McGarry Water & Wastewater Systems Quarterly Operations Report

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

SYSTEM OVERVIEW | July 1 to September 30, 2021

Highlights

Virginiatown-Kearns Drinking Water System

- Permit to Take Water (PTTW) application was submitted to the MECP on August 21st. A new permit was issued on September 16, 2021.
- One adverse water quality incident was reported to the Ministry this quarter. Refer to *Incidents* below for details.

McGarry Wastewater Treatment Lagoon

- Replaced lagoon diffusers
- The effluent exceeded the monthly regulatory limit for total phosphorus (TP) in August. Refer to *Incidents* below for details.
- One (1) overflow event occurred at the Kearns sewage pumping station this quarter. Refer to *Incidents* below for details.

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.

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
Permit to Take Water Renewal	Complete – August 21, 2021

Capital Item - Wastewater Lagoon System	Status
Replace check valves on blowers	Complete – February 8, 2021
Annual generator maintenance	Complete – April 13, 2021

CAPITAL ITEM - WASTEWATER LAGOON SYSTEM	STATUS
Annual lifting device inspection	Complete – April 26, 2021
Jockey pump (spare)	Complete – June 22, 2021
Replace lagoon diffuser	Complete - August

CALL-OUT SUMMARY

Number of Call-outs this Quarter:	0 (water system)	1 (sewage lagoon)
Total Call-outs to Date (2021):	1	
Annual Call-out Allowance:	8	
Details of the Call-outs:	Refer to Appendix A for a detailed call out summary.	

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 Sep. 2021	**109,383**	**789**	**401**	**19.6%**
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 Sep. 2021	**293,056**	**10,000**	**1073**	**94.5%**
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 September 2021

REGULATORY

Sampling, Testing and Monitoring

- ✓ All water samples required under O. Regulation 170/03 were collected and tested in the third 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 July 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

- ✓ The annual internal QEMS audit was performed by OCWA from June 8th to July 22nd. Seven (7) opportunities for improvement (OFIs) and one (1) comment/observation were identified. The audit report dated July 23, 2021 is found in Appendix D.

INCIDENTS

Virginiatown-Kearns Drinking Water System

One adverse water quality incident (AWQI) occurred this quarter:

1. **AWQI 154771** - Loss of free chlorine on-line monitoring at the water tower (POE) on July 11, 2021 from 1740 hours to 1847 hours due to UPS failure. 5 minute residuals were not tested for the duration of the failure. Hand-held testing was started at 1830 hours.

   1830 hours = 0.80 mg/L
   1835 hours = 0.82 mg/L
   1840 hours = 0.79 mg/L
   1845 hours = 0.83 mg/L

   Alarms were active during this time. Wells were shut down

   Corrective Action: UPS replaced, free chlorine analyzer on-line at 1847 hours. FCR =0.77mg/L. Operator calibrated analyzer from 0.77 mg/L to 0.83 mg/L based on hand held reading.

   The incident was reported late to SAC on June 21, 2021 and THU on June 22, 2021 (operator tried several times to contact a PHI, but no answer; finally called got through about 8:30 AM on July 22, 2021). OCWA thought Town collected and tested 5 minute residuals, but discovered on Wednesday, July 21st that was not the case.

   Notification and resolution reports submitted June 22, 2021

McGarry Lagoon

One effluent exceedance and one overflow event occurred in the third quarter:

1. **Effluent Exceedance (SAC Ref No. 4600-C6MLEE)** - In August 2021 , the effluent exceeded the average total phosphorus limit of 0.5 mg/L having a monthly average concentration of 0.531 mg/L (Aug. 3 = 0.337, Aug. 9 = 1.02, Aug. 16 = 0.476, Aug. 24 = 0.386, Aug. 30 = 0.438 mg/L.)

   A large amount of duckweed was present in cell 2 & 3. Duckweed dying off contributed to the increased phosphorus levels in the effluent.

   Corrective Actions: Town has removed some of the duckweed from cells 2 & 3 on August 25th to help reduce TP concentrations. Plans are to remove more duckweed. Alum was also increased to help drop levels.

