drop below a preset value, or if Turbidity exceeds 1.0NTU for 10 minutes. SCADA system reads all values, even when well pumps are off or equipment service is being conducted

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	Parameter	Date Sampled	Range of Results	Unit of Measure
December 1, 2009	UV transmittance (#1B)	Jan-Dec. 2022	98.0-100.0	% transmittance
December 1, 2009	UV transmittance (#2)	Jan-Dec. 2022	98.0-100.0	% transmittance

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

Parameter	Sample Date	Result Value POE 1	Result Value POE 2	Distribution	Unit of Measure	Exceedance
Antimony	Aug. 15/22	ND	ND	-	mg/L	NO
Arsenic	Aug. 15/22	ND	ND	-	mg/L	NO
Barium	Aug. 15/22	0.0167	0.0134	-	mg/L	NO
Boron	Aug. 15/22	0.021	0.025	-	mg/L	NO
Cadmium	Aug. 15/22	0.008	0.005	-	ug/L	NO
Chromium	Aug. 15/22	0.23	0.49	-	ug/L	NO
Lead-see summary below						
Mercury	Aug. 15/22	ND	ND	-	mg/L	NO
Selenium	Aug. 15/22	0.62	1.10	-	ug/L	NO
Sodium	Aug. 4/20	6.2	11.0	-	mg/L	NO
Uranium	Aug. 15/22	1.88	3.63	-	ug/L	NO

Fluoride	Aug. 30/21	0.20	0.67	-	mg/L	NO
Nitrite	Feb. 14/22	ND	ND	-	mg/L	NO
Nitrate	Feb. 14/22	1.44	1.01	-	mg/L	NO
Nitrite	May 2/22	ND	ND	-	mg/L	NO
Nitrate	May 2/22	1.40	0.942	-	mg/L	NO
Nitrite	Aug. 8/22	ND	ND	-	mg/L	NO
Nitrate	Aug. 8/22	1.38	1.00	-	mg/L	NO
Nitrite	Nov. 7/22	ND	ND	-	mg/L	NO
Nitrate	Nov. 7/22	1.34	0.868	-	mg/L	NO

Summary of Lead Results during this reporting period (Winter: Dec. 15/21-April 15/22; Summer: June 15-Oct. 15/22)

Sampling Period	Range of Results (µg/L) from Residential Samples (# of Samples taken)	Non-residential locations	Distribution System	Any Adverse Water Quality Incidents?
Winter	n/a	n/a	0.12-0.19(2)	NO
Summer	n/a	n/a	0.17-0.88(2)	NO

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

Parameter	Sample Date	Result Value POE 1	Result Value POE 2	Unit of Measure	Exceedance
Alachlor	Aug. 15/22	ND	ND	µg/L	NO
Atrazine + N-dealkylated metabolites	Aug. 15/22	ND	ND	µg/L	NO
Azinphos-methyl	Aug. 15/22	ND	ND	µg/L	NO
Benzene	Aug. 15/22	ND	ND	µg/L	NO
Benzo(a)pyrene	Aug. 15/22	ND	ND	µg/L	NO
Bromoxynil	Aug. 15/22	ND	ND	µg/L	NO
Carbaryl	Aug. 15/22	ND	ND	µg/L	NO
Carbofuran	Aug. 15/22	ND	ND	µg/L	NO
Carbon Tetrachloride	Aug. 15/22	ND	ND	µg/L	NO
Chlorpyrifos	Aug. 15/22	ND	ND	µg/L	NO
Diazinon	Aug. 15/22	ND	ND	µg/L	NO
Dicamba	Aug. 15/22	ND	ND	µg/L	NO
1,2-Dichlorobenzene	Aug. 15/22	ND	ND	µg/L	NO
1,4-Dichlorobenzene	Aug. 15/22	ND	ND	µg/L	NO
1,2-Dichloroethane	Aug. 15/22	ND	ND	µg/L	NO

