



February 25, 2022

Corporation of the Town of Laurentian Hills
34465 Highway #17, R.R.#1
Deep River, Ontario
K0J 1P0

Attention: Sherry Batten, Chief Administrative Officer

**RE: Chalk River Drinking Water System
2021 Annual Report**

Sherry,

Please find attached the 2021 Annual Operations Report for the Chalk River 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 a copy of the report is given to the members of municipal council no later than March 31, 2022.

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 read "G Prangley".

Greg Prangley
Project Manager

c. Veolia Canada Chalk River operations



2021 ANNUAL REPORT FOR WATER SYSTEMS

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

Drinking-Water System Number:	210000666
Drinking-Water System Name:	Chalk River Drinking Water System
Drinking-Water System Owner:	Town of Laurentian Hills
Drinking-Water System Category:	Large Municipal Residential
Period being reported:	January 1 – December 31, 2021

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 web site 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. MUNICIPAL OFFICE Town Office – Pt. Alexander #34465 Hwy 17	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 type="checkbox"/> Public access/notice via Municipal Office	<input type="checkbox"/> Public access/notice via a newspaper
<input checked="" 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

The source of the Chalk River Drinking Water system is Corry Lake. Raw water is screened from the lake before being pumped to the water plant for treatment. The water treatment process includes chemically-assisted coagulation, flocculation and settling within a solids contact clarifier followed by filtration through sand and anthracite filters. Filtered water is then disinfected using liquid chlorine. Fluoride is then added to the treated water. Water is pumped into the elevated water storage tower for disinfection contact time and then flows out to the distribution system.

List all water treatment chemicals used over this reporting period

pH adjustment – Soda Ash
 Primary Coagulant – PAX-XL
 Coagulant aid – Polymer
 Disinfection – Sodium Hypochlorite
 Fluoridation – Hydroflousilicic acid

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

Lab supplies and reagents \$1168.03
 Jar tester \$2869.85
 Replacement filter media \$2378.09
 Flow meter calibrations \$3644.25
 Replacement of stainless steel spool (chemical injection) \$3121
 New turbidity analyzer \$9838
 New chemical pump \$4293

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
April 6, 2021	Lead (non-residential plumbing)	11.4ug/L (first sample)	None	N/A

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	52	0-10	0-33	NA	NA
Treated	52	0	0	52	<2-40
Distribution	156	0	0	52	<2-2

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
Filter Effluent Turbidity-Filter #1	8760	0.04-0.36	NTU
Filter Effluent Turbidity-Filter #2	8760	0.04-0.54	NTU
Chlorine-POE (Tower)	8760	0.69-1.74	mg/L
Distribution	468	0.24-1.14	mg/L
Fluoride (If the DWS provides fluoridation)	8760	0.47-0.86	mg/L

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
March 2, 2021	Elevated Tank pH	Monthly	7.20-7.69	n/a
March 2, 2021	Elevated Tank alkalinity	Monthly	18-35	mg/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	Jan 20/21	ND	mg/L	No
Arsenic	Jan 20/21	ND	mg/L	No
Barium	Jan 20/21	0.01	mg/L	No
Boron	Jan 20/21	ND	mg/L	No
Cadmium	Jan 20/21	ND	mg/L	No
Chromium	Jan 20/21	ND	mg/L	No
Lead-see results below				
Mercury	Jan 20/21	ND	µg/L	No
Selenium	Jan 20/21	ND	mg/L	No
Sodium	Jan 24/18	22.0	mg/L	Yes
Uranium	Jan 20/21	ND	mg/L	No
Fluoride	Jan 24/18	0.5	mg/L	No
Nitrite	Jan 20/21	<0.1	mg/L	No
Nitrate	Jan 20/21	<0.1	mg/L	No
Nitrite	Apr 21/21	<0.1	mg/L	No
Nitrate	Apr 21/21	<0.1	mg/L	No
Nitrite	July 21/21	<0.1	mg/L	No
Nitrate	July 21/21	<0.1	mg/L	No
Nitrite	Oct. 20/21	0.1	mg/L	No
Nitrate	Oct. 20/21	<0.1	mg/L	No