2. **Overflow (SAC Ref No. 1-117XLH)** – one overflow event occurred at the Kearns sewage pumping station on July 24th. Heavy rains caused the station to overflow into Bear Creek. The overflow lasted for 27 hours terminating on July 25th at 1700 hours.

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

  - ✓ SCBA Application and Maintenance
  - ✓ Site Specific SDS Binders – Annual Review
  - ✓ OHSS Resource Portal Review
  - ✓ Confined Space Training
  - ✓ First Aid Training

APPENDIX A

Call-out Summary

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

McGarry Lagoon

Workorder Summary Report

Report Start Date:	Jul 1, 2021 12:00 AM
Report End Date:	Sep 30, 2021 11:59 PM
Location:	1022*
Work Order Type:	CALL,
Work Order Class:	

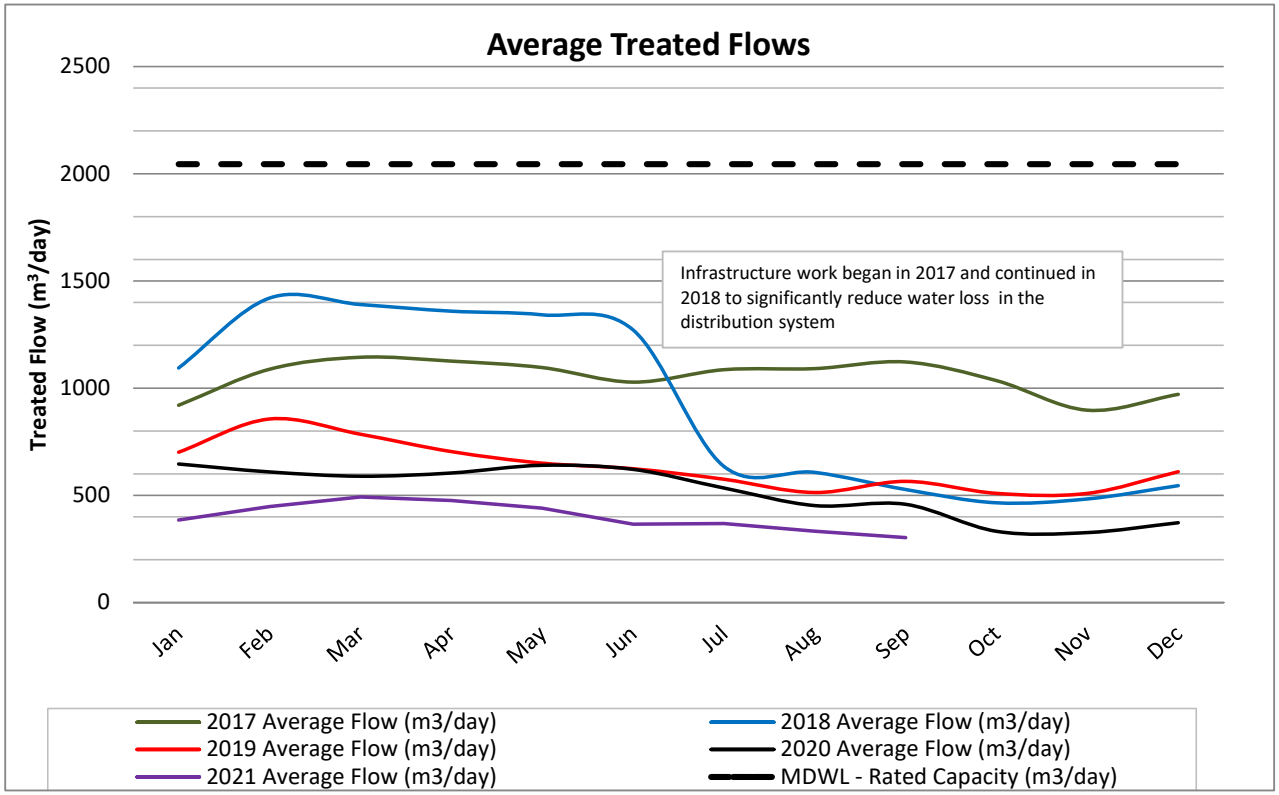
				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
2364975			1022, Kearns Lift Station	CALL	Refurbish/ Replace/Repair	0		Kearns SPS overflow 1022	COMP		7/24/21 01:00 PM	7/24/21 05:00 PM	Overflow - Heavy rains caused system to surcharge. - collect samples and call in overflow.

