McGarry Water & Wastewater Systems Quarterly Operations Report

Prepared By: The Ontario Clean Water Agency | Prepared for: The Township of McGarry

SYSTEM OVERVIEW | January 1 to March 31, 2023

Highlights

Virginiatown-Kearns Drinking Water System

- Once (1) complaint was documented this quarter. Refer to "*Complaint*" below for details.
- Two (2) category 2 watermain breaks occurred during the quarter. Refer to "*Incidents*" below for details.

McGarry Wastewater Treatment Lagoon

- Belts were replaced on the blowers and replacement belts were ordered.
- A report was developed for the McGarry Lagoon to show if the "spill" discharge discovered in November of 2021 was from the lagoon, groundwater or other possible source. The report was provided to the MECP on November 15th, 2022. The MECP confirmed that the discharge is not originating from the lagoon.
- The effluent exceeded the total phosphorus regulatory limits in January. Refer to "*Incidents*" below for details.

Capital Plan Progress

The Capital Letter which provides a list of recommended capital and major maintenance for 2023 was provided to the Owner on December 5, 2022. Approval or rejection of the capital projects identified in the letter is a requirement under the system's Quality and Environmental Management System.

Status of capital work completed in 2023.

Capital Work – Water Treatment System	Status
N/A	

Capital Work - Wastewater Lagoon System	Status
Blower belts	Complete

Incidents

Virginiatown Drinking Water System:

Two (2) adverse water quality incidents were reported this quarter for category 2 water main breaks.

Date	Type of Incident	Details
January 3	Category 2 Watermain Break, Loss of Pressure Boil Water Advisory (AWQI No. 161079)	Category 2 watermain break at 4 Lynch Avenue caused a loss of pressure to 19 homes. The main was isolated prior to repairing 2 holes with repair bands. The local Health Unit was notified and a precautionary boil water advisory (BWA) was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (0.56 mg/L). Two sets of 3 bacteriological samples were collected (upstream, downstream and at the site of the break) on January 3rd and 4th. Sample results indicated no total coliforms or *E.coli*. BWA was lifted on January 5th at approximately 4:30 PM
January 30	Category 2 Watermain Break, Loss of Pressure, Boil Water Advisory AWQI No. (161250)	Category 2 watermain break at 28th Street caused a loss of pressure to 18 homes. The main was isolated to repair a circumferential break on a 6 inch main with a clamp. The local Health Unit was notified and a precautionary BWA was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed until an acceptable chlorine residual was achieved (1.52 mg/L). Two sets of 3 bacteriological samples were collected (upstream, downstream and at the site of the break) on January 30th and 31st. Sample results indicated no total coliforms or *E.coli* (lab reports attached). BWA was lifted on February 1st at approximately 4:38 PM.

McGarry Lagoon:

The effluent exceeded the total phosphorus limits during the first quarter.

Date	Type of Incident	Details
January 3	Effluent Exceedance for Total Phosphorus (TP) Event No. (1-2HLQX9)	the effluent exceeded the average total phosphorus limit of 0.5 mg/L having a monthly average concentration of 1.36 mg/L. The effluent exceeded the monthly TP loading limit of 0.6 kg/day, having a monthly calculated loading of 0.97 kg/day. TP results for January are: Jan. 4 = 0.511, Jan. 10 = 0.176, Jan. 17 = 1.85, Jan. 24 = 2.93 and Jan, 30 = 1.33 mg/L Ice cover on the lagoons affecting lagoon process and phosphorus levels. Alum increased to help reduce levels.

COMPLAINTS

One (1) brown water complaint was documented this quarter. Responding operator spoke with homeowner to schedule a visit. Operator collected a sample and observed the brown colour of the water and tested the following:

pH = 7.15

Iron = 3.02 mg/L

Manganese = 0.037 mg/L

The homeowner has a filter which gets changed about 3 times per month. He also mentioned that running the water will help and the colour is worse or better depending on the neighbours water usage. This issue has been ongoing on about a year. Homeowner advised to run water before use.

The town has flushed the system near the residence a number of times which clears the water for a short period however the water becomes discolored again over time.

