THE CORPORATION OF THE TOWNSHIP OF HAMILTON

CAMBORNE AND CREIGHTON HEIGHTS

DRINKING WATER SYSTEMS

2024 ANNUAL & SUMMARY REPORT

January 1 to December 31, 2024

Prepared By:

Township of Hamilton Water Operations Team

CONTENTS

1. WATER SYSTEMS INFORMATION

Camborne

- Drinking Water System # 220008113
- Municipal Drinking Water License # 139-103
- Drinking Water Works Permit # 139-203
- Permit to Take Water # 2140-AP5P6D

Creighton Heights

- Drinking Water System # 220008104
- Municipal Drinking Water License # 139-102
- Drinking Water Works Permit # 139-202
- Permit to Take Water # 2320-CGPMQ5

2. PURPOSE

The *Safe Drinking Water Act, 2002* sets out the framework for the treatment and distribution of safe drinking water in Ontario. Under the Act, *Ontario Regulation 170/03* sets requirements for public waterworks regarding treatment equipment, operational checks, maintenance, sampling and corrective actions. In addition to this, the regulation also has requirements for specific reports that must be prepared annually by the Operating Authority of a drinking water system.

This report for 2024, satisfies all conditions set out in *Ontario Regulation 170/03,* Section 11 – Annual Reports and Schedule 22 – Summary Reports.

This report is completed annually by the internal Water Operations Team which is the Operating Authority for the Township of Hamilton. The Township of Hamilton is the owner of the Camborne Drinking Water System and the Creighton Heights Drinking Water System.

2.1 Scope (Section 11 Annual Report Requirement)

This Annual & Summary Report contains information about the two Drinking Water Systems for the period of January 1 to December 31, 2024. *Ontario Regulation 170/03* requires this information be made available to the following stakeholders:

- Drinking Water System Owner (Mayor and Council)
- Operating Authority Top Management (CAO)
- The Public

2.2 Availability (Section 11 Annual Report Requirement)

A hard copy of this Annual & Summary Report is available for viewing at the Township of Hamilton office located at 8285 Majestic Hills Drive, Cobourg, ON. Alternatively, the report can

be accessed online at www.hamiltontownship.ca. On the website, navigate to the Resident Services tab, then to Water Services and then to Annual Reports. Any queries regarding this document may be directed to the Manager of Water Operations at (905) 342-2810, extension 147.

3. DRINKING WATER SYSTEMS DESCRIPTIONS (Section 11 Annual Report Requirement)

Camborne

The Camborne Drinking Water System, considered a Small Residential system, provides potable water to approximately 71 water connections consisting of homes, the Camborne Public School, the Old Camborne Schoolhouse Community Hall and a church. There are no commercial or industrial service connections on this system.

The Camborne Water Treatment Plant (WTP) takes water from two drilled artesian wells that are considered Non GUDI (Groundwater that is not Under the Direct Influence of Surface Water). For the primary disinfection requirement, the raw water is dosed with NSF Certified sodium hypochlorite (liquid form of chlorine) before being directed through greensand filters which remove oxidized iron. Filtered water is discharged into underground clearwells which consist of two cells with baffle curtains which ensure proper chlorine contact time in the achievement of primary disinfection. A High Lift pumping system, consisting of three pumps and a series of large pressure tanks, is used to provide flow and adequate pressure to the end users in the distribution system. Continuous online monitoring instruments are used at all times to measure chlorine residual, pressure and flow to prove regulatory compliance. These instruments are tied in with our Supervisory Control and Data Acquisition (SCADA) system. SCADA alarms notify the on-call Water Operator of any deviation from a control setpoint. The on-call Water Operator will respond to the issue and resolve it. Process wastewater is de-chlorinated using sodium thiosulfate and is allowed to settle before clear supernatant liquid is pumped to the storm water system. Solids from process wastewater tanks are removed on a regular basis.

The distribution system consists of approximately 3 km of watermains throughout the settlement area ranging in size from 50mm to 150mm. The Camborne Drinking Water System is not designed to provide fire protection.

Creighton Heights

The Creighton Heights Drinking Water System, a Large Residential system, provides potable water to approximately 510 water connections consisting of residential customers, approximately 15 light commercial/industrial properties, the Baltimore Recreation Centre Arena, the Baltimore Fire Hall, the Baltimore Public School and the local golf course club house.