APPENDIX B

Historical Flow Trends

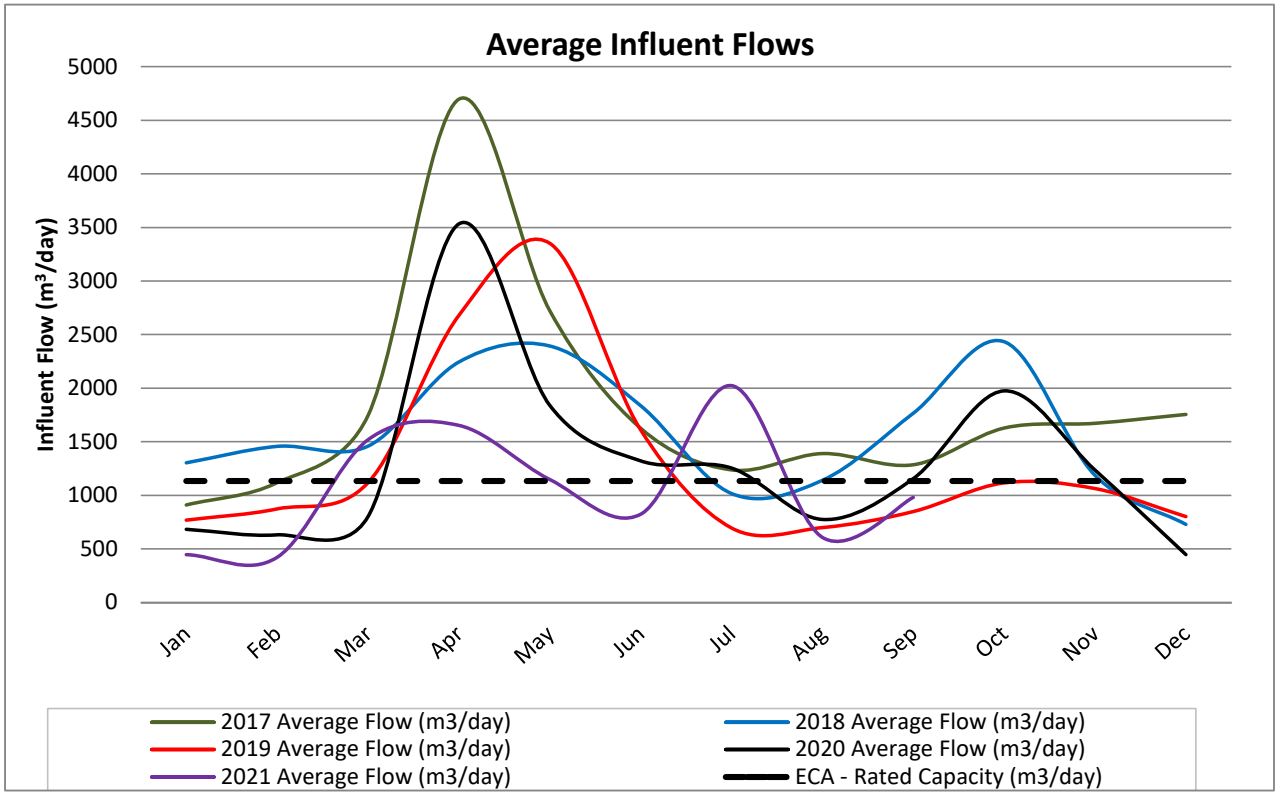
Virginiatown-Kearns Water Treatment System - Average Treated Water Tower Flows from 2017 to September 2021

	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	476	440	365	369	332	303			
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 September 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	2024	608	981			
ECA - Rated Capacity (m^3/day)	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135



APPENDIX C

Performance Assessment Reports

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

Works: [220000317]

