McGarry Water & Wastewater Systems Quarterly Operations Report

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

SYSTEM OVERVIEW | April 1 to June 30, 2021

Highlights

Virginiatown-Kearns Drinking Water System

- Annual generator maintenance was completed
- Annual external audit was conducted by SAI Global
- Annual workplace inspection completed
- Erratic flow readings from Well No. 1 may have been due to the issues with the silent check valve which has corrected itself. Spare silent check valve received and located at the well house if needed.

McGarry Wastewater Treatment Lagoon

- Annual generator maintenance was completed
- Annual lifting device inspection was completed
- Annual workplace inspection completed
- Spare jockey pump received

Asset Management

Preventative, corrective and emergency maintenance are performed as recommended by the manufacturer. Work is scheduled using OCWA's Workplace Management System (Maximo). Corrective and emergency maintenance is also managed using Maximo. A detailed report can be provided by contacting OCWA's Senior Operations Manager.

Capital Plan Progress

The tables below provide the status of capital work completed to date in 2021.

Capital Item – Water Treatment System	Status
Annual generator maintenance	Complete – April 13, 2021
Silent check valve (spare)	Complete – April 21, 2021
Annual lifting device inspection	Complete – April 26, 2021
DWQMS third party audit (SAI Global)	Complete – May 4, 2021

Capital Item - Wastewater Lagoon System	Status
Replace check valves on blowers	Complete – February, 2021

CAPITAL ITEM - WASTEWATER LAGOON SYSTEM	STATUS
Annual generator maintenance	Complete – April 13, 2021
Annual lifting device inspection	Complete – April 26, 2021
Jockey pump (spare)	Complete – June 22, 2021

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 second quarter	

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

FLOW SUMMARIES

Virginiatown-Kearns Water Treatment Plant (Tower Flows) – Historical Flow Comparison

Year	Total Treated Flows (m^3)	Maximum Treated Flow (m^3/d)	Average Daily Treated Flow (m^3/d)	Average Day % of Rated Capacity (2045 m^3/d)
Jan. to Jun. 2021	**78,579**	**789**	**434**	**21.2%**
2020	188,494	889	515	25.2%
2019	230,717	991	632	30.9%
2018	337,340	1870	924	45.2%
2017*	383,370	2724	1050	51.3%

McGarry Lagoon – Historical Flow Comparison

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 Jun. 2021	**182,642**	**4822**	**1009**	**88.9%**
2020	476,828	6191	1303	115%
2019	475,681	7585	1303	115%
2018	575,627	7896	1580	139%
2017*	662,826	8257	1816	160%

* Infrastructure work began in 2017 and continued in 2018 to significantly reduce water loss in the distribution system and excess flow into the sewage collection system.

Refer to Appendix B for historical flow trends which compare flows from 2017 to June 2021

REGULATORY

Sampling, Testing and Monitoring

- ✓ All water samples required under O. Regulation 170/03 were collected and tested in the second quarter and fell within regulatory limits.
- ✓ The system complied with its water taking permit and municipal license having no raw or treated water flow exceedances during this quarter.
- ✓ All sewage samples required under the system's Environmental Compliance Approval (ECA) were collected and tested and results fell within regulatory limits.
- ✓ The sewage treatment system did not comply with its rated capacity in April and May due to heavy rainfall.
- ✓ Refer to Appendix C for Performance Assessment Reports which provide summaries of water usage, wastewater treatment volumes and regulatory results for the quarter.

Reporting

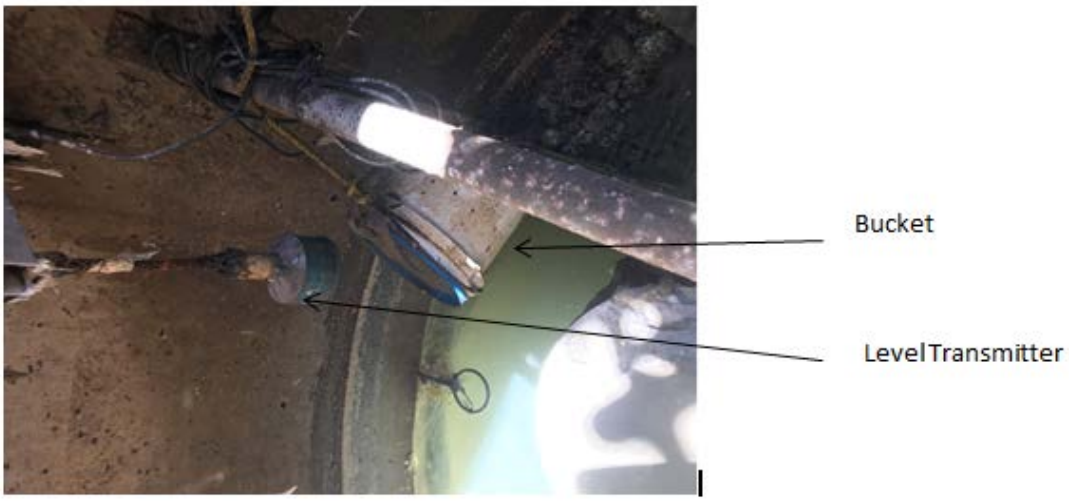
- ✓ No regulatory reporting required this quarter.

