

Staff Report

Infrastructure Services Department



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REPORT TO: Community and Infrastructure Services Committee

DATE OF MEETING: March 6, 2023

SUBMITTED BY: Greg St. Louis, Director, Gas & Water Utilities, 519-741-2600 ext. 4538

PREPARED BY: Angela Mick, Manager, Quality Management and Water Programs, 519-741-2600 ext. 4408

WARD(S) INVOLVED: Ward(s)

DATE OF REPORT: January 19, 2023

REPORT NO.: INS-2023-010

SUBJECT: Summary Water Report - 2022

RECOMMENDATION:

That the 2022 City of Kitchener Summary Drinking Water Report be received for information as required by O.Reg. 170/03 Schedule 22 of the Safe Drinking water Act; and,

further that the City of Kitchener provide a copy of the Summary Drinking Water Report to the Township of Woolwich and the City of Waterloo as required by Schedule 22 of O.Reg. 170/03.

REPORT HIGHLIGHTS:

- The key finding of this report is that the City of Kitchener is in compliance with regulatory water sampling requirements of the reporting period of January 1, 2022 to December 31, 2022.
- There are no financial implications of this report.
- The report supports the delivery of core services.

BACKGROUND:

As outlined in Schedule 22 of the Drinking Water Systems Regulation (O.Reg.170/03) of the Safe Drinking Water Act, 2002, a Summary Report is to be prepared and given to the members of the municipal council. The following information is required to be included in this report:

(a) list the requirements of the Act, the regulations, the system's approval and any order that the system failed to meet at any time during the period covered by the report and specify the duration of the failures; and

(b) for each failure referred to in (a), describe the measures that were taken to correct the failure.

The report must also include a summary of the quantities and flow rates of the water supplied during the period covered by the report.

REPORT:

The following matters are reported to Council in accordance with the requirements of the Safe Drinking Water Act, for the period from January 1 to December 31, 2022:

- The Kitchener Distribution System is part of an Integrated Urban System, meaning the Regional Municipality of Waterloo is responsible for water treatment and the development and operation of a trunk water network to distribute treated water to Kitchener, Cambridge, Waterloo, Woolwich, and Wilmot. The Region provides annual summaries for each supply and the information is available on their [website](#) with a link from the Kitchener Utilities (KU) website. Reports from the connected systems have been or will be received.
- A portion of Kitchener (River Ridge area) is supplied by the City of Waterloo. Kitchener supplies water to a small section of Waterloo (Ira Needles area) and water travels through the Kitchener distribution system to Breslau. The City of Waterloo's water quality report is available on their [website](#).
- The Ministry of Environment, Conservation and Parks (MECP) completed an annual inspection on June 23, 2022, which covered June 23, 2021 to June 23, 2022. There were no non-compliances found.
- There were 3,943 chlorine residual samples taken and 2,311 bacteriological samples taken within the distribution system. Of these, there were 15 Adverse Water Quality Incidents (AWQI's) reported in this time period (see **Table 1**) and all resamples were clear.
- The Lead Sampling program was minimal due to a pandemic related sampling relief, however all lead samples taken were below the limits.

Summary of AWQIs

An AWQI does not necessarily mean that the water is a risk to the customer. It means that a potential problem has been identified and corrective actions must be taken to resolve the problem. City staff work with ministry staff and the local public health unit to resolve the issue, which generally includes resampling.

Low Chlorine Residual AWQIs

- Low chlorine AWQIs can occur in areas of new subdivisions with no houses yet built. Along with dead end watermains, KU proactively flushes areas with new watermains until there are homes built and water is being used.

- Dead end watermain and new development flushing is a proactive approach to increase the levels of chlorine in the distribution system. The water is initially disinfected (primary disinfection) at the treatment plant and sufficient chlorine is added to protect the water from microbiological contamination as it travels through the pipes in the distribution system (secondary disinfection). Low chlorine does not pose a threat to human health; to have an impact to human health, there must be microbiological contamination and no, or extremely low, chlorine.

Bacteriological AWQIs

- The presence of total coliform on a test does not necessarily mean the water is unsafe to drink. Coliform bacteria can be found in many different environments. There are several different strains of coliform bacteria. Most are harmless and do not cause illness. Coliform bacteria are used as an “indicator organism” to assess the possibility of other disease-causing organisms, and their detection would prompt further investigation and/or corrective action. It is different than E.coli, which is a bacteria only associated with human or animal faecal matter.
- When total coliform is found, a resample is done using a different technique, which provides a number of total coliforms to analyze in consultation with Public Health and the MECP. Based on a risk assessment of a number of factors including the coliform count, chlorine residuals, and upstream/downstream coliform counts, the requirement for a boil water advisory is determined.
- Four (4) total coliform AWQIs were at temporary sampling locations within reconstruction projects. Temporary watermains are particularly sensitive as they are above ground systems influenced by the water heating up in warmer temperatures. This may increase the potential for bacteriological growth. Warmer weather seems to increase the incidences of Total Coliform. The additional challenge with temporary watermains is the sample port is located outside and subject to unsanitary conditions. Many contractors remove the sampling ports when not in use because they are subject to vandalism/theft. These ports need to be maintained in a sanitary condition between uses. The general nature of reconstruction projects often leads to “false positives”, where the results received are more reflective of what is on the sampling tap, rather than what is in the water. Every positive result is reportable, and resampling must occur in accordance with regulations. When the resamples are clear, it is an indication that the issue was with the sampling port, not in the water.
- Six (6) Total Coliform AWQIs were related to flushing within new development areas.
- There was one Boil Water Advisory as a result of a positive E.Coli sample at a community centre. Resamples showed the area was free of contamination

Drinking Water Advisory

- There was one Drinking Water Advisory on two addresses related to manufacture supplied fittings with non-potable grease. The fittings were removed from the system and will no longer be used. Sampling completed before and after the fittings were removed both showed oils and grease and semi-volatiles below lab detection limits. No further action was required.

