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, 2022

Highlights

Virginiatown-Kearns Drinking Water System

- February 8 - The MECP conducted an unannounced virtual inspection of the Virginiatown-Kearns drinking water system. The report date March 30, 2022 identified two (2) non-compliances and six (6) best practise recommendation. Refer to "*Regulatory*" below for details.
- March 2022 - Erratic flow readings from Well No. 1 occurred in March. This same issue was observed in 2021 as well. Well inspections should be performed by qualified persons to confirm the state of the well screen and casing. The MECP also recommended conducting an inspection of Well No. 2 due to the presence of total coliforms. OCWA will continue to monitor the wells, but the Owner should hire a qualified well technician to inspect the wells.
- Three (3) water mains break occurred in the first quarter. Refer to "*Incidents*" below for details.

McGarry Wastewater Treatment Lagoon

- From 2021 - The spill at the Lagoon is on-going. Weekly sampling and reporting to the MECP is also on-going. Further investigation is planned for warmer weather in the spring or early summer. A large amount of tracer dye will be put into the lagoon system to try and determine the location of the leak.
- January 20 – replaced Jockey pump at the V-Town sewage pumping station. New pump has increased flow (19 L/s) compared to old pump which affected the alum dosage and effluent quality. Operators optimize dosage to ensure good quality effluent.
- February 1 - belt on the blower failed resulting in the freezing of aeration lines in lagoon Cell 1 & 2. Belt was replaced and Cell 1 aeration was restored but Cell 2 aeration remains off-line. Efforts were made to fix the issue without success. Plan is to wait for warmer weather to resolve.
- February 8 – high ammonia results observed due to the loss of aeration in Cell No. 2.

Incidents

Virginiatown Drinking Water System:

Three (3) watermain breaks occurred in the first quarter of 2022.

Date	AWQI No.	Details
January 20	Category 2 Watermain Break (no contamination	January 20, 2022 @ 11:00 - Watermain rupture on a 6" cast iron main on Cockram St. at Connell Ave. affecting 29 homes. ORO and local Health Unit notified. Flow maintained until air gap created. No suspected contamination. Disinfection and flushing performed after repair with 5 feet of pipe and repair bands (FCR =0.73 mg/L). One (1) bacti sample collected and results acceptable. Service off at 1:30 PM and restored at 14:15 PM.

Date	AWQI No.	Details
January 28	Category 1 Watermain Break	January 28, 2022 @ 11:00 AM - Circumferential break on a 6" cast iron main at a service connection on 26th Avenue and 25th Street due to frost. 4 homes affected. Back-up ORO and local Health Unit notified. Flow maintained and an air gap established. Live repair with repair bands. Disinfection of pipe and parts performed. No suspected contamination. All 4 homeowners flushed their own taps (FCR = 0.98 mg/L at house #5 on 26th St.). No bacti samples required.
February 7	157790 Category 2 Watermain Break	February 7 - Loss of pressure due to a watermain break/repair (Category 2) on Dorfman Street at Connell Avenue. A hole occurred due to deterioration in a 6" CI watermain. The main was isolated on February 7th at 1400 hours and the repair occurred on February 8th at 0800 hours. The local Health Unit was notified and a BWA was issued for the affected area (6 houses and the Medical Center). The repair was done by replacing of 5 feet of pipe and a repair band. Pedersen was called to excavate and certified Town operator conducted the repair. OCWA's OIC oversaw the repair. All materials were disinfected and the area flushed as per the Ministry's Watermain Disinfection procedure (FCR = 0.40 mg/L). Repair was completed and the pressure was restored on February 8th at 1110 hours. SAC and the local MECP inspector were notified of the incident and the notification report was emailed to SAC, MOH and Owner on February 8th. After the repair was complete and the area was flushed, 2 sets of 3 bacti samples were collected (upstream, downstream and at the site of the break) on February 8th and 9th. Sample results indicated no total coliforms or E.coli. BWA was lifted on February 10th at approx.1430 hours. Resolution submitted on February 11, 2021 after the final lab report received.

COMPLAINTS

No complaints were documented this quarter.

CAPITAL PLAN PROGRESS

Status of capital work completed to date in 2022.

CAPITAL WORK – WATER TREATMENT SYSTEM	STATUS
N/A	N/A

CAPITAL WORK - WASTEWATER LAGOON SYSTEM	STATUS
Replaced Jockey pump at the V-Town SPS	Complete – January 20, 2022

CALL-OUT SUMMARY

Number of Call-outs this Quarter:	0 (water system)	0 (sewage lagoon)
Total Call-outs to Date (2021):	0	
Annual Call-out Allowance:	8	
Details of the Call-outs:	No call-outs in the first quarter	

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

REGULATORY

Inspections & Findings

- The MECP conducted an inspection of the Virginiatown-Kearns drinking water system on February 8th. The report date March 30, 2022 identified two (2) non-compliances and six (6) best practise recommendations.