The Creighton Heights Water Treatment Plant takes water from three drilled wells that are considered non-GUDI. The raw water is dosed with NSF Certified potassium permanganate before being directed through greensand filters. Greensand filtration, optimized by dosing with the potassium permanganate, is used for removal of iron and manganese. Filtered water is then dosed with NSF Certified sodium hypochlorite (liquid form of chlorine) and conveyed through Ultraviolet Reactors. UV disinfection achieves Primary Disinfection. The addition of the sodium hypochlorite achieves Secondary Disinfection prior to the water passing through the methane stripper which removes naturally occurring methane. Water then passes into underground clearwells which consist of cells with baffle curtains to ensure proper residence/contact time. A High Lift pumping system, consisting of three pumps for regular system pressure and two pumps designed for fire protection, provide flow and pressure to the end users of the distribution system. A booster station located within the highlift suction well, conveys drinking water to Deerfield Estates Subdivision. Continuous online monitoring instruments are used to measure chloramine/chlorine residual, pressure and flow at all times, to prove regulatory compliance. These instruments are tied in with our Supervisory Control and Data Acquisition (SCADA) system. SCADA alarms notify the on-call Water Operator of any deviation from a control setpoint. The on-call Water Operator will respond to the issue and resolve it. Process wastewater is de-chlorinated using sodium thiosulfate and is allowed to settle before clear supernatant liquid is pumped to the storm water system. Solids from process wastewater tanks are removed on a regular basis.

The distribution system consists of approximately 14 km of watermains ranging in diameter from 50 mm to 300 mm. The Creighton Heights Drinking Water System is designed for fire protection with 79 hydrants.

4. COMPLIANCE

4.1 License and Permit (Schedule 22 Summary Report Requirement)

The Camborne and Creighton Heights Drinking Water Systems were operated in accordance with all terms and conditions of their Municipal Drinking Water Licenses (MDWL), Drinking Water Works Permits (DWWP), Permits to Take Water (PTTW) and all relevant Provincial legislation for the year of 2024. The MDWL's and DWWP's for both Camborne and Creighton Heights Drinking Water Systems were renewed in Aug of 2021.

The PTTW governs the amount of groundwater allowed to be taken per day, at specified flow rates per minute. There were no instances of exceeding the permitted amount of water taking on any day during 2024. Any peaks are attributed to well pump start up and the peaks quickly drop to normal. Creighton Heights PTTW was renewed in July of 2022 and requires renewal in July of 2032. The Camborne PTTW requires renewal in June 2027.

Raw Water Source Description and Flow summaries for Camborne and Creighton Heights are detailed below:

Camborne

Camborne Raw Water

The two wells at Camborne are classified as artesian and thus overflow constantly to a storm water system which ultimately discharges to an adjacent creek. The artesian flow is relatively constant from both wells and is consistently below the permitted amount. Separate flow meters for both drinking water production and artesian flow, measure flow to ensure regulatory compliance. Only one well at a time can run for drinking water production.

Table 1. Camborne Permit to Take Water # 2140-AP5P6D, Maximum Flows and Totals

Well	Maximum Flow (L/min)	Maximum Total per Day (m^3)
Well 1A Plant Flow	200	288
Well 2A Plant Flow	286	412
Well 1A Artesian Overflow	340	489.6
Well 2A Artesian Overflow	360	518.4

Note: $1m^3$ = 1000 L

Table 2. Camborne Raw Water Taken for Drinking Water Production in 2024

Month	Total Raw Water Taken (m^3)	Average Daily Raw Taken (m^3)	Maximum Day of Raw Taken (m^3)
Well 1A			
January	640.36	20.7	51.44
February	575.91	19.9	45.39
March	641.60	20.7	56.37
April	638.12	21.3	83.86
May	693.86	22.4	67.15
June	844.00	28.1	62.24
July	740.68	24.7	59.10
August	534.07	17.8	65.20
September	526.82	17.6	54.27
October	1180.80	38.1	73.66
November	1083.38	36.1	55.30
December	1232.05	41.1	68.70
	Total 9331.65	Avg 25.71	

Month	Total Raw Water Taken (m^3)	Average Daily Raw Taken (m^3)	Maximum Day of Raw Taken (m^3)
Well 2A			
January	554.48	17.9	39.50
February	585.63	20.2	57.51
March	502.44	16.2	39.69
April	568.27	18.9	47.53
May	752.50	24.3	78.76
June	647.16	21.6	78.00
July	705.72	23.5	55.80
August	677.30	22.4	54.2
September	788.33	26.3	61.11
October	58.98	1.9	36.42
November	51.30	1.7	33.00
December	15.05	0.5	3.80
	Total 5907.16	Avg 16.28	

Non-production days for each well are included in the monthly average.

