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, 2022

HIGHLIGHTS

Virginiatown-Kearns Drinking Water System

- Complaints regarding cloudy water or air in the water occurred this quarter and prompted an investigation of the system.
- An inspection of the water tower inlet line conducted during an investigation into the dissolved air found in the drinking water system yielded the discovery of all four chambers containing air release valves along the inlet line were full of water and required emptying. This will be made into a preventative maintenance work order to be checked annually.

  Both silent check valves at the well house were found with broken seals and were replaced immediately with the available shelf spares.
- Four (4) water mains break occurred in the third quarter. Refer to "*Incidents*" below for details.
- An internal audit and external audit were conducted this quarter. Refer to "*Regulatory*" below for findings

McGarry Wastewater Treatment Lagoon

- The investigation of a potential spill at the Lagoon is on-going. A report to the MECP is required to show if the discharge is from the lagoon, groundwater or other possible source. OCWA's Engineering Group is preparing the report which is due to the MECP by November 15th.
- July 15 - The generator fuel priming pump was discovered to be leaking during an inspection and was replaced with a new unit.
- July 20 - Die test of cell number 1 conducted. Operators used copious amounts of green die to trace any potential leak from cell number #1. No leak found.
- September - Water in the junction box at the Virginiatown sewage pumping station experiencing flow meter issues. OCWA repaired flow meter on November 1st by cleaning out materials and adding electrical sealing compound to the box.

Electrical Panel

- One (1) overflow events occurred this quarter. Refer to Incidents below for details.

CAPITAL PLAN PROGRESS

Status of capital work completed to date in 2022.

CAPITAL WORK – WATER TREATMENT SYSTEM	STATUS
Generator maintenance	Complete in May
Lifting device inspections	Complete in May
DWQMS – third party surveillance (desk-top) audit	Complete on June 10, 2022
DWQMS – third party systems (on-site) audit	Complete on July 26, 2022

CAPITAL WORK - WASTEWATER LAGOON SYSTEM	STATUS
Replaced Jockey pump at the V-Town SPS	Complete on January 20, 2022
Generator maintenance	Complete in May
Lifting device inspections	Complete in May
Spill – dye test	June 6 (Cell 2 & 3), July 20 (Cell 1)
Fuel pump for generator at lagoon	Complete on July 15, 2022

INCIDENTS

Virginiatown Drinking Water System:

Four (4) incident occurred in the third quarter.

Date	Type of Incident	Details
July 27	Category 2 Watermain Break, Boil Water Advisory (AWQI No. 159322)	Category 2 watermain break on Hilltop Crescent caused a loss of pressure to approximately 8 homes. The local Health issued a precautionary boil water advisory (BWA) for the affected area. After the repair was complete with a repair band, the pressure was restored and the area was flushed. Two sets of 3 bacteriological samples were collected (upstream, downstream and at the site of the break) on July 27th and 28th. Two (2) samples collected on July 27th had one total coliform present (21 Hilltop Cres. & 25 Hilltop Cres.). Five (5) re-samples were collected on July 28th and 29th and all results indicated zero total coliforms and zero *E.coli*. The BWA was lifted on Saturday, July 30, 2022 at approximately 7:30 PM. The incident was reported to appropriate authorities as required.