Type	Issue	Corrective Action / Comments
Non-Compliance MRDW1008000	Four (4) observation wells around the well house have not been recently inspected. The Owner indicated that there were difficulties locating one of the wells.	By July 29, 2022, the owner shall provide information to the Scott Hanselman of the Ministry regarding the location and status of all municipal observation wells. On March 29th, OCWA met with the Township and on behalf of the Township requested asked the MECP if they have information that can be provided to help locate the wells OCWA found information, including co-ordinates for the 4 observation wells on the Ministry's Water Well Information System and provided it to the Owner. The Owner with the help from OCWA will locate the wells and conduct an inspection. A report will be prepared and provided to the MECP by the deadline date (July 29, 2022)
Non-Compliance MRDW1038000	The UPS failed during a power outage on July 11, 2021 causing a loss of continuous monitoring for FCR from 17:40 to 18:30 hours. The incident was reported to the Ministry on July 21, 2021	No further actions at this time
Best Management Practice (BMP) MRDW1116000	Update the CT calculation and procedure to reflect incidents when there is no chlorine entering the contact pipe. *strongly recommended by MECP	The CT SOP has been updated to describe a scenario when there may be loss of chlorine residual in the contact pipe. A CT calculation which does not include the contact pipe has been developed and is referred to in the updated CT SOP.
	Installation of a chlorine analyzer at the end of the contact pipe. *strongly recommended by MECP	OCWA identified an analyzer for the well house in the 2022 Capital Letter…this should now be for tower to monitor residuals at the end of pipe contact pipe. OCWA to provide the Township a quote for a new analyzer.

Type	Issue	Corrective Action / Comments
	The back-up well had an increased number of total coliform results in 2022 compared to previous years. MECP recommends to: 1. closely monitor results – which OCWA is doing 2. Increase turbidity testing from monthly to weekly 3. camera inspection	OCWA already monitors results and brings any issues up at weekly operations meetings OCWA and Township considered changing the testing from twice per month to weekly, but feel twice monthly is more than sufficient to meet the regulatory requirement for monthly testing. The inspection of the production well is identified on the Capital Forecast for 2023, but the Town should consider getting both wells inspected this year. The last inspection of the production well was done in 2009 by IWS.
	MECP recommends the old diesel fuel at the well house be replaced. Suspected fuel in containment area noticed during the inspection	Owner ordered a new tank
	MECP recommends the overflow for the tower should be inspected each Spring to ensure its integrity	Inspection of the overflow for the tower will be done during the Spring and Fall flushing program by the Township
BMP MRDW1029000	There is piping in place to allow for the isolation of the water tower and allow chlorinated water from the well house to the distribution system. MECP recommends; 1. a visual identification of the bypass with signage and/or lockout mechanism 2. include an SOP in the operations Manual when the bypass would be used.	OCWA located signage to identify the bypass pipe. A CT calculation was developed in 2013 to remove the tower from the calculation. It was developed in case of maintenance on the tower. The CT SOP was updated to reflect this. An SOP was developed.

Quality & Environmental Management System (QEMS)

- Drinking Water Quality Management System (DWQMS) training completed in February.
- An external audit will be conducted by SAI Global for the Virginiatown-Kearns Drinking Water System Quality and Environmental Management System (QEMS) in June.

  June 21 – document review; July 26 – on-site reaccreditation audit

Sampling, Testing and Monitoring

- Refer to Appendix A for Performance and Compliance Summaries.