Average daily water taking remains relatively consistent throughout the year with slightly elevated averages during summer months. Overall daily average for Well 1A for the year is approximately 25.71m^3/day, which represents roughly 8.93 % of the permitted water taking from Well 1A. Overall daily average for Well 2A for the year is approximately 16.28 m^3/day which represents roughly 3.95 % of the permitted water taking from Well 2A.

Camborne Treated Water

In accordance with the Camborne Municipal Drinking Water License, the "maximum daily volume of treated water that flows from the treatment subsystem into the distribution system shall not exceed the rated capacity of 415 m^3/day". Table 3 below illustrates the Treated flow data for 2024. The daily average for the year is approximately 41.09 m^3/day, representing roughly 9.6 % of the rated capacity.

Table 3. Camborne Treated Flow Data 2024

Month	Total Treated Water Discharged (m^3)	Average Daily Treated Water Discharged (m^3)	Maximum Day Treated Water Discharged (m^3)
January	1129.79	36.44	54.36
February	1096.26	37.80	60.00
March	1071.70	34.57	45.69
April	1136.81	37.89	56.50
May	1378.06	44.45	64.22
June	1429.31	47.64	60.67

July	1429.94	46.13	73.62
August	1185.21	38.23	47.40
September	1254.61	41.82	57.03
October	1168.55	37.70	48.17
November	1089.77	36.33	43.53
December	1225.63	39.54	56.16
	Total 14,596	Avg 39.88	

The difference between Raw Water taken for production and Treated Drinking Water conveyed to the Distribution System, is due to in-house operational processes such as filter backwashing.

Creighton Heights

Creighton Heights Raw Water

The Creighton Heights Water Treatment Plant (WTP) takes water from three drilled wells. Wells TW 6 and TW 7 are the primary production wells and only one of these wells can operate at a time. Well TW 1 is a back-up well, designed to run in conjunction with either primary well. The water taken for treatment and distribution is metered to ensure compliance with permitted amounts.

Table 4. Creighton Heights Permit to Take Water # 2320-CGPMQ5, Maximum Flows and Totals

Well	Maximum Flow (L/min)	Maximum Total per Day (m^3)
TW 1	225	489.6
TW 6	680	979.2
TW 7	680	979.2

Table 5. Creighton Heights Raw Water Taken 2024

Month	Total Raw Water Taken (m^3)	Average Daily Raw Taken (m^3)	Maximum Day (m^3)
Raw TW 1			
January	1886.75	60.90	101.76
February	1776.44	63.44	152.60
March	1732.35	55.88	109.15
April	1864.09	62.14	107.09
May	2274.39	73.37	172.28
June	2505.12	83.50	140.13
July	2227.88	71.87	158.19
August	2336.30	75.36	150.02
September	2534.36	84.48	142.82

October	372.72	12.42	128.20
November	1598.40	53.28	117.90
December	1518.53	48.98	143.80
	Total 22,627	Avg 62.14	

Month	Total Raw Water Taken (m^3)	Average Daily Raw Taken (m^3)	Maximum Day (m^3)
Raw TW 6			
January	3656.21	117.94	333.68
February	3719.50	132.84	268.10
March	3379.77	109.02	268.37
April	2929.45	97.65	262.44
May	4127.40	133.14	322.25
June	3731.56	124.39	249.96
July	5150.77	166.15	376.86
August	4584.50	147.89	285.97
September	4214.12	140.47	280.74
October	10217.75	340.59	499.40
November	3354.12	111.80	350.50
December	3804.37	122.72	323.59
	Total 52,870	Avg 145.38	

Month	Total Raw Water Taken (m^3)	Average Daily Raw Taken (m^3)	Maximum Day (m^3)
Raw TW 7			
January	3798.61	122.54	341.92
February	3269.50	116.77	380.70
March	3871.78	124.90	295.71
April	4018.12	133.94	315.11
May	4277.87	138.00	348.54
June	4546.36	151.55	361.00
July	3790.11	122.26	371.04
August	4044.29	130.46	388.01
September	3675.44	122.51	314.58
October	846.10	28.20	150.60
November	3307.30	110.24	293.30
December	3323.59	107.21	258.54
	Total 42,769	Avg 117.38	

Non-production days for each well are included in the monthly average.