Date	Type of Incident	Details
Jul 28	Total Coliform (AWQI No. 159341)	Two (2) drinking water samples collected after a category 2 watermain on Hilltop Crescent had one (1) total coliform present. One sample was collected at 21 Hilltop Crescent at 1728 hours (FCR = 2.2 mg/L). The second sample was collected at 25 Hilltop Crescent (FCR = 2.2 mg/L). A BWA was issued on July 27th for 8 homes affected by the watermain break. The BWA remained in place until 2 consecutive sets of 5 bacteriological samples had no detectable total coliforms or *E.coli*. BWA was lifted on Saturday, July 30, 2022 at approximately 7:30 PM.
August 1	Category 2 Watermain Break, System-wide Boil Water Advisory AWQI No. (159378)	A break occurred on the inlet pipe from the well house feeding the Virginiatown-Kearns water tower. Due to the location of the break, operators were unable to attend the break in a timely manner which led to a loss of pressure/water to the distribution system. The system experienced a loss of water for approximately 1.5 hours before operators were able to bypass the tower and re-direct water to the distribution system. The Temiskaming Health Unit issued a precautionary BWA for the entire distribution system until repairs were completed and 2 sets of 3 bacteriological sample results are acceptable. The distribution was flushed to purge air from the system once repairs were completed on August 2nd. Tower was re-filled. All dead ends were flushed a second time along with residual sampling. Two sets of bacterial samples were taken 24 hours apart at six locations throughout Virginiatown and Kearns on August 3rd and 4th. Both sets of samples came back with zero TC and EC. BWA was lifted August 5, 2022. The incident was reported to appropriate authorities as required.
August 9	Category 2 Watermain Break (AWQI No. 159479)	Category 2 watermain break on Lynch Avenue in Kearns caused a loss of pressure to approximately 20 homes. The local Health Unit was notified and a BWA was issued for the affected area. After the repair was complete, the pressure was restored and the area was flushed. Two sets of 3 bacteriological samples were collected (upstream, downstream and at the site of the break) on August 9th and August 10th. All results indicated zero total coliforms and zero E.coli. BWA was lifted on August 11, 2022 at 16:09 hours

McGarry Lagoon Sewage Treatment System:

One sewage overflow occurred this quarter.

Date	Type of Incident	Details
September 17	Sewage Overflow (SAC Reference No. 1-267PDD)	Approximately 25 m^3 of wastewater overflowed the Kearns sewage pumping station due to heavy rains and snowmelt. The event started at 2210 hours and lasted for approximately 2 hours, terminating on September 19th at 0010 hours.

COMPLAINTS

One (1) complaint was documented this quarter:

MECP Inspector contacted OCWA after receiving a complaint from a resident in Virginiatown about cloudiness in the water. Complainant described the water as cloudy, like air trapped in the line.

The chambers containing the air release valves were filled of water rendering the air releases inoperable therefore trapping the air inside the inlet line to the tower. Over time the air trapped in the inlet line dissipates into the water in the form of 'micro' bubbles giving the water a cloudy appearance. Town of McGarry staff pumped out all the chambers containing the air release valves and at least two of the valves were proven to be operational. Other valves to be replaced. Two silent check valves at the well house had broken seals and were replaced immediately.

On August 1st, the inlet pipe from the well house to the water tower was discovered to be broken and required repair. This broken pipe may have also contributed to the air in the line. Pipe was repaired on August 2nd.

CALL-OUT SUMMARY

Number of Call-outs this Quarter:	3 (water system)	1 (sewage lagoon)
Total Call-outs to Date (2022):	9	
Annual Call-out Allowance:	8	
Details of the Call-outs:	Refer to Appendix A for a call-out summary.	

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

REGULATORY

Inspections:

- No MECP or MOL inspections were conducted this quarter.

Quality & Environmental Management System (QEMS)

- The annual Internal QEMS audit was performed on the Virginiatown-Kearns drinking water system by OCWA. Five (5) opportunities for improvement (OFIs) were identified. The audit report dated August 30, 2022 is found in Appendix B.
- The External re-accreditation (on-site) audit was conducted by SAI Global on July 26th. One minor non-conformance and one (1) opportunity for improvement (OFI) were identified:

  Non-conformance: Top Management's participation in the re-accreditation audit is required to demonstrate commitment to the QMS – root cause analyses conducted on this finding and provide to the auditor. Issue cleared by auditor

  OFI: Consider conducting root cause analysis for non-conformances and non-compliances to ensure effective corrective and/or preventive actions are implemented. This will be discussed and considered during our next PCT/Management meeting in December.

Sampling, Testing and Monitoring

- Refer to Appendix C for Quarterly Data Summaries.

Reporting

- No reports required this quarter.