CALL-OUT SUMMARY

Number of Call-outs this Quarter:	0 (water system)	0 (sewage lagoon)
Total Call-outs to Date (2023):	2	
Annual Call-out Allowance:	8	
Details of the Call-outs:	No call-outs by OCWA this quarter	

Note: Not all call backs are billed to the Owner; depends on the nature of the call.

REGULATORY

Inspections

- No regulatory inspections were conducted this quarter.

Quality & Environmental Management System (QEMS)

- No audits were conducted this quarter.

Sampling, Testing and Monitoring

- Refer to Appendix A for Quarterly Data Summaries.

Reporting

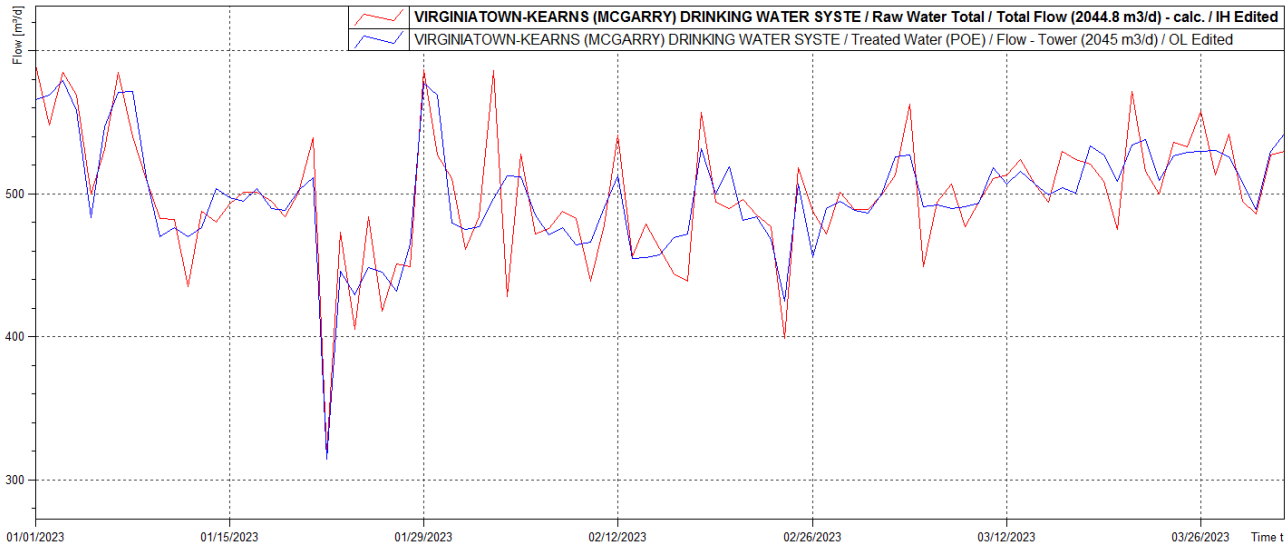
- Regulatory year-end reporting for 2022 complete.

FLOW SUMMARIES

Virginiatown-Kearns Water Treatment Plant (Tower Flows)

Year	Total Raw Flows (m^3)	Total Treated Flows (m^3)	Average Daily Treated Flow (m^3/d)	Maximum Treated Flow (m^3/d)	Maximum % of Rated Capacity (2045 m^3/d)
Jan. to Mar. 2023	**44,844**	**44,808**	**498**	**579**	**28.3%**
2022	194,073	167,244	458	1254	61.3%
2021	145,878	142,720	391	789	38.6%
2020	191,383	188,494	515	889	43.5%
2019	233,524	230,717	632	991	45.5%