*readings are below detectable limits

Summary of Lead Results during this reporting period (Winter: Dec. 15/20-April 15/21; Summer: June 15-Oct. 15/21)				
Sampling Period	Range of Results (µg/L) from Residential Samples (# of Samples taken)	Non-residential locations	Distribution System	Any Reportable Incidents?
Winter	0.28-0.37 (1)	2.46-11.4 (1)	0.12-0.17(2)	YES
Summer	6.8-17.5(1)	2.02-5.96(1)	0.09-0.22 (2)	YES

*two samples taken per residential and non-residential address

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

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	Jan 20/21	ND	µg/L	No
Atrazine + N-dealkylated metabolites	Jan 20/21	ND	µg/L	No
Azinphos-methyl	Jan 20/21	ND	µg/L	No
Benzene	Jan 20/21	ND	µg/L	No
Benzo(a)pyrene	Jan 20/21	ND	µg/L	no
Bromoxynil	Jan 20/21	ND	µg/L	No
Carbaryl	Jan 20/21	ND	µg/L	No
Carbofuran	Jan 20/21	ND	µg/L	No
Carbon Tetrachloride	Jan 20/21	ND	µg/L	No
Chlorpyrifos	Jan 20/21	ND	µg/L	No
Diazinon	Jan 20/21	ND	µg/L	No
Dicamba	Jan 20/21	ND	µg/L	No
1,2-Dichlorobenzene	Jan 20/21	ND	µg/L	No
1,4-Dichlorobenzene	Jan 20/21	ND	µg/L	No
1,2-Dichloroethane	Jan 20/21	ND	µg/L	No
1,1-Dichloroethylene (vinylidene chloride)	Jan 20/21	ND	µg/L	No
Dichloromethane	Jan 20/21	ND	µg/L	No
2-4 Dichlorophenol	Jan 20/21	ND	µg/L	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	Jan 20/21	ND	µg/L	No
Diclofop-methyl	Jan 20/21	ND	µg/L	No
Dimethoate	Jan 20/21	ND	µg/L	No
Diquat	Jan 20/21	ND	µg/L	No
Diuron	Jan 20/21	ND	µg/L	No
Glyphosate	Jan 20/21	ND	µg/L	No
HAA (four quarter avg)	Q1-Q4 2021	62.0	µg/L	No
Malathion	Jan 20/21	ND	µg/L	No
MCPA	Jan 20/21	ND	mg/L	N/A
Metolachlor	Jan 20/21	ND	µg/L	No
Metribuzin	Jan 20/21	ND	µg/L	No

Monochlorobenzene	Jan 20/21	ND	µg/L	No
Paraquat	Jan 20/21	ND	µg/L	No
Pentachlorophenol	Jan 20/21	ND	µg/L	No
Phorate	Jan 20/21	ND	µg/L	No
Picloram	Jan 20/21	ND	µg/L	No
Polychlorinated Biphenyls(PCB)	Jan 20/21	ND	µg/L	No
Prometryne	Jan 20/21	ND	µg/L	No
Simazine	Jan 20/21	ND	µg/L	No
THM (NOTE: show latest annual average)	Q1-Q4 2021	73.8	µg/L	No
Terbufos	Jan 20/21	ND	µg/L	No
Tetrachloroethylene	Jan 20/21	ND	µg/L	No
2,3,4,6-Tetrachlorophenol	Jan 20/21	ND	µg/L	No
Triallate	Jan 20/21	ND	µg/L	No
Trichloroethylene	Jan 20/21	ND	µg/L	No
2,4,6-Trichlorophenol	Jan 20/21	ND	µg/L	No
Trifluralin	Jan 20/21	ND	µg/L	No
Vinyl Chloride	Jan 20/21	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
Total THM	Q1-Q4 2021	73.8	µg/L	100 µg/L
HAA	Q1-Q4 2021	62.0	µg/L	80 µg/L

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:

Requirement	Actions Required	Actions Taken
No non-compliances. Inspection completed late December 2021 but no results received by Dec. 31		

System Capability Assessment

Comparison of Flow Rates (m³/d):

Month	Average Flow	Maximum	Max. Instantaneous Flow (L/s)
January	299	422	10.3
February	317	438	10.3
March	303	418	10.1
April	326	455	10.0
May	395	649	10.2
June	575	909	12.8
July	439	669	13.4
August	478	625	12.0
September	362	515	12.4
October	332	438	12.0
November	318	442	10.1
December	315	435	10.5
AVERAGE	372	n/a	-
MAXIMUM	-	909	13.4
SYSTEM CAPACITY	1987	1987	23L/s
% CAPACITY	18.7%	45.7%	-