1,1-Dichloroethylene (vinylidene chloride)	Aug. 15/22	ND	ND	µg/L	NO
Dichloromethane	Aug. 15/22	ND	ND	µg/L	NO
2-4 Dichlorophenol	Aug. 15/22	ND	ND	µg/L	NO
2,4-Dichlorophenoxy acetic acid (2,4-D)	Aug. 15/22	ND	ND	µg/L	NO
Diclofop-methyl	Aug. 15/22	ND	ND	µg/L	NO
Dimethoate	Aug. 15/22	ND	ND	µg/L	NO
Diquat	Aug. 15/22	ND	ND	µg/L	NO
Diuron	Aug. 15/22	ND	ND	µg/L	NO
Glyphosate	Aug. 15/22	ND	ND	µg/L	NO
HAA	Q1-Q4 2022	<5.3 (distribution)		µg/L	NO
Malathion	Aug. 15/22	ND	ND	µg/L	NO
MCPA	Aug. 15/22	ND	ND	mg/L	NO
Metolachlor	Aug. 15/22	ND	ND	µg/L	NO
Metribuzin	Aug. 15/22	ND	ND	µg/L	NO
Monochlorobenzene	Aug. 15/22	ND	ND	µg/L	NO
Paraquat	Aug. 15/22	ND	ND	µg/L	NO
Pentachlorophenol	Aug. 15/22	ND	ND	µg/L	NO
Phorate	Aug. 15/22	ND	ND	µg/L	NO
Picloram	Aug. 15/22	ND	ND	µg/L	NO
Polychlorinated Biphenyls(PCB)	Aug. 15/22	ND	ND	µg/L	NO
Prometryne	Aug. 15/22	ND	ND	µg/L	NO
Simazine	Aug. 15/22	ND	ND	µg/L	NO
THM (NOTE: show latest annual average)	Q1-Q4 2022	5.78 (distribution)		µg/L	NO
Terbufos	Aug. 15/22	ND	ND	µg/L	NO
Tetrachloroethylene	Aug. 15/22	ND	ND	µg/L	NO
2,3,4,6-Tetrachlorophenol	Aug. 15/22	ND	ND	µg/L	NO
Triallate	Aug. 15/22	ND	ND	µg/L	NO
Trichloroethylene	Aug. 15/22	ND	ND	µg/L	NO
2,4,6-Trichlorophenol	Aug. 15/22	ND	ND	µg/L	NO
Trifluralin	Aug. 15/22	ND	ND	µg/L	NO
Vinyl Chloride	Aug. 15/22	ND	ND	µg/L	NO

ND = Non-Detect

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

Parameter	Sample Date	Result Value	Unit of Measure	ODWS Criteria
None				

Part 2 – SUMMARY REPORT (as required by O. Reg. 170/03, Schedule 22)

Non-Compliance with Legislations, Regulations, Approvals & Orders

During this period, the Facility was operated in full compliance with the Act, the regulations and the Facility's approval, save and except for the following:

Nothing to report (2022 inspection report not available at the time of the creation of this report)

Month	Average Flow Well #1B	Maximum Flow Well #1B	Average Flow Well #2	Maximum Flow Well #2	Average Flow Well #2A	Maximum Flow Well #2A
January	487	600	256	314	257	315
February	573	761	299	402	300	403
March	542	689	291	363	293	365
April	540	618	252	284	253	285
May	528	598	232	267	238	269
June	548	680	247	366	257	376
July	563	850	253	447	262	447
August	509	596	230	268	231	270
September	506	573	221	255	229	258
October	475	612	215	343	220	343
November	492	544	120	183	270	460
December	470	513	0	0	427	463
AVERAGE	519	n/a	217	n/a	270	n/a
MAXIMUM	-	850	-	447	-	463
SYSTEM CAPACITY	1469	1469	1469	1469	1469	1469
% CAPACITY	35.3%	57.9%	14.8%	30.4%	18.3%	31.5%