WATER USAGE		07/2021		08/2021		09/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Max. Capacity
Flows:																
Raw Flow: Monthly Total - Well 1 (Cheminis) (m^3)		11344		10137		9040		30521								
Raw Flow: Monthly Avg - Well 1 (Cheminis) (m^3/d)		365.94		327		301.33				331.42						
Raw Flow: Monthly Max - Well 1 (Cheminis) (m^3/d)		462		396		360						462				2044.8
Raw Flow: Monthly Total - Well 2 (Standby) (m^3)		213		215		124		552								
Raw Flow: Monthly Avg - Well 2 (Standby) (m^3/d)		6.87		6.94		4.13				5.98						
Raw Flow: Monthly Max - Well 2 (Standby) (m^3/d)		74		62		57						74				1500
Treated Flow: Monthly Total - Treated Water (POE) (m^3)		11557		10352		9164		31073								
Treated Flow: Monthly Avg - Treated Water (POE) (m^3/d)		372.81		333.94		305.47				337.4						
Treated Flow: Monthly Max - Treated Water (POE) (m^3/d)		462		396		360						462				2045
RAW WATER		07/2021		08/2021		09/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Turbidity:																
Raw: Max Turbidity - Well 1 (Cheminis) (NTU)		0.93		0.27		0.27						0.93				N/A
Raw: Max Turbidity - Well 2 (Standby) (NTU)		0.68		0.59		0.62						0.68				N/A
TREATED WATER		07/2021		08/2021		09/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Chlorine Residuals:																
Treated: Min Free Cl2 Resid - Treated Water (POE) (mg/L)		0.77		0.279		0.479								0.279		CT*
Treated: Max Free Cl2 Resid - Treated Water (POE) (mg/L)		0.98		0.976		1.44						1.44				
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)		0.06										0.06				10
Chlorine Residuals:																
Dist: Min Free Cl2 Resid - Residual No. 1 (mg/L)		0.61		0.20		0.44								0.20		0.05
Dist: Min Free Cl2 Resid - Residual No. 2 (mg/L)		0.47		0.21		0.38								0.21		0.05
Dist: Min Free Cl2 Resid - Residual No. 3 (mg/L)		0.49		0.30		0.33								0.30		0.05
Dist: Min Free Cl2 Resid - Residual No. 4 (mg/L)		0.45		0.22		0.47								0.22		0.05
Dist: Max Free Cl2 Resid - Residual No. 1 (mg/L)		1.08		1.10		1.10						1.10				
Dist: Max Free Cl2 Resid - Residual No. 2 (mg/L)		0.86		0.80		1.07						1.07				
Dist: Max Free Cl2 Resid - Residual No. 3 (mg/L)		0.76		0.69		1.19						1.19				
Dist: Max Free Cl2 Resid - Residual No. 4 (mg/L)		0.61		0.60		1.01						1.01				
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)		1.7										1.7				
Distribution: Max HAA - Distribution Water (µg/l)	<	8									<	8				
Dist Alkalinty/pH/Temperature: # of samples						2		2								2
Dist. Min Alkalinity (as CaCO3) - mg/L						70								70		N/A
Dist. Max Alkalinity (as CaCO3) - mg/L						72						72				N/A
Dist. Min pH Field: Lab Upload - ---						7.74								7.74		N/A
Dist. Max pH Field: Lab Upload - ---						7.77						7.77				N/A
Dist. Min Temperature Field: Lab Upload - °C						11.2								11.2		N/A
Dist. Max Temperature Field: Lab Upload - °C						13.3						13.3				N/A

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 0.10 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 = **1.18 ug/L**