Average daily water taking remains relatively consistent throughout the year with slightly elevated averages during summer months and during the hydrant flushing program in the fall. Overall daily average for Well TW 1 is approximately 62.14 m^3/day, representing roughly 12.69 % of the permitted water taking from Well TW 1. Overall daily average for Well TW 6 for the year is approximately 145.38 m^3/day, which represents roughly 14.8 % of the permitted water taking from Well TW 6. Overall daily average for Well TW 7 for the year is approximately 117.38 m^3/day which represents roughly 12 % of the permitted water taking from Well TW 7. These numbers indicate that we are within our regulated limits.

Creighton Heights Treated Water

In accordance with the Creighton Heights Municipal Drinking Water License, the "maximum daily volume of treated water that flows from the treatment subsystem into the distribution system shall not exceed the rated capacity of 979.2 m^3/day". Table 6 below illustrates the flow data for 2024. The daily average for the year is approximately 307 m^3/day, which represents roughly 31 % of the rated capacity and permitted discharge.

Table 6. Creighton Heights Treated Flow Data 2024

Month	Total Treated Water Discharged (m^3)	Average Daily Treated Water Discharged (m^3)	Maximum Day Treated Water Discharged (m^3)
January	8704.55	280.79	334.88
February	8557.60	295.09	479.78
March	8556.29	276.01	316.08
April	8212.04	273.74	321.99
May	9997.53	322.50	458.97
June	10296.45	343.22	446.71
July	10729.93	346.13	529.99
August	10408.81	335.77	493.45
September	9880.66	329.36	407.30
October	10610.68	351.20	411.05
November	8030.75	267.69	322.78
December	8304.29	267.88	306.72
	Total 112,290	Avg 307.45	

The difference between Raw Water taken for production and Treated Drinking Water conveyed to the Distribution System, is due to in-house operational processes such as filter backwashing and maintenance activities.

It should be noted that the Creighton Heights Drinking Water System appears to be below rated and/or permitted capacities as illustrated in the tables above. It is encouraging that usage in 2024 was less than in 2023 due to more precipitation throughout the summer (less use of Treated Drinking Water for irrigation and gardening), higher water rates encouraging conservation and repairs to leaks. However, the design of the Water Treatment Plant and continued water processing challenges, demonstrate that we are currently running close to the processing capabilities. If new development in the Creighton Heights Settlement Area is going

to be considered, further review of WTP capacity and processing capabilities must be considered. Council approved a Water Supply Master Plan Study which is being conducted at this time. The final Report to Council will occur in 2025.

4.2 Ministry of Environment, Conservation and Parks (MECP) Annual Inspections (Schedule 22 Summary Report Requirement)

The 2023 MECP Annual Inspection for the Camborne Drinking Water System occurred on 22Jan2024 and received 100% scoring. The 2024 MECP Annual Inspection for the Camborne Drinking Water System occurred on 26Nov2024 and received 95.5% scoring due to the AWQI in April of 2024 when the Operator failed to replace the reagents in the CL17 in a timely manner (see description in 4.3 below).

The 2023 MECP Annual Inspection for the Creighton Heights Drinking Water System occurred on 25Jan2024 and received 100% scoring. The 2024 MECP Annual Inspection for the Creighton Heights Drinking Water System occurred on 26Nov2024 and received 100% scoring. A non-compliance was identified due to the annual average Total chlorine residual being over the 0.02mg/L limit for the Supernatant discharge from Creighton Heights' process wastewater which is subject to high levels of interference from concentrated manganese and potassium permanganate. The annual average Total residual was 0.10mg/L. Operations is engaging with MECP Approvals group to negotiate a more reasonable limit.