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 Sep. 2022	**123,462**	**452**	**1254**	**61.3%**
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 Sep. 2022	**386,848**	**7897**	**1417**	**125%**
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%

Refer to Appendix D historical flow trends from 2018 to current.

HEALTH AND SAFETY

- All safety equipment at each plant was checked monthly to ensure that they are in good working order.
- Detailed workplace inspections were conducted and the following issues were identified:
  - McGarry Lagoon: pressure vent and auto-sampler causing moisture on floor. Wet floor sign posted.
- Health and Safety Training/Sessions completed this quarter include:

  ✓ Heat Stress
  ✓ Safety Data Sheet Review
  ✓ Vehicle Circle Checks

APPENDIX A

Call-Out Summary

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Workorder Summary Report

Report Start Date:	Jul 1, 2022 12:00 AM
Report End Date:	Sep 30, 2022 11:59 PM
Location:	5085*
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
2919639			5085, McGarry WTP Tower, Facility	CALL	Refurbish/ Replace/Repair	0		Hypochlorite Pump Failure 5085	CLOSE		7/8/22 06:45 PM	7/8/22 09:45 PM	Hypochlorite Pump Failure 5085 - Reset hypo pumps Purge air from discharge line
2923134			5085, McGarry WTP Pump House, Facility	CALL	Compliance	0		Virginiatown DWS - AWQI 159340	CLOSE		7/28/22 06:23 PM	7/28/22 06:31 PM	Virginiatown DWS - AWQI 159340 - Contacted by laboratory about 2 adverse water quality results in samples collected after a waterrmain break in VTown. I notified the local Public Health Inspector, the Town Superintendent, SAC and OCWA's on-call operator. The Town operator was going to flush and collect the 5 samples requested by the Heath Unit. I contacted the lab to ensure the samples could be set up tonight. I completed the written notification and submitted to SAC, MOH, local MECP inspector and the Owner

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Agence Ontarienne Des Eaux

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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
2963346			5085, McGarry WTP Pump House, Facility	CALL	Compliance	0		McGarry main break	COMP		8/1/22 02:00 PM	8/1/22 10:00 PM	McGarry main break - McGarry main break between the well house an the tower causing the well pumps to run continuously to try and fill the tower. the hypo tank drained itself from the plant running non stop, had to make an emergency hypo delivery to the vtown well house. checked on the plant, and tower while i was there. this had been an ongoing issue that the town and ocwa has been dealing with.

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Workorder Summary Report

Report Start Date:	Jul 1, 2022 12:00 AM
Report End Date:	Sep 30, 2022 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
3015771	0000115827	METER LEVEL PS	1022, V Town Pumping Station, Process, Process Controls	CALL	Compliance	0		ALARM - High wetwell Kearns SPS Overflow 1022	COMP		9/17/22 07:30 PM	9/17/22 11:30 PM	ALARM - High wetwell Kearns SPS Overflow 1022 - Heavy rain caused high wet well / overflow at Kearns SPS. Chlorinate and sample overflow water call in to SAC/MOE

APPENDIX B

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:

August 30, 2022
(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:	May 10, 2022
Date Internal Audit To:	August 30, 2022
Date of Internal Audit Report:	August 30, 2022
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 Pat Roy, Team Lead Steve Gerl, Senior Operator Julien Bernatchez, Operator Matt Rayneur, Operator Sophia Lee, Operator Tanner Mazzocato, Operator Sean McCurdy, Operator Paul St. Cyr. Mechanic Dan Peplinski, UPIT Brendon Jacksic, UPIT
Documents Viewed	Virginiatown-Kearns DWS Operational Plan (last updated on May 3, 2022) along with associated procedures, documents and records. The document review covered a period from July 22, 2021 to August 30, 2022.

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:

- Seven (7) opportunities for improvement (OFI) and one (1) observation/comment were identified during the previous internal audit and all have been corrected and the corrective actions continue to be effective.

- An external (systems) audit was conducted on June 21 by SAI Global. No issues were identified.