*** Maximum Allowable Concentration (MAC) for Haleoacetic Acids (HAAs) = 80 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		07/2021		08/2021		09/2021		<--Total-->		<--Avg.-->		<--Max.-->		Avg. Capacity
Flows:														
Raw Flow: Total - Influent (m^3)		62731		18859		28824		110414						
Raw Flow: Avg - Influent (m^3/d)		2023.58		608.35		960.8				1197.58				1135
Raw Flow: Max - Influent (m^3/d)		10000		1003		2288						10000		
Eff. Flow: Total - Effluent (m^3)		47751		15256		14776		77783						
Eff. Flow: Avg - Effluent (m^3/d)		1540.35		492.13		492.53				841.67				1135
Eff. Flow: Max - Effluent (m^3/d)		3174		875		1885						3174		
INFLUENT & EFFLUENT		07/2021		08/2021		09/2021		<--Total-->		<--Avg.-->		<--Max.-->		Monthly Limits
Biochemical Oxygen Demand: BOD5:														
Raw: # of samples of BOD5 - Influent (mg/L)		1		1		1		3						1
Raw: Avg BOD5 - Influent (mg/L)		18		7.3		31				18.767		31		
Carbonaceous Biochemical Oxygen Demand: CBOD:														
Eff: # of samples of cBOD5 - Effluent (mg/L)		4		5		4		13						13
Eff: Avg cBOD5 - Effluent (mg/L)		1.3	<	1.02		1.325			<	1.215		1.325		25
Loading: cBOD5 - Effluent (kg/d)		2.002	<	0.502		0.653			<	1.052		2.002		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)		4		3.5		3.5				3.667		4		
Eff: # of samples of TSS - Effluent (mg/L)		4		5		4		13						13
Eff: Avg TSS - Effluent (mg/L)	<	2.875	<	8.9	<	12.25			<	8.008	<	12.25		25
Loading: TSS - Effluent (kg/d)	<	4.429	<	4.38	<	6.034			<	4.947	<	6.034		28.4
Percent Removal: TSS - Influent (mg/L)		28.125		-154.286		-250						28.125		
Total Phosphorus: TP:														
Raw: # of samples of TP - Influent (mg/L)		1		1		1		3						3
Raw: Avg TP - Influent (mg/L)		0.13		0.756		0.73				0.539		0.756		
Eff: # of samples of TP - Effluent (mg/L)		4		5		4		13						13
Eff: Avg TP - Effluent (mg/L)		0.283		0.531		0.483				0.432		0.531		0.5
Loading: TP - Effluent (kg/d)		0.435		0.262		0.238				0.312		0.435		0.6
Percent Removal: TP - Influent (mg/L)		-117.308		29.709		33.836						33.836		
Nitrogen Series:														
Raw: # of samples of TKN - Influent (mg/L)		1		1		1		3						3
Raw: Avg TKN - Influent (mg/L)		7		8.9		10.6				8.833		10.6		
Eff: # of samples of TAN - Effluent (mg/L)		4		5		4		13						13
Eff: Avg TAN - Effluent (mg/L)	<	0.04	<	0.014	<	0.042			<	0.032	<	0.042		5
Loading: TAN - Effluent (kg/d)	<	0.062	<	0.007	<	0.021			<	0.03	<	0.062		5.7
Disinfection:														
Eff: # of samples of E. Coli - Effluent (cfu/100mL)		4		5		4		13						13
Eff: GMD E. Coli - Effluent (cfu/100mL)		54.193		9.441		28.173				30.602		54.193		N/A

NOTES:

* The system did not comply with its rated capacity in July due to heavy rains.
** The effluent failed to meet the monthy regulatory limit of 0.5 mg/L for Total Phosphorus in August

APPENDIX D

Internal QEMS Audit Report

Internal QEMS Audit Report

Water Treatment and/or Distribution Facility

Virginiatown-Kearns Drinking Water System Org# 5085

(Facility Name and Org Unit)

Report Prepared By:

Ilona Bruneau, PCT/QEMS Representative
(Internal Auditor)

Report Prepared on:

July 23, 2021
(Date)

This Report was prepared for the exclusive use of the Ontario Clean Water Agency (OCWA) and is intended to provide an evaluation of the conformance of OCWA's Quality & Environmental Management System (QEMS) as implemented at the above facility to the requirements of the Drinking Water Quality Management Standard (DWQMS).

The information contained in this Report reflects the Auditor's best judgment in light of the information made available to him/her at the time of preparation.

Nothing in this Report or the related Action Plans should be taken as legal advice. The Auditor makes no representations whatsoever concerning the legal significance of his/her findings, or as to legal matters touched on in this Report, including but not limited to the application of any law to the facts set out herein.