MECP Inspection reports/scoring are available on the Township website and at the Township office front desk for public view.

4.3 Adverse Water Quality Incidents and Corrective Actions (Section 11 Annual Report Requirement)

There was 1 reportable Adverse Water Quality Incidence (AWQI) in the Camborne Drinking Water System in 2024:

An Operator failed to replace reagents in the chlorine analyzer in a timely fashion. On 16April2024, Camborne's CL17 online chlorine analyzer ran out of reagents at 7:53 pm and could not produce chlorine residual readings. Operator attended site at 8:25 pm to respond to the alarm, immediately replaced the reagents and primed the analyzer. Operator tested chlorine residuals every 5 minutes with the benchtop analyzer to prove Free Chlorine readings until the CL17 completed its priming. By 9:25pm, the stable reading from the online CL17 analyzer was 1.20mg/L. The reading on the CL17 before it ran out of reagents was 1.19mg/L.

There was 1 reportable AWQI in the Creighton Heights Drinking Water System in 2024:

The Creighton Heights online CL17 analyzer reading spiked for a short duration on 15Mar2024 above 3.00 mg/L limit for chloramine residual. Analyzer spiked to 3.62 mg/L at 4:25pm. Analyzer dropped back down to 2.81 mg/L at 4:33pm. Prior to spike, the chloramine residual was 2.57 mg/L. This spike and others in previous years, is due to interference from naturally

occurring constituents in the treated water. We are currently running a trial with an amperometric chlorine analyzer that uses electrical differential to determine chloramine residual which is not subject to interference.

5. CAPITAL AND OPERATING INFRASTUCTURE UPGRADES (Section 11 Annual Report Requirement)

Camborne

- CHLP-02 Highlift Jockey Pump rehabilitation is pending: $32,000

Creighton Heights

- Walkerton Clean Water Centre is conducting a pilot study for Creighton Heights to find ways to remove the naturally occurring ammonia and methane from the raw water source. The pilot plant has been running since early 2024 and will run for a year to reflect seasonal variances: $20000
- Creighton Heights Control Panel replacement project is ongoing: $275,000
- Replacement of failed service saddle on 12" watermain at 4173 Cty Rd 45 in Feb 2024: $10,500

Both Systems 25 water meters were replaced with Radio Frequency meters based on condition, state of operation and age: $17,500

HST is not included in costs referenced above.

6. SAMPLING AND ANALYSIS (Section 11 Annual Report Requirement)

As per O. Reg 170/03, water quality samples were collected throughout the Camborne and Creighton Heights Drinking Water Systems. The results are provided below.

Camborne

Table 7. Camborne Microbiological Testing (Schedule 11 of O. Reg 170/03)

	Number of Samples	E.Coli (cfu/100mL) (min #)-(max#)	Total Coliform (cfu/100mL) (min #)-(max #)	Number of HPC Samples	HPC Results (cfu/1mL) (min #)-(max #)
Raw	24	0 – 0	0 – 0	Not Applicable	Not Applicable
Distribution	52	0 – 0	0 – 0	52	0 – 23

Note: cfu refers to colony forming units

Table 8. Camborne Operational Testing (Schedule 7 of O. Reg 170/03)

	Number of Grab Samples	Range of Results of Free Chlorine (Min – Max)
Chlorine Residual (primary disinfection)	8760 (continuous monitoring)	0.71 mg/L – 1.57 mg/L
Chlorine Residual (secondary disinfection)	122 (grab)	0.62 mg/l – 1.27 mg/L

Table 9. Camborne Additional Sampling Requirements

	Parameter	Number of Samples	Maximum Allowable Annual Average Concentration	Actual Average Concentration over last 4 quarterly tests
Annual Average	Total Suspended Solids of Supernatant	4 (Quarterly)	25 mg/L	6.25 mg/L

Table 10. Camborne Lead Testing (MDWL 139-103 Schedule D)

Location Type	Date	Sample Location	pH	Alkalinity	Lead
Distribution	01Feb2024	Old Schoolhouse	7.58	190 mg/L	Not req'd until 2025
Distribution	02Jun2024	Old Schoolhouse	7.64	202 mg/L	Not req'd until 2025

There are many other parameters that are tested on a less frequent basis. For these parameters, the most recent analysis is listed below in Table 11. <MDL refers to 'less than Method Detection Limit' which means the measured concentration of the parameter in our water is less than the lowest detectable measurement possible by the certified laboratory.