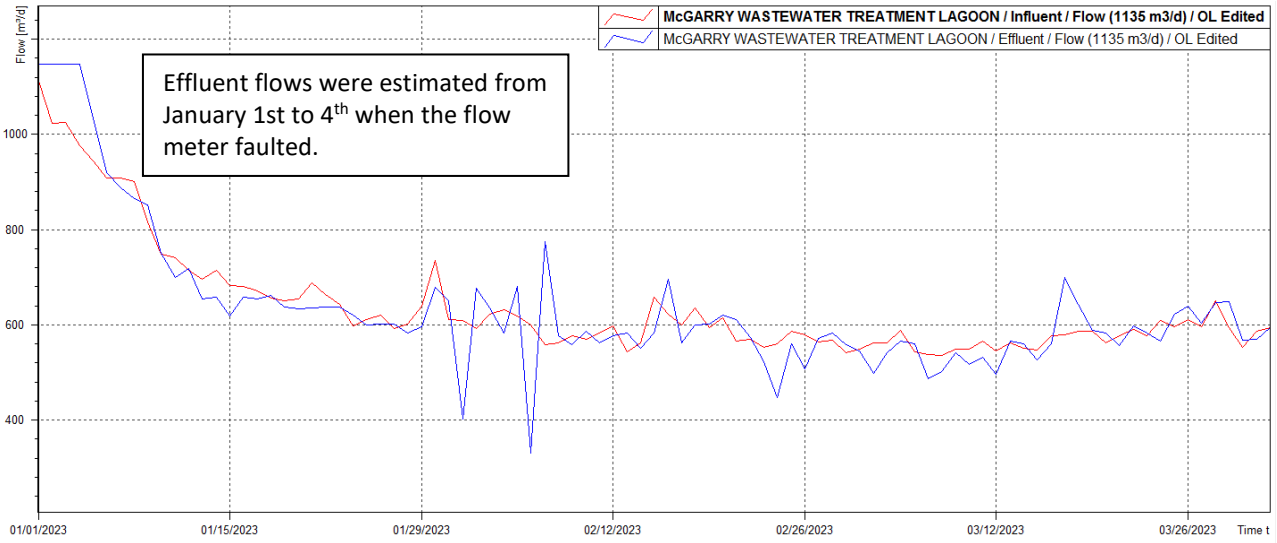
Raw Flow verses Treated Flow
January 1 to March 31, 2023



McGarry Lagoon

Year	Total Effluent Flow (m^3)	Total Influent Flow (m^3)	Maximum Influent Flow (m^3/d)	Average Daily Influent Flow (m^3/d)	Average Day % of Design Capacity (1135 m^3/d)
Jan. to Mar. 2023	**56,338**	**57,451**	**1112**	**638**	**56.2%**
2022	373,865	514,595	7897	1410	124%
2021	258,570	349,792	10,000	958	84.4%
2020	426,479	476,828	6191	1303	115%
2019	434,790	475,681	7585	1303	115%

Influent Flow verses Effluent Flow
January 1 to March 31, 2023



HEALTH AND SAFETY

- All safety equipment at the plant was checked monthly to ensure that they are in good working order.
- Health and Safety Training/Sessions completed this quarter include:
  - ✓ WHMIS Training
  - ✓ Workplace Inspection Program
  - ✓ Transportation of Dangerous Goods

APPENDIX A

Quarterly Data Summaries

VIRGINIATOWN-KEARNS (McGarry) DRINKING WATER SYSTEM
Quarterly Data Report

Q1: January 1 to March 31, 2023

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Virginiatown-Kearns Drinking Water System		January	February	March	Compliance
Flows					
Total Raw Flow - Max. Daily Volume	m^3/d	590	586	572	Max. = 2044.8
Well 1 Flow - Maximum Daily Volume	m^3/d	590	586	572	Max. = 2044.8
Well 1 Flow - Maximum Flow Rate	L/min	1389	1328	1355	Max. = 1420
Well 2 Flow - Maximum Daily Volume	m^3/d	74	68	74	Max. = 1500
Well 2 Flow - Maximum Flow Rate	L/min	1105	1097	1101	Max. = 1105
Tower Flow - Maximum Daily Volume	m^3/d	579	532	538	Max. = 2045
Tower Flow - Maximum Flow Rate	L/min	2119 [1]	706	669	N/A
Raw Water					
Well 1 Total Coliforms - Maximum	c/100mL	0	0	0	N/A
Well 1 *E.coli* - Maximum	c/100mL	0	0	0	N/A
Well 2 Total Coliforms - Maximum	c/100mL	0	0	0	N/A
Well 2 *E.coli* - Maximum	c/100mL	0	0	0	N/A
Well 1 Turbidity - Maximum	NTU	1.06	0.22	0.36	N/A
Well 2 Turbidity - Maximum	NTU	0.823	0.74	0.59	N/A
Treated Water					
Free Chlorine Residual - Minimum	mg/L	1.29	1.23	1.00	Min. = 0.10 (CT) [2]
Total Coliforms - Maximum	c/100mL	0	0	0	Max. = 0
E.coli - Maximum	c/100mL	0	0	0	Max. = 0
Nitrite	mg/L	< 0.01	-	-	Max. = 1
Nitrate	mg/L	0.1	-	-	Max. = 10
Distribution Water					
Free Chlorine Residual - Minimum	mg/L	0.83	0.73	0.91	Min. = 0.05
Total Coliforms - Maximum	c/100mL	0	0	0	Max. = 0
E.coli - Maximum	c/100mL	0	0	0	Max. = 0
Trihalomethanes (THMs)	µg/L	2.2	-	-	Max. = 100 µg/L (RAA) [3]
Haloacetic Acids (HAAs)	µg/L	< 8	-	-	Max. = 80 µg/L (RAA) [4]