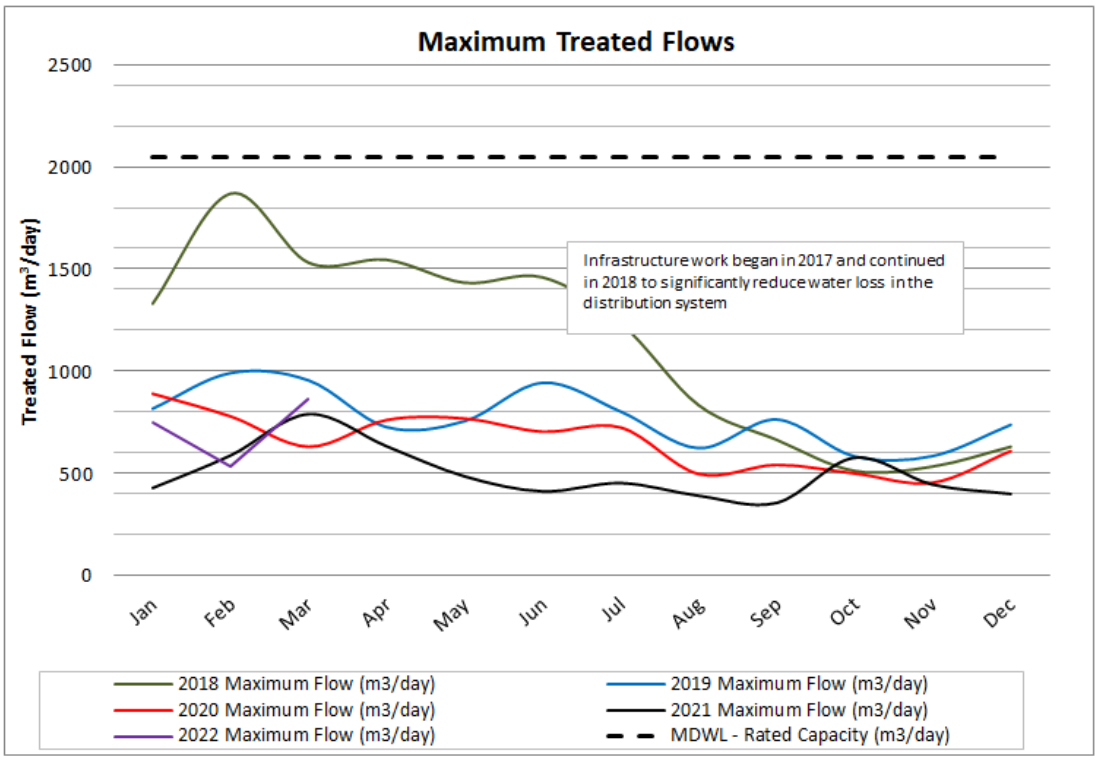
Reporting

- Reporting Sewage Overflow and Bypass training completed in March.
- Regulatory year-end reporting for 2021 complete.

FLOW SUMMARIES

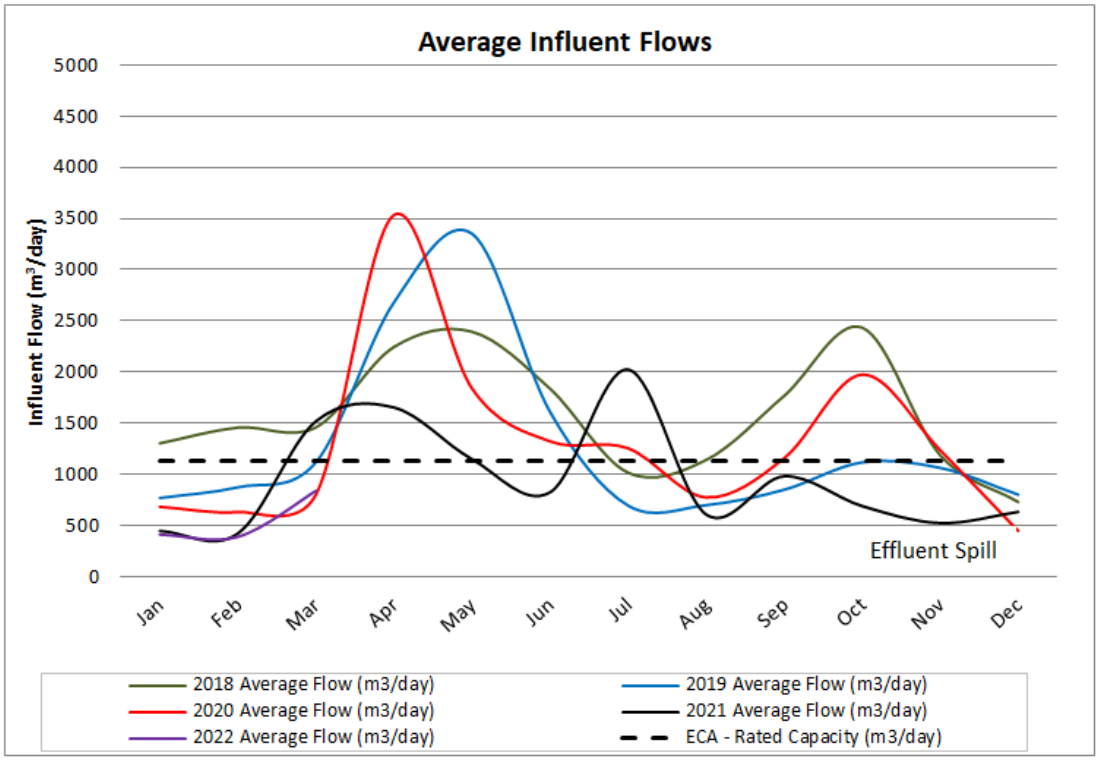
Virginiatown-Kearns Water Treatment Plant (Tower Flows)

Year	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. 2022	**42,599**	**473**	**745**	**36.4%**
2021	142,720	391	789	38.6%
2020	188,494	515	889	43.5%
2019	230,717	632	991	45.5%
2018	337,340	924	1870	91.4%