Inspections/Audits

- ✓ SAI Global conducted an external audit of the drinking water system's Quality Management System (QEMS) on May 4, 2021 and no issues were identified.

INCIDENTS

- *Kearns pumping station* – pump was running and would not stop. OCWA's Instrumentation Technician investigated and noticed that the level reading was low. They discovered a bucket under the level transmitter which caused false readings and the pump to run. Not sure where the bucket came from.



COMPLAINTS

No complaints were documented this quarter.

HEALTH AND SAFETY

- All safety equipment at each plant was checked monthly to ensure that they are in good working order.

- The annual detailed workplace inspections were conducted in April. The pressure vent on the effluent line is causing moisture on the floor. Resolved.

- Health and Safety Training/Sessions completed this quarter include:

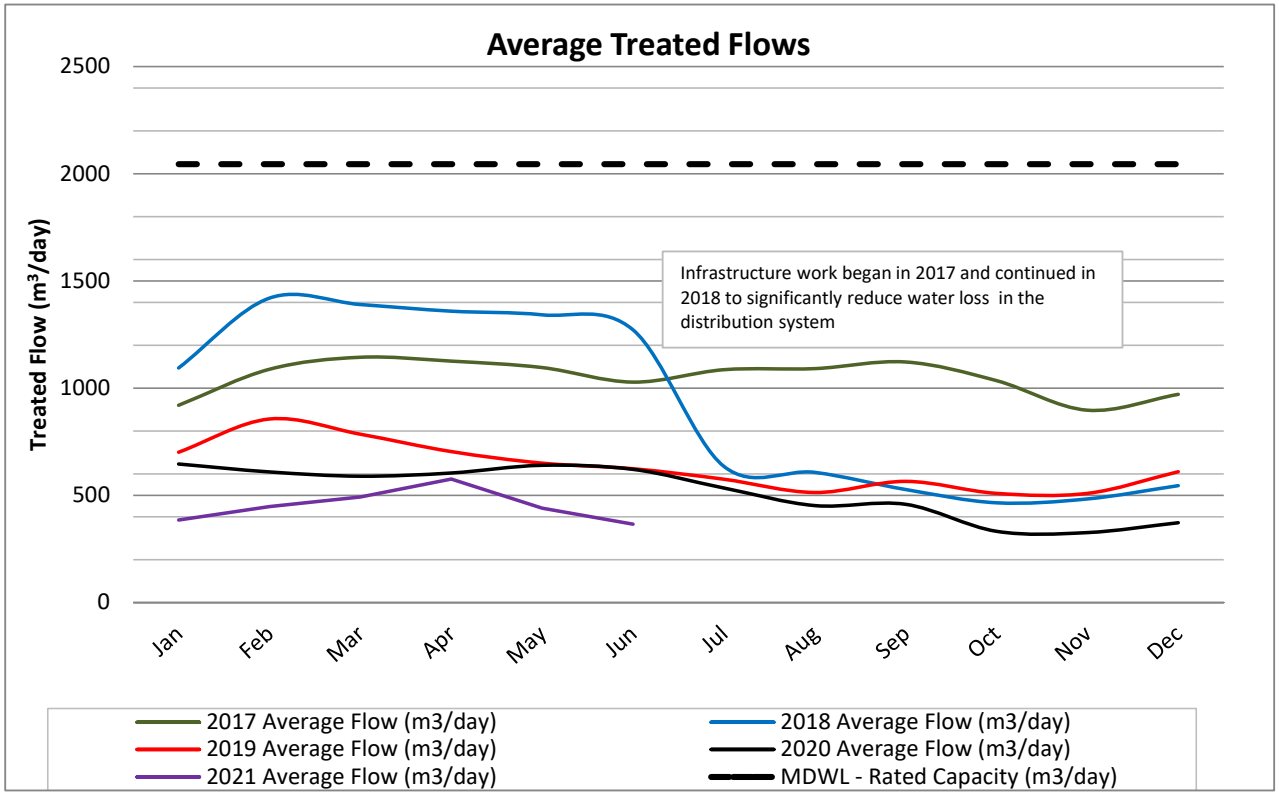
  - ✓ Distracted Driving
  - ✓ Facility Emergency Plan (FEP) Binder review
  - ✓ Don't Walk By Program
  - ✓ Harmful Algae Bloom Awareness Training