Table 11. Camborne Organic and Inorganic Sampling (Schedules 13, 23 and 24 of O.Reg 170/03)

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	26May2021	0.9<MDL	ug/l	no
Arsenic	26May2021	1.0	ug/l	no
Barium	26May2021	125	ug/l	no
Boron	26May2021	20	ug/l	no
Cadmium	26May2021	0.003 <MDL	ug/l	no
Chromium	26May2021	0.29	ug/l	no
Mercury	26May2021	0.01<MDL	ug/l	no

Selenium	26May2021	0.04<MDL	ug/l	no
Sodium	June 1, 2022	9.29	mg/l	no
Uranium	26May2021	0.381	ug/l	no
Fluoride	June 1, 2022	0.14	mg/l	no
Nitrite	11Mar2024 04Jun2024 10Sept2024 09Dec2024	0.003<MDL 0.003<MDL 0.003<MDL 0.003<MDL	mg/L	no
Nitrate	11Mar2024 04Jun2024 10Sept2024 09Dec2024	0.006<MDL 0.006<MDL 0.006<MDL 0.018	mg/l	no
Alachlor	26May2021	0.02<MDL	ug/l	no
Atrazine	26May2021	0.01<MDL	ug/l	no
Atrazine + N-dealkylated metabolites	26May2021	0.01<MDL	ug/l	no
Desethyl atrazine	26May2021	0.01<MDL	ug/l	no
Azinphos-methyl	26May2021	0.05<MDL	ug/l	no
Benzene	26May2021	0.32<MDL	ug/l	no
Benzo(a)pyrene	26May2021	0.004<MDL	ug/l	no
Bromoxynil	26May2021	0.33<MDL	ug/l	no
Carbaryl	26May2021	0.05<MDL	ug/l	no
Carbofuran	26May2021	0.01<MDL	ug/l	no
Carbon Tetrachloride	26May2021	0.17<MDL	ug/l	no
Chlorpyrifos	26May2021	0.02<MDL	ug/l	no
Diazinon	26May2021	0.02<MDL	ug/l	no
Dicamba	26May2021	0.20<MDL	ug/l	no
1,2-Dichlorobenzene	26May2021	0.41<MDL	ug/l	no
1,4-Dichlorobenzene	26May2021	0.36<MDL	ug/l	no
1,2-Dichloroethane	26May2021	0.35<MDL	ug/l	no
1,1-Dichloroethylene (vinylidene chloride)	26May2021	0.33<MDL	ug/l	no
Dichloromethane	26May2021	0.35<MDL	ug/l	no
2-4 Dichlorophenol	26May2021	0.15<MDL	ug/l	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	26May2021	0.19<MDL	ug/l	no
Diclofop-methyl	26May2021	0.40<MDL	ug/l	no
Dimethoate	26May2021	0.06<MDL	ug/l	no
Diquat	26May2021	1<MDL	ug/l	no
Diuron	26May2021	0.03<MDL	ug/l	no
Glyphosate	26May2021	1<MDL	ug/l	no
Haloacetic Acid (HAA)	11Mar2024 04Jun2024 10Sep2024 09Dec2024	<5.3 MDL <5.3 MDL <5.3 MDL <5.3 MDL	ug/L ug/L ug/L ug/L	no no no no
Malathion	26May2021	0.02<MDL	ug/l	no
Metolachlor	26May2021	0.01<MDL	ug/l	no
Metribuzin	26May2021	0.02<MDL	ug/l	no
Monochlorobenzene	26May2021	0.3<MDL	ug/l	no
MCPA	26May2021	0.00012<MDL	mg/l	no