McGarry Lagoon

Year	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. 2022	**49683**	**3286**	**552**	**48.6%**
2021	349,792	10,000	958	84.4%*
2020	476,828	6191	1303	115%
2019	475,681	7585	1303	115%
2018	575,627	7896	1580	139%



HEALTH AND SAFETY

- All safety equipment at each 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
  - ✓ Guarding, Electrical Issued and Other Workplace Hazards
  - ✓ Proper Lifting Technique

APPENDIX A

Performance & Compliance Summaries

MCGARRY DRINKING WATER SYSTEM
Quarterly Data Report

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Q1: January 1 to March 31, 2022

McGarry Drinking Water System		January	February	March	Compliance
Flows					
Total Raw Flow - Max. Daily Volume	m^3/d	778	541	755	Max. = 2044.8
Well 1 Flow - Maximum Daily Volume	m^3/d	778	539	753	Max. = 2044.8
Well 1 Flow - Maximum Flow Rate	L/min	1415	1411	1402	Max. = 1420
Well 2 Flow - Maximum Daily Volume	m^3/d	73	40	105	Max. = 1500
Well 2 Flow - Maximum Flow Rate	L/min	1101	1105	1097	Max. = 1105
Tower Flow - Maximum Daily Volume	m^3/d	745.3	530.2	684.6	Max. = 2045
Tower Flow - Maximum Flow Rate	L/min	994	1917	1338	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	0.32	0.24	0.23	N/A
Well 2 Turbidity - Maximum	NTU	1.13	1.14	1.80	N/A
Treated Water					
Free Chlorine Residual - Minimum	mg/L	0.981	1.02	0.970	Min. = 0.10 (CT) [1]
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	0.3	-	-	Max. = 10
Distribution Water					
Free Chlorine Residual - Minimum	mg/L	0.68	0.59	0.60	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	-	-	Max. = 100 µg/L (RAA) [2]
Haloacetic Acids (HAAs)	µg/L	< 8	-	-	Max. = 80 µg/L (RAA) [3]

MCGARRY DRINKING WATER SYSTEM
Quarterly Data Report

Q1: January 1 to March 31, 2022

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Distribution Water					
Lead – Maximum	µg/L	-	-	N/A[4]	Max. = 10 µg/L
Alkalinity - Maximum	mg/L	-	-	73	N/A
pH - Average	mg/L	-	-	6.97	N/A

Notes:

[1] 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.

[2] Maximum Allowable Concentration (MAC) for Trihalomethanes (THMs) = 100 ug/L (Four Quarter Running Average). The annual running average to the end of the quarter = 1.98 ug/L

[3] 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 = 8.5 ug/L

[4] Lead testing required every 3 year. Next sampling due in 2023

McGARRY WASTE WATER SYSTEM
Quarterly Data Report

Q1: January 1 to March 31, 2022

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

McGarry Waste Water System		January	February	March	Compliance
Flows					
Influent – Average Daily Flow	m^3/d	412	289	839	N/A
Influent – Maximum Daily Flow	m^3/d	635	451	3286 [1]	Max. = 1135
Effluent – Average Daily Flow	m^3/d	276	289	830	N/A
Effluent – Maximum Daily Flow	m^3/d	616	388	2325 [1]	Max. = 1135
Influent					
BOD_5 – Average	mg/L	21	16	29	N/A
Total Suspended Solids (TSS) – Average	mg/L	54.0	21.5	250	N/A
Total Phosphorus (TP) – Average	mg/L	0.756	0.428	3.20	N/A
Total Ammonia (TKN) – Average	mg/L	5.50	14.5	21.6	N/A
Effluent [2]					
$cBOD_5$ – Average	mg/L	< 1.175	< 0.950	< 1.440	Monthly Average = 25
$cBOD_5$ Loading	kg/d	< 0.325	< 0.274	< 1.195	Monthly Average = 28.4
TSS – Average	mg/L	< 1.563	< 1.250	< 1.850	Monthly Average = 25
TSS Loading	kg/d	< 0.432	< 0.361	< 1.535	Monthly Average = 28.4
TP – Average	mg/L	0.120	0.154	0.209	Monthly Average = 0.5
TP Loading	kg/d	0.033	0.045	0.174	Monthly Average = 0.6
Total Ammonia Nitrogen (TAN) – Average	mg/L	3.13	4.46	4.69	Monthly Average = 5
TAN Loading	kg/d	0.866	1.29	3.89	Monthly Average = 5.7
E.coli (geometric mean)	cfu/100mL	241	77.5	465	N/A

Notes:

1 High flows in March due to rain and snow melt.

2 Effluent data also includes results from a suspected spill discharging from near the side of the lagoon which was observed in November 2021. MECP requested that the spill material be tested weekly and the results be included as part of the effluent results.