APPENDIX A

Historical Flow Trends

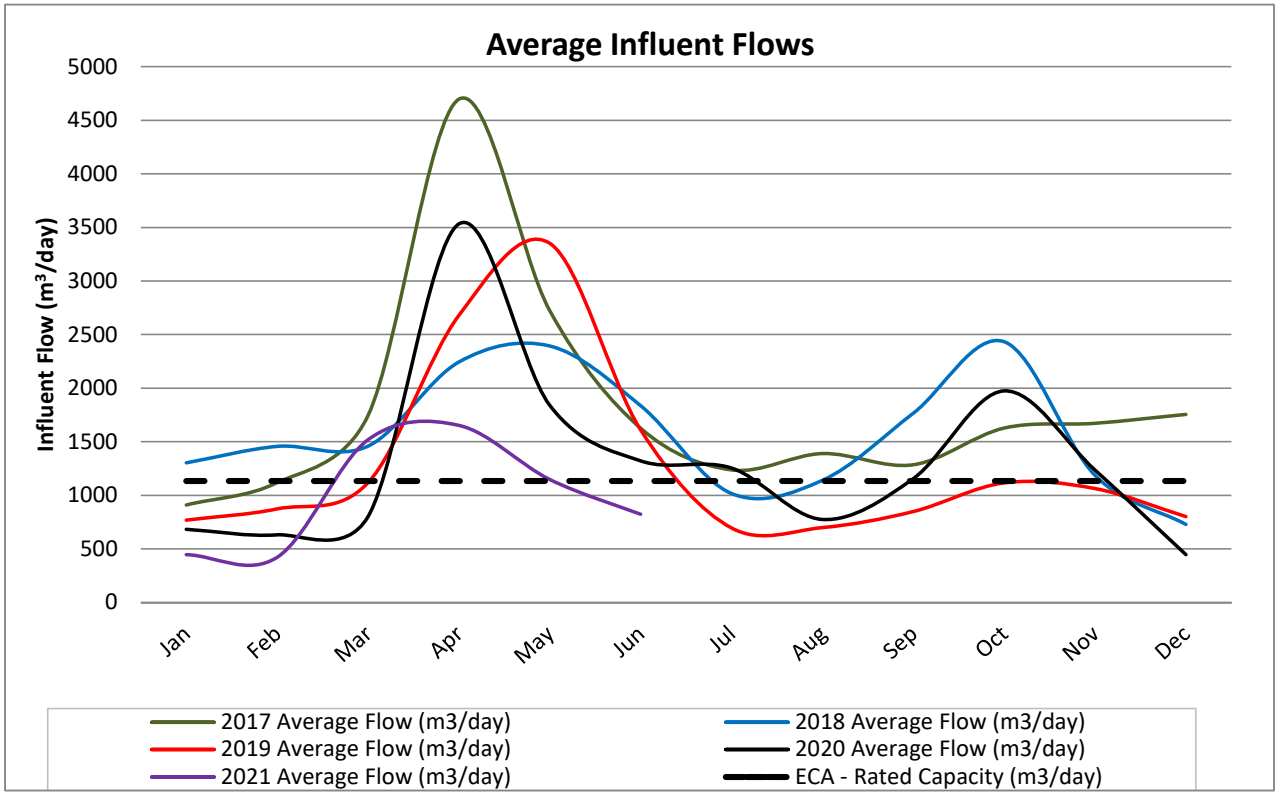
Virginiatown-Kearns Water Treatment System - Average Treated Water Tower Flows from 2017 to June 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017 Average Flow (m^3/day)	920	1088	1144	1126	1096	1028	1086	1091	1122	1035	897	971
2018 Average Flow (m^3/day)	1094	1420	1390	1359	1342	1272	635	607	527	465	483	545
2019 Average Flow (m^3/day)	701	856	785	704	650	624	575	513	565	509	509	610
2020 Average Flow (m^3/day)	646	609	589	604	640	621	534	452	458	332	326	372
2021 Average Flow (m^3/day)	385	448	492	576	440	365						
MDWL - Rated Capacity (m^3/day)	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045