Paraquat	26May2021	1<MDL	ug/l	no
Pentachlorophenol	26May2021	0.15<MDL	ug/l	no
Phorate	26May2021	0.01<MDL	ug/l	no
Picloram	26May2021	1<MDL	ug/l	no
Polychlorinated Biphenyls(PCB)	26May2021	0.04<MDL	ug/l	no
Prometryne	26May2021	0.03<MDL	ug/l	no
Simazine	26May2021	0.01<MDL	ug/l	no
Trihalomethane (THM)	11Mar2024 04Jun2024 10Sep2024 09Dec2024	8.3 8.3 11 7.7	ug/L ug/L ug/L ug/L	no no no no
Terbufos	26May2021	0.01<MDL	ug/l	no
Tetrachloroethylene	26May2021	0.35<MDL	ug/l	no
2,3,4,6-Tetrachlorophenol	26May2021	0.20<MDL	ug/l	no
Triallate	26May2021	0.01<MDL	ug/l	no
Trichloroethylene	26May2021	0.44<MDL	ug/l	no
2,4,6-Trichlorophenol	26May2021	0.25<MDL	ug/l	no
Trifluralin	26May2021	0.02<MDL	ug/l	no
Vinyl Chloride	26May2021	0.17<MDL	ug/l	no

Creighton Heights

Table 12. Creighton Heights Microbiological Testing (Schedule 11 of O.Reg 170/03)

	Number of Samples	E.Coli (cfu/100mL) (min #)-(max #)	Total Coliform (cfu/100mL) (min #)-(max #)	Number of HPC Samples	HPC Results (cfu/1mL) (min #)-(max #)
Raw	163	0 - 0	0– 4	Not Applicable	Not Applicable
Treated	52	0 – 0	0 – 0	52	0 – 130
Distribution	118	0 – 0	0 – 0	52	0 – 7

Note: cfu-refers to colony forming units.

Table 13. Creighton Heights Operational Testing (Schedule 7 of O.Reg 170/03)

	Number of Grab Samples	Range of Results (Min – Max)
Chlorine Residual (secondary disinfection)	368	0.42 mg/L – 2.74 mg/L (Chloramination) 0.14 mg/L – 1.41 mg/L (Free Chlorination)

Note: System was Free Chlorinated from 8-29Oct2024 for Distribution System maintenance and Denitrification.

Table 14. Creighton Heights Additional Sampling Requirements

	Parameter	Number of Samples	Maximum Allowable Annual Average Concentration	Actual Average Concentration over last 4 quarterly tests
Annual Average	Total Suspended Solids of Supernatant	4 (Quarterly)	25 mg/L	6.0 mg/L

Table 15. Creighton Heights Lead Testing (MDWL 139-102 Schedule D)

Location Type	Date	Sample Location	pH	Alkalinity
Distribution	02Feb2024	12 McCarty Hwy 45	7.73 7.85	208 mg/L 205 mg/L
Distribution	03June2024	9230 Burwash Hwy 45	7.37 7.52	210 mg/l 206 mg/L

There are many other parameters that are tested on a less frequent basis. For these parameters, the most recent analysis, is listed below in Table 16. <MDL refers to 'less than Method Detection Limit' which means the measured concentration of the parameter in our water is less than the lowest possible detectable measurement by the licensed laboratory. The 5 year Sodium test was collected and tested for Creighton Heights and was found to be 32.4 mg/L which is over the Maximum Acceptable Concentration of 20 mg/L. This was reported to the Health Unit and a notice was distributed to the water users.

Table 16. Creighton Heights Organic and Inorganic Sampling (Schedules 13, 23 & 24 of O.Reg 170/03)

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	10Jun2024	0.6<MDL	ug/l	no
Arsenic	10Jun2024	0.2 <MDL	ug/l	no
Barium	10Jun2024	24.5	ug/l	no
Boron	10Jun2024	48.0	ug/l	no
Cadmium	10Jun2024	0.003<MDL	ug/l	no
Chromium	10Jun2024	0.16	ug/l	no
Mercury	10Jun2024	0.01<MDL	ug/l	no
Selenium	10Jun2024	0.04< MDL	ug/l	no
Sodium	13June2022	32.4	mg/l	Yes
Uranium	10Jun2024	0.002	ug/l	no
Fluoride	1June2022	0.32	mg/l	no