  An external (on-site re-accreditation) audit was done on July 26, 2022 and one minor non-conformance and one opportunity for improvement (OFI) were identified.

  MnC - A Top Management representative was not available during the reaccreditation audit. The auditor was unable to interview a Top Management representative during the re-accreditation audit.

  Minor Non-conformance report submitted to auditor (J. MacKenzie) on Aug. 22, 2022 and a clearance letter was received by the auditor on August 30th.

  OFI - Consider conducting root cause analysis for non-conformances and non-compliances to ensure effective corrective and/or preventive actions are implemented. This will be discussed and considered during our next PCT/Management meeting.

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 (2)*
6. Drinking Water System	C*
7. Risk Assessment	C
8. Risk Assessment Outcomes	C
9. Organizational Structure, Roles, Responsibilities and Authorities	C
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	C
16. Sampling, Testing and Monitoring	OFI
17. Measurement and Recording Equipment Calibration and Maintenance	OFI
18. Emergency Management	C*
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 five (5) 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	OCWA's Emergency Response Plan (ERP) is no longer found on OCWA's public website on in Sharepoint	**OFI**	Remove OCWA's Public website as a controlled location for the ERP and update Document and Records Control Table in OP-05A. Aug. 2022 - Updated in draft and will be finalized before the end of the year.
	The controlled location for call-in reports on table OP-05A is the NEO DWQMS drive which is incorrect. It should be OCWA's WMS (Maximo). This is to be corrected during the next revision of the procedure.	**OFI**	Update OP-05A the Document and Records Control table Aug. 2022 - Updated in draft and will be finalized before the end of the year.
OP-10 - Competencies	No facility specific process/operational training is listed for operators. All operators are trained on tasks to be performed at the plants, but are not being documented and/or not entered in the training database.	**OFI**	When staff are trained on operational tasks, it should be documented on a training record and provided to appropriate person for entry into the training database.
OP-16 - Sampling, Testing and Monitioring	The sample schedule indicated that the raw water turbidity tested from each well was done monthly when it is actually done twice per month. This is to ensure the monthly sampling frequency is met.	**OFI**	Update the Sampling Schedule and OP-16 to indicate that the raw turbidity for each well is to be tested twice per month. Sample schedule was updated on May 25, 2022

Section	Description of Findings	Type	Action
OP-17 - Measurement and Recording Equipment Calibration and Maintenance	The document control procedure for calibration reports is not being followed as described. A review of Maximo indicates that work orders are not being completed in a timely fashion and calibration reports could not be found in the shared drive (as per OP-05A). Free chlorine analyzer could not be found in Maximo.	**OFI**	Work Orders must be closed when the work is complete and the final calibrations report is to be located in the shared drive. Jun. 8 - A meeting was held with the UPITs and Team Lead/Maximo SuperUser on June 8, 2022 to review the procedure and discuss calibration documentation and how Maximo will be set up (monthly, quarterly and annual WOs). Aug. 30 - Discussion with UPIT (D Peplinski) on status of Maximo. A few systems were cleaned and rebuilt. Progress slowed during summer months due to vacations and capital work, but plans are in place to continue working on Maximo.

G. AUDIT FINDINGS RESULTING IN COMMENTS

Section	Description of Findings	Type	Action
OP-05 Document and Records Control	The invoice/shipping address on the Chain of Custody forms is to be updated; it indicates the old office address which has changed. Invoices are provided to OCWA electronically so this information can be removed from the form.	**C/Obs**	Update Chain of Custody forms to remove old Kirkland Lake Compliance office address. This will be done when time permits
OP-06 - Drinking Water System	May want to update the raw water characteristics in the tables found in Step 3.2.	**C/Obs**	Will be considered during the next revision of the procedure (OP-06)
OP-18 - Emergency Management	The contact list was recently updated in March 2022. New staff and (Instrumentation Technician and operator) were hired in May and June and will need to be added to the list.	**C/Obs**	Update list during the next revision

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 July 22, 2021 to August 30, 2022. The audit methods used were both interactive and non-interactive (interviews, emails, in-person visits, observations, 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 May 3, 2022). All information is complete and accurate as to the information provided.