Internal QEMS Audit Report

Facility Name:	Virginiatown-Kearns Drinking Water System
Facility Org Unit:	5085
Facility Works (DWS) #:	220000317
Regional Hub Manager:	Eric Nielson
Senior Operations Manager	Anthony Danis
SPC Manager	Yvan Rondeau
Date Internal Audit From:	June 8, 2021
Date Internal Audit To:	July 22, 2021
Date of Internal Audit Report:	July 23, 2021
Multi-Facility Operational Plan Description:	N/A
Auditor(s)	Ilona Bruneau, PCT/QEMS Representative
Areas Visited	Virginiatown-Kearns Well House & Tower Kirkland Lake Wastewater Treatment Plant OCWA Electronic Databases
People Interviewed	Sophia Lee, Operator Anthony Danis, Sr. Operations Manager Kirk Shorrock, Instrumentation Technician (UPIT) Gord Caza, Public Works Foreman (McGarry)
Documents Viewed	Virginiatown-Kearns DWS Operational Plan (last updated on September 24, 2020) along with associated procedures, documents and records. The document review covered a period from August 12, 2020 to July 22, 2021

A. AUDIT OBJECTIVES

The objectives of this internal QEMS audit were**:**

- To evaluate the conformance of OCWA's QEMS (as implemented at the facility) to the requirements of the Drinking Water Quality Management Standard (DWQMS) Version 2,
- To identify and correct nonconformities with the facility's documented QEMS, and
- To assess the effectiveness of the QEMS and ensure that it is continually improving with each cycle.

B. SCOPE

This audit has been designed to encompass all the requirements of the DWQMS. All activities within the scope of the QEMS implemented at the facility (as documented in the facility's Operational Plan) are auditable.

C. PREVIOUS AUDIT RESULTS

The results of the last internal and external audits of this system have been reviewed, to ensure that appropriate corrective action has been implemented to address any nonconformity identified. This review has concluded that:

- One (1) minor non-conformance, four (4) opportunities for improvement (OFI) and one observation/comment were identified during the previous internal audit and all have been corrected and the corrective actions continue to be effective.
- An external audit (S2 - surveillance) was conducted on May 4, 2021 by SAI Global. No issues were identified.

D. SUMMARY OF FINDINGS

DWQMS Element	Finding
1. Quality Management System	C
2. Quality Management System Policy	C
3. Commitment and Endorsement	C
4. Quality Management System Representative	C
5. Document and Records Control	OFI
6. Drinking Water System	C
7. Risk Assessment	C
8. Risk Assessment Outcomes	OFI
9. Organizational Structure, Roles, Responsibilities and Authorities	OFI
10. Competencies	OFI
11. Personnel Coverage	C
12. Communications	C
13. Essential Supplies and Services	C
14. Review and Provision of Infrastructure	C
15. Infrastructure Maintenance, Rehabilitation and Renewal	OFI
16. Sampling, Testing and Monitoring	OFI
17. Measurement and Recording Equipment Calibration and Maintenance	C
18. Emergency Management	OFI*

DWQMS Element	Finding
19. Internal Audits	C
20. Management Review	C
21. Continual Improvement	C

N/C	Non-Conformity – non-fulfillment of a requirement (Mn) – Minor (Mj) - Major
OFI	Opportunity for Improvement – conforms to the requirement, but there is opportunity for improvement
C	Conforms to the requirement
*****	Additional comment added by auditor

E. AUDIT FINDINGS REQUIRING ACTION (NONCONFORMITIES)

It is important that an action plan be developed to properly address all conformance issues. Throughout the audit when a nonconformity was identified, the auditor(s) initiated an action plan that provides details of the conformance issue as well as the recommended steps to be taken to resolve the issue.

It is the responsibility of the Senior Operations Manager (or designate) to ensure that action plans are carried through to completion by:

- identifying staff responsible for resolving the issues,
- setting realistic target dates for completing the various steps necessary, and
- providing details of the results of any actions taken.

The Senior Operations Manager (or designate) is responsible for monitoring the progress of the action plans and ensuring that action plans are updated to confirm when issues have been resolved and to reestablish target dates as necessary.

The following section summarizes conformance issues and recommended actions identified during the audit. The findings are presented in the same order and under the same headings used in the Internal Audit Questions.

No non-conformances were identified during the audit conducted from June 8 to July 22, 2021.