Nitrite	11Mar2024 14Jun2024 10Sept2024 09Dec2024	0.040 0.027 0.032 0.041	mg/l	no
Nitrate	11Mar2024 14Jun2024 10Sept2024 09Dec2024	0.047 0.045 0.045 0.046	mg/l	no
Alachlor	10Jun2024	0.02<MDL	ug/l	no
Atrazine + N-dealkylated metabolites	10Jun2024	0.01<MDL	ug/l	no
Atrazine	10Jun2024	0.01<MDL	ug/l	no
Azinphos-methyl	10Jun2024	0.05<MDL	ug/l	no
Benzene	10Jun2024	0.32<MDL	ug/l	no
Benzo(a)pyrene	10Jun2024	0.004<MDL	ug/l	no
Bromoxynil	10Jun2024	0.33<MDL	ug/l	no
Carbaryl	10Jun2024	0.05<MDL	ug/l	no
Carbofuran	10Jun2024	0.01<MDL	ug/l	no
Carbon Tetrachloride	10Jun2024	0.17<MDL	ug/l	no
Chlorpyrifos	10Jun2024	0.02<MDL	ug/l	no
Desethyl atrazine	10Jun2024	0.01<MDL	ug/l	no
Diazinon	10Jun2024	0.02<MDL	ug/l	no
Dicamba	10Jun2024	0.20<MDL	ug/l	no
1,2-Dichlorobenzene	10Jun2024	0.41<MDL	ug/l	no
1,4-Dichlorobenzene	10Jun2024	0.36>MDL	ug/l	no
1,2-Dichloroethane	10Jun2024	0.35<MDL	ug/l	no
1,1-Dichloroethylene (vinylidene chloride)	10Jun2024	0.33<MDL	ug/l	no
Dichloromethane	10Jun2024	0.35<MDL	ug/l	no
2-4 Dichlorophenol	10Jun2024	0.15<MDL	ug/l	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	10Jun2024	0.19<MDL	ug/l	no
Diclofop-methyl	10Jun2024	0.40<MDL	ug/l	no
Dimethoate	10Jun2024	0.06<MDL	ug/l	no
Diquat	10Jun2024	1<MDL	ug/l	no
Diuron	10Jun2024	0.03<MDL	ug/l	no
Glyphosate	10Jun2024	1<MDL	ug/l	no
Haloacetic Acid HAA	11Mar2024 14Jun2024 10Sept2024 09Dec2024	5.5 (Running Annual Average)	ug/l	no
Malathion	10Jun2024	0.02<MDL	ug/l	no
MCPA, 2-methyl-4-chlorophenoxyacetic acid	10Jun2024	0.00012<MDL	mg/L	no
Metolachlor	10Jun2024	0.01<MDL	ug/l	no
Metribuzin	10Jun2024	0.02<MDL	ug/l	no
Monchlorobenzene	10Jun2024	0.3<MDL	ug/L	no
NDMA, N-nitrosodimethylamine As per new MDWL (12Aug2021) we are required to test for NDMA quarterly	11Mar2024 14Jun2024 10Sept2024 09Dec2024	0.0025 (Running Annual Average)	ug/L	no

Paraquat	10Jun2024	1<MDL	ug/l	no
Pentachlorophenol	10Jun2024	0.15<MDL	ug/l	no
Phorate	10Jun2024	0.01<MDL	ug/l	no
Picloram	10Jun2024	1<MDL	ug/l	no
Polychlorinated Biphenyls (PCB)	10Jun2024	0.04<MDL	ug/l	no
Prometryne	10Jun2024	0.03<MDL	ug/l	no
Simazine	10Jun2024	0.01<MDL	ug/l	no
Trihalomethane (Total) (THM)	11Mar2024 14Jun2024 10Sept2024 09Dec2024	1.33 (Running Annual Average)	ug/l	no
Terbufos	10Jun2024	0.01<MDL	ug/l	no
Tetrachloroethylene (perchloroethylene)	10Jun2024	0.35<MDL	ug/l	no
2,3,4,6-Tetrachlorophenol	10Jun2024	0.20<MDL	ug/l	no
Triallate	10Jun2024	0.01<MDL	ug/l	no
Trichloroethylene	10Jun2024	0.44<MDL	ug/l	no
2,4,6-Trichlorophenol	10Jun2024	0.25<MDL	ug/l	no
Trifluralin	10Jun2024	0.02<MDL	ug/l	no
Vinyl Chloride	10Jun2024	0.17<MDL	ug/l	no

This concludes the Annual and Summary Report for the Camborne and Creighton Heights Drinking Water Systems for 2024.