Ilona Bruneau
Internal Auditor

August 30, 2022
Date

- End -

APPENDIX C

Quarterly Data Summaries

MCGARRY (Virginiatown-Kearns) **DRINKING WATER SYSTEM**
Quarterly Data Report

Q3: July 1 to September 30, 2022

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

McGarry Drinking Water System		July	August	September	Compliance
Flows					
Total Raw Flow - Max. Daily Volume	m^3/d	1449	2023	372	Max. = 2044.8
Well 1 Flow - Maximum Daily Volume	m^3/d	1376	1609	382	Max. = 2044.8
Well 1 Flow - Maximum Flow Rate	L/min	1412.00	1344.65	1334.03	Max. = 1420
Well 2 Flow - Maximum Daily Volume	m^3/d	183	518	57	Max. = 1500
Well 2 Flow - Maximum Flow Rate	L/min	1267 [1]	1103	1095	Max. = 1105
Tower Flow - Maximum Daily Volume	m^3/d	510	390	353	Max. = 2045
Tower Flow - Maximum Flow Rate	L/min	1629.12	4404.18 [1]	1526.58	N/A
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	0.25	0.312	0.37	N/A
Well 2 Turbidity - Maximum	NTU	0.4	0.413	0.56	N/A
Free Chlorine Residual - Minimum	mg/L	1.036	0 [2]	1.012	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
Free Chlorine Residual - Minimum	mg/L	0.78	0.72	0.24	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	1.7	-	-	Max. = 100 µg/L (RAA) [3]
Haloacetic Acids (HAAs)	µg/L	< 8	-	-	Max. = 80 µg/L (RAA) [4]

MCGARRY (Virginiatown-Kearns) DRINKING WATER SYSTEM
Quarterly Data Report

Q3: July 1 to September 30, 2022

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Distribution Water					
Lead – Maximum	µg/L	-	-	N/A	Max. = 10 µg/L [5]
Alkalinity - Maximum	mg/L	-	-	72	N/A [6]
pH - Average	mg/L	-	-	6.99	N/A [6]

Notes:

1 High flow rates in July and august caused by watermain 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. Zero free chlorine residual was caused when the pipe from the well house to the water tower broke and the tower was bypassed. A system-wide boil water advisory was in place at this time.

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 = 2.08 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 = 8.5 ug/L

5 Lead testing required every 3 year. Next sampling due in 2023.

6 Alkalinity and pH testing required twice per year. Sampling done in March and September 2022.

McGARRY WASTEWATER SYSTEM
Quarterly Data Report

Q3: July 1 to September 30, 2022

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

McGarry Waste Water System		July	August	September	Compliance
Flows					
Influent – Average Daily Flow	m^3/d	1340	1328	2398	Average = 1135
Influent – Maximum Daily Flow	m^3/d	3111	4217	7897	N/A
Effluent – Average Daily Flow	m^3/d	610	354	1046	Average = 1135
Effluent – Maximum Daily Flow	m^3/d	1304	1773	4874	N/A
Influent					
BOD_5 – Average	mg/L	1.3	2.1	3.0	N/A
Total Suspended Solids (TSS) – Average	mg/L	1.0	1.5	34	N/A
Total Phosphorus (TP) – Average	mg/L	0.145	0.178	0.181	N/A
Total Ammonia (TKN) – Average	mg/L	2.0	1.2	2.6	N/A
Effluent [1]					
$cBOD_5$ – Average	mg/L	0.875	< 0.760	1.067	Monthly Average = 25
$cBOD_5$ Loading	kg/d	0.534	< 0.269	1.116	Monthly Average = 28.4
TSS – Average	mg/L	< 1.750	< 5.250	< 2.417	Monthly Average = 25
TSS Loading	kg/d	< 1.068	< 1.859	< 2.528	Monthly Average = 28.4
TP – Average	mg/L	0.110	0.269	0.190	Monthly Average = 0.5
TP Loading	kg/d	0.067	0.095	0.199	Monthly Average = 0.6
Total Ammonia Nitrogen (TAN) – Average	mg/L	< 1.575	< 2.515	< 1.505	Monthly Average = 5
TAN Loading	kg/d	< 0.961	< 0.890	< 1.575	Monthly Average = 5.7
E.coli (geometric mean)	cfu/100mL	25.7	46.2	114.7	N/A