There seven (7) opportunities for improvement (OFIs) identified during the audit and are described in the summary below. Those elements marked with an '*' for comment are also described. The changes required in the elements identified with a comment do not have an effect on the effectiveness of the QEMS.

F. OBJECTIVE EVIDENCE & OPPORTUNITIES FOR IMPROVEMENT

Section	Description of Findings	Type	Action
OP-05 Document and Records Control	The following controlled document locations have recently changed: • Tailgate reports – now found electronically in the Health and Safety folder in the public drive • Transportation of dangerous goods – now located at the KL WWTP • Confined space records – now found electronically in the Health and Safety folder in the public drive • The information on the public drive changed server on May 31, 2021. New link is \\ocwfilereg\NEO Collab\NEO DWQMS • Hardcopy logbooks have been replaced with and electronic logbook • Visitor's logbook recently available at the V-Town Well House and Tower.	**OFI**	Update OP-05A Document and Records Control Table with the described changes during the next revision of the Operational Plan
OP-08 Risk Asessment Outcomes	A low water tower volume should be added to the risk assessment outcomes as a hazard and mandatory critical control point for primary disinfection. The CT calculation was recently updated as per MECP recommendation to include the water tower level.	**OFI**	Update OP-08, Table 1 - Risk Assessment Outcomes and Table 2 - Critical Control Points with the water tower volume/level as a CCP.
OP-09 Organizational Structure, Roles, Responsibilites and Authorities	The responsibilities and authorities of the role of Senior Operator/ Mechanic is to be added to Table 9-2 and the Organizational Chart. An operator becomes a Senior Operator if they achieve Class 3 certification. The Kirkland Lake Cluster has at least one Class 3 certified operator.	**OFI**	Update Table 9-2 during the next revision of the Operational Plan
OP-10 Competencies	Position changes require the following updates to the table in OP-10: - addition of the position of Senior Operator/ Mechanic - change the Mechanic/Operator position to Mechanic Lead	**OFI**	Update Table in OP-10 during the next revision of the Operational Plan
OP-15 Infrastructure, Maintenance, Rehabilitation and Renewal	Several capital projects were completed in April 2021, but work orders remain open in Maximo (as of July 13, 2021). A system needs to be developed to ensure projects are closed once projects are completed.	**OFI**	Develop a system to ensure work order are closed in a timely manner.
OP-16 Sampling, Testing and Monitoring	The Wonderware Review sheet was recently updated (May 31, 2021) to include the water tower volume which is now being continuously monitored. Step 3.4 of OP-16 – Sampling, Testing and Monitoring is to be updated to include this new parameter.	**OFI**	Update Table in OP-16 during the next revision of the Operational Plan
OP-18 Emergency Management	The Emergency Procedure for Low Tower Level was reviewed and updates are required to include a low tower volume CT trigger of 320 m3. CT calculation was recently updated to include the tower volume.	**OFI**	Update procedure

G. AUDIT FINDINGS RESULTING IN COMMENTS

Section	Description of Findings	Type	Action
OP-18 Emergency Management	The contact list was reviewed and a new Instrumentation Technician (UPIT) was recently hired for the KL Cluster will need to be added once trained.	**C/Obs**	Update Contact List during the next revision of the Operational Plan

H. AUDIT CONCLUSIONS

The auditor conducted an internal audit of the systems Operation Plan and related documents, records and procedures to ensure that DWQMS requirments were met. The document review covered a period from the last internal audit August 12, 2020 to July 22, 2021. The audit methods used were both interactive and non-interactive (interviews conducted over the phone, through email and/or in-person, observation of activities, operator task sheets, and review of documentation and records).

Taking into consideration all the findings of this audit, the above noted non-conformities, opportunity for improvements and areas of comment/observation, the auditor has concluded that sufficient evidence has been provided to demonstrate that the facility has established a QEMS that meets the intent of the DWQMS.

This report was completed by Ilona Bruneau after an audit of the Virginitown-Kearns Drinking Water System and Operational Plan (Last updated on September 24, 2020). All information is complete and accurate as to the information provided.

Ilona Bruneau
Internal Auditor

July 23, 2021
Date

- End -