VIRGINIATOWN-KEARNS (McGarry) DRINKING WATER SYSTEM
Quarterly Data Report

Q1: January 1 to March 31, 2023

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Distribution Water					
Lead – Maximum	µg/L	-	-	0.6	Max. = 10 µg/L [5]
Alkalinity - Maximum	mg/L	-	-	125	N/A [6]

Notes:

1 January 3 and 30 – high treated flow rate due to water main breaks

2 CT is the concentration of chlorine in the water times the time of contact that the chlorine has with the water. It is used to demonstrate the level of disinfection treatment in the water. CT calculations are performed for the Virginiatown-Kearns water plant if the free chlorine residual level drops below 0.10 mg/L to ensure primary disinfection is achieved. Primary disinfection was achieved this quarter.

3 Maximum Allowable Concentration (MAC) for Trihalomethanes (THMs) = 100 ug/L (Four Quarter Running Average). The annual running average to the end of the quarter = 1.75 ug/L

4 Maximum Allowable Concentration (MAC) for Haleoacetic Acids (HAAs) = 80 ug/L (Four Quarter Running Average). The annual running average to the end of the quarter = < 8 ug/L

5 Lead testing required every 3 years.

6 Alkalinity testing required twice per year. Sampling is done in March and September of each year.

McGARRY WASTEWATER SYSTEM
Quarterly Data Report

Q1: January 1 to March 31, 2023

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

McGarry Waste Water System		January	February	March	Compliance
Flows					
Influent – Average Daily Flow	m^3/d	749	589	572	Average = 1135
Influent – Maximum Daily Flow	m^3/d	1112	659	651	N/A
Effluent – Average Daily Flow	m^3/d	753	576	570	Average = 1135
Effluent – Maximum Daily Flow	m^3/d	1147	775	700	N/A
Influent					
BOD_5 – Average	mg/L	7.9	2.4	6.6	N/A
Total Suspended Solids (TSS) – Average	mg/L	8.5	8.0	8.5	N/A
Total Phosphorus (TP) – Average	mg/L	0.53	0.38	0.48	N/A
Total Ammonia (TKN) – Average	mg/L	5.5	3.3	3.9	N/A
Effluent [1]					
$cBOD_5$ – Average	mg/L	0.98	<1.27	1.52	Monthly Average = 25
$cBOD_5$ Loading	kg/d	0.738	0.729	0.866	Monthly Average = 28.4
TSS – Average	mg/L	<1.2	<1.0	<1.0	Monthly Average = 25
TSS Loading	kg/d	<0.903	<0.576	<0.570	Monthly Average = 28.4
TP – Average	mg/L	1.36 [1]	0.18	0.27	Monthly Average = 0.5
TP Loading	kg/d	1.02 [1]	0.105	0.152	Monthly Average = 0.6
Total Ammonia Nitrogen (TAN) – Average	mg/L	1.19	2.05	4.12	Monthly Average = 5
TAN Loading	kg/d	0.896	1.18	2.35	Monthly Average = 5.7
E.coli (geometric mean)	cfu/100mL	15,558	4,538	1,263	N/A

Notes:

1 The effluent exceeded the total phosphorus monthly concentration and loading limits in January.