Notes:

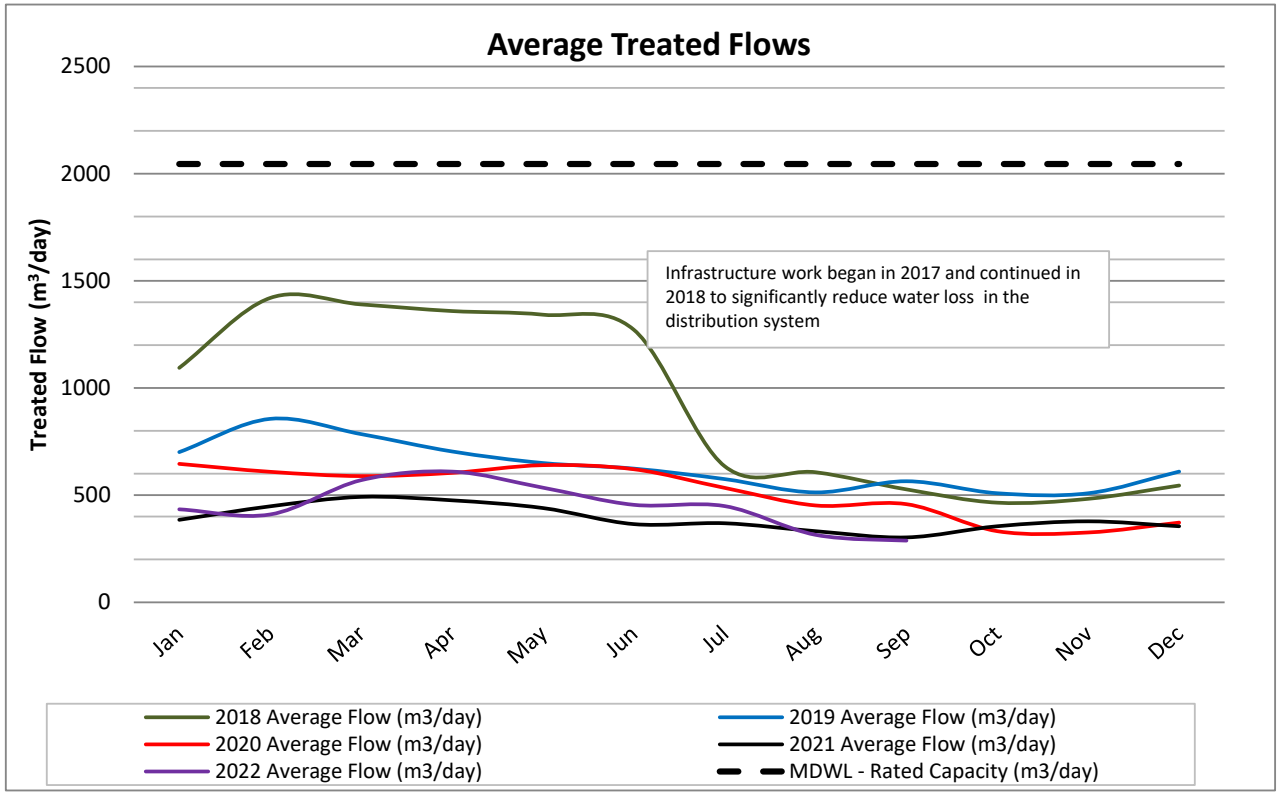
1 Effluent data also includes results from a suspected spill discharging from near the side of the lagoon which was observed in November 2021. MECP requested that the spill material be tested weekly and the results be included as part of the effluent results.

APPENDIX D

Historical Flow Trends