McGarry Lagoon - Average Influent Flows from 2017 to June 2021

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017 Average Flow (m^3/day)	910	1119	1745	4697	2723	1626	1238	1390	1286	1628	1672	1755
2018 Average Flow (m^3/day)	1304	1457	1459	2244	2394	1837	1017	1141	1766	2434	1187	729
2019 Average Flow (m^3/day)	769	874	1118	2679	3352	1611	696	699	849	1117	1064	802
2020 Average Flow (m^3/day)	683	632	802	3533	1840	1322	1255	775	1156	1975	1236	447
2021 Average Flow (m^3/day)	447	422	1519	1653	1148	824						
ECA - Rated Capacity (m^3/day)	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135



APPENDIX B

Performance Assessment Reports

Facility: [5085] VIRGINIATOWN-KEARNS (MCGARRY) DRINKING WATER SYSTE

Works: [220000317]

WATER USAGE		04/2021		05/2021		06/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Max. Capacity
Flows:																
Raw Flow: Monthly Total - Well 1 (Cheminis) (m^3)		14178		13519		10884		38581								
Raw Flow: Monthly Avg - Well 1 (Cheminis) (m^3/d)		472.6		436.1		362.8				423.83						
Raw Flow: Monthly Max - Well 1 (Cheminis) (m^3/d)		623		485		421						623				2044.8
Raw Flow: Monthly Total - Well 2 (Standby) (m^3)		281		263		208		752								
Raw Flow: Monthly Avg - Well 2 (Standby) (m^3/d)		9.37		8.48		6.93				8.26						
Raw Flow: Monthly Max - Well 2 (Standby) (m^3/d)		69		65		60						69				1500
Treated Flow: Monthly Total - Tower (POE) (m^3)		14269.9		13646.1		10939		38855								
Treated Flow: Monthly Avg - Tower (POE) (m^3/d)		475.66		440.2		364.63				426.98						
Treated Flow: Monthly Max - Tower (POE) (m^3/d)		631.6		484.3		410.7						631.6				2045
RAW WATER		04/2021		05/2021		06/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Turbidity:																
Raw: Max Turbidity - Well 1 (Cheminis) (NTU)		0.25		0.37		0.36						0.37				N/A
Raw: Max Turbidity - Well 2 (Standby) (NTU)		0.3		0.39		0.38						0.39				N/A
TREATED WATER		04/2021		05/2021		06/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Chlorine Residuals:																
Treated: Min Free Cl2 Resid - Treated Water (POE) (mg/L)		1.098		0.899		0.798								0.798		CT*
Treated: Max Free Cl2 Resid - Treated Water (POE) (mg/L)		1.521		1.121		1.023						1.521				
Bacti Samples:																
Treated Bacti: # of samples - Treated Water (POE)		4		5		4		13								13
Treated Bacti: # of TC exceedances - Treated Water (POE)		0		0		0		0								0
Treated Bacti: # of EC exceedances - Treated Water (POE)		0		0		0		0								0
Chemical Parameters:																
Treated: Max Nitrite - Treated Water (POE) (mg/L)	<	0.05									<	0.05				1
Treated: Max Nitrate - Treated Water (POE) (mg/L)		0.09										0.09				10

DISTRIBUTION WATER		04/2021		05/2021		06/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Chlorine Residuals:																
Dist: Min Free Cl2 Resid - Residual No. 1 (mg/L)		0.51		0.74		0.54								0.51		0.05
Dist: Min Free Cl2 Resid - Residual No. 2 (mg/L)		0.81		0.54		0.54								0.54		0.05
Dist: Min Free Cl2 Resid - Residual No. 3 (mg/L)		0.76		0.75		0.58								0.58		0.05
Dist: Min Free Cl2 Resid - Residual No. 4 (mg/L)		0.81		0.75		0.60								0.60		0.05
Dist: Max Free Cl2 Resid - Residual No. 1 (mg/L)		1		0.86		1.1						1.1				
Dist: Max Free Cl2 Resid - Residual No. 2 (mg/L)		1.02		0.85		0.82						1.02				
Dist: Max Free Cl2 Resid - Residual No. 3 (mg/L)		0.99		0.85		0.86						0.99				
Dist: Max Free Cl2 Resid - Residual No. 4 (mg/L)		1.11		0.87		0.76						1.11				
Bacti Samples:																
Dist Bacti: # of samples - VT-3 (Bacti)		4		5		4		13								13
Dist Bacti: # of TC exceedances - VT-3 (Bacti)		0		0		0		0								0
Dist Bacti: # of EC exceedances - VT-3 (Bacti)		0		0		0		0								0
Dist Bacti: # of samples - VT-4 (Bacti)		4		5		4		13								13
Dist Bacti: # of TC exceedances - VT-4 (Bacti)		0		0		0		0								0
Dist Bacti: # of EC exceedances - VT-4 (Bacti)		0		0		0		0								0
Chemical Parameters:																
Distribution: Max THM - Distribution Water (µg/l)		1.2										1.2				100**
Distribution: Max HAA - Distribution Water (µg/l)	<	8									<	8				80***

NOTES:

* 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 0.05 mg/L to ensure primary disinfection is achieved. CT was met this quarter.