**Table 1 – Adverse Water Quality Incident Summary –
January 1 to December 31, 2022**

#	Adverse Type	AWQI Date (verbal)	AWQI #	Site Name	Site Location	Results/Notes
1	Low chlorine	Jan 12/22	157573	Hydrant 13252	332 Broadacre Dr.	Free=0.00mg/L Total=0.21mg/L New development
2	Low chlorine	Jan 13/22	157589	Hydrant 12972	20 Nathalie St.	Free=0.01mg/L Total=0.04mg/L New development
3	Low Chlorine	Feb 8/22	157789	Hydrant 13395 (hydrant was remapped and given new number)	332 Broadacre Dr	Free=0.04mg/L Total=0.26mg/L New development
4	Total Coliform Present	Feb 11/22	157827	KID 103	3111 King St E	Total Coliform Present
5	Low Chlorine	March 8/22	157948	Hydrant 13444	912 Nathalie Crt	Free=0.04mg/L Total=0.11mg/L New development
6	Total Coliform/E.Coli present	May 11/22	158359	KID 129 Victoria Hills Community Centre	10 Chopin DR	Boil Water Advisory May 11-13 Total Coliform/E.Coli Present
7	Total Coliform present	May 31/22	158541	SP-1A-1 Cambridge Ave Temp main	115 Heather Ave – Cambridge Temp main	Total Coliform Present
8	Low Chlorine	June 30/22	158951	KID139 Stanley Park Library	175 Indian Rd	F=0.04mg/L T=0.26mg/L C=0.22mg/L
9	Total Coliform present	Sept 1/22	159812	S2 Lot 66 - Greenfield Ave & Traynor Ave Temp Main	66 Traynor Ave – Traynor Temp main	F=0.03mg/L T=0.71mg/L C=0.68mg/L
10	Total Coliform present	Sept 1/22	159822	Temp 3-3 - 66 Franklin St. South	66 Franklin St S – Franklin Temp main	F=0.01mg/L T=0.96mg/L C=0.95mg/L
11	Low Chlorine	Sept 7/22	159875	Hydrant 13479	213 Forestwalk St	F=0.04mg/L T=0.10mg/L C=0.06mg/L New development
12	Total coliform present	Sept 22/22	160106	1105 King St E	Ottawa/King Temp main	F=0.04mg/L T=1.19mg/L C=1.15mg/L
13	Low Chlorine	Nov 7/22	160583	Hydrant 14046	115 Forestwalk St	F=0.02mg/L T=0.01mg/L C=-0.01mg/L New development
14	Low Chlorine	Dec 6/22	160902	4553 King St E	4553 King St E	F=0.00mg/L T=0.03mg/L C=0.03mg/L
15	Drinking Water Advisory	Dec 15/22	160986	22 and 23 Nipigon Place	22 and 23 Nipigon Place	Non-Potable Grease on Fitting

A summary of the quantities of the water supplied by the Regional Municipality of Waterloo during the period covered by the report is noted in **Table 2**. Overall water volumes were up slightly from 2021 volumes; however, there are some monthly differences, largely due to weather.

Table 2 - Kitchener Distribution System				
Volume of Water Conveyed from the Region of Waterloo Supply System				
	2022 Monthly Total (m³)	Average Day (m³)	2021 Monthly Total (m³)	Variance from Previous Year
January	1,828,218	58,975	1,757,181	4%
February	1,682,407	60,086	1,608,412	5%
March	1,843,857	59,479	1,797,763	3%
April	1,790,389	59,680	1,741,837	3%
May	2,005,562	64,696	2,050,462	-2%
June	2,116,758	70,559	2,058,790	3%
July	2,202,117	71,036	1,978,721	11%
August	2,068,490	66,725	2,043,450	1%
September	1,936,868	64,562	1,819,106	6%
October	1,920,074	61,938	1,809,145	6%
November	1,790,295	59,677	1,723,132	4%
December	1,847,662	59,602	1,790,483	3%
Purchases from Waterloo	160,633		157,983	2%
Total	23,193,330		22,336,466	4%

STRATEGIC PLAN ALIGNMENT:

This report supports the delivery of core services.

FINANCIAL IMPLICATIONS:

Capital Budget – The recommendation has no impact on the Capital Budget.

Operating Budget – The recommendation has no impact on the Operating Budget.

COMMUNITY ENGAGEMENT:

INFORM – This report has been posted to the City’s website with the agenda in advance of the council / committee meeting. Water Quality information is posted on the Kitchener Utilities website.

PREVIOUS REPORTS/AUTHORITIES:

There are no previous reports/authorities related to this matter, however the summary reports are provided on an annual basis with the last report being INS-2022-039

APPROVED BY: Denise McGoldrick, General Manager, Infrastructure Services