** Maximum Allowable Concentration (MAC) for Trihalomethanes (THMS) = 100 ug/L (Four Quarter Running Average). The running average to end of the quarter = **0.95 ug/L**

*** Maximum Allowable Concentration (MAC) for Haleoacetic Acids (HAAs) = 100 ug/L (Four Quarter Running Average). The running average to end of the quarter = **<8 ug/L**

Facility: [1022] McGARRY WASTEWATER TREATMENT LAGOON

Works: [120000024]

FLOWS		04/2021		05/2021		06/2021		<--Total-->		<--Avg.-->		<--Max.-->		Avg. Capacity
Flows:														
Raw Flow: Total - Influent (m^3)		49587		35599		24705		109891						
Raw Flow: Avg - Influent (m^3/d)		1652.9*		1148.35*		823.5				1208.25				1135
Raw Flow: Max - Influent (m^3/d)		2382		1596		3385						3385		
Eff. Flow: Total - Effluent (m^3)		34238		23152		24433		81823						
Eff. Flow: Avg - Effluent (m^3/d)		1141.27		746.84		814.43				900.85				1135
Eff. Flow: Max - Effluent (m^3/d)		1979		1067		2364						2364		
INFLUENT & EFFLUENT		04/2021		05/2021		06/2021		<--Total-->		<--Avg.-->		<--Max.-->		Limits
Biochemical Oxygen Demand: BOD5:														
Raw: # of samples of BOD5 - Influent (mg/L)		1		1		1		3						3
Raw: Avg BOD5 - Influent (mg/L)		27		73.5		61.2				53.9		73.5		
Carbonaceous Biochemical Oxygen Demand: CBOD:														
Eff: # of samples of cBOD5 - Effluent (mg/L)		4		5		4		13						13
Eff: Avg cBOD5 - Effluent (mg/L)		1.4	<	1.44	<	0.85			<	1.23		1.44		25
Loading: cBOD5 - Effluent (kg/d)		1.598	<	1.075	<	0.692			<	1.122		1.598		28.4
Total Suspended Solids: TSS:														
Raw: # of samples of TSS - Influent (mg/L)		1		1		1		3						3
Raw: Avg TSS - Influent (mg/L)		145		166		117				142.667		166		
Eff: # of samples of TSS - Effluent (mg/L)		4		5		4		13						13
Eff: Avg TSS - Effluent (mg/L)		4.25		6.8		6				5.683		6.8		25
Loading: TSS - Effluent (kg/d)		4.85		5.079		4.887				4.938		5.079		28.4
Percent Removal: TSS - Influent (mg/L)		97.069		95.904		94.872						97.069		
Total Phosphorus: TP:														
Raw: # of samples of TP - Influent (mg/L)		1		1		1		3						3
Raw: Avg TP - Influent (mg/L)		1.86		2.95		1.66				2.157		2.95		
Eff: # of samples of TP - Effluent (mg/L)		4		5		4		13						13
Eff: Avg TP - Effluent (mg/L)		0.132		0.319		0.29				0.247		0.319		0.5
Loading: TP - Effluent (kg/d)		0.151		0.238		0.236				0.208		0.238		0.6
Percent Removal: TP - Influent (mg/L)		92.89		89.18		82.545						92.89		
Nitrogen Series:														
Raw: # of samples of TKN - Influent (mg/L)		1		1		1		3						3
Raw: Avg TKN - Influent (mg/L)		10.2		12.4		7.6				10.067		12.4		
Eff: # of samples of TAN - Effluent (mg/L)		4		5		4		13						13
Eff: Avg TAN - Effluent (mg/L)	<	0.053	<	0.067	<	0.015			<	0.045	<	0.067		5
Loading: TAN - Effluent (kg/d)	<	0.06	<	0.05	<	0.012			<	0.041	<	0.06		5.7
Disinfection:														
Eff: # of samples of E. Coli - Effluent (cfu/100mL)		4		5		4		13						13
Eff: GMD E. Coli - Effluent (cfu/100mL)		64.514		24.344		50.686				46.515		64.514		

NOTES:

* The system did not comply with its rated capacity in April and May due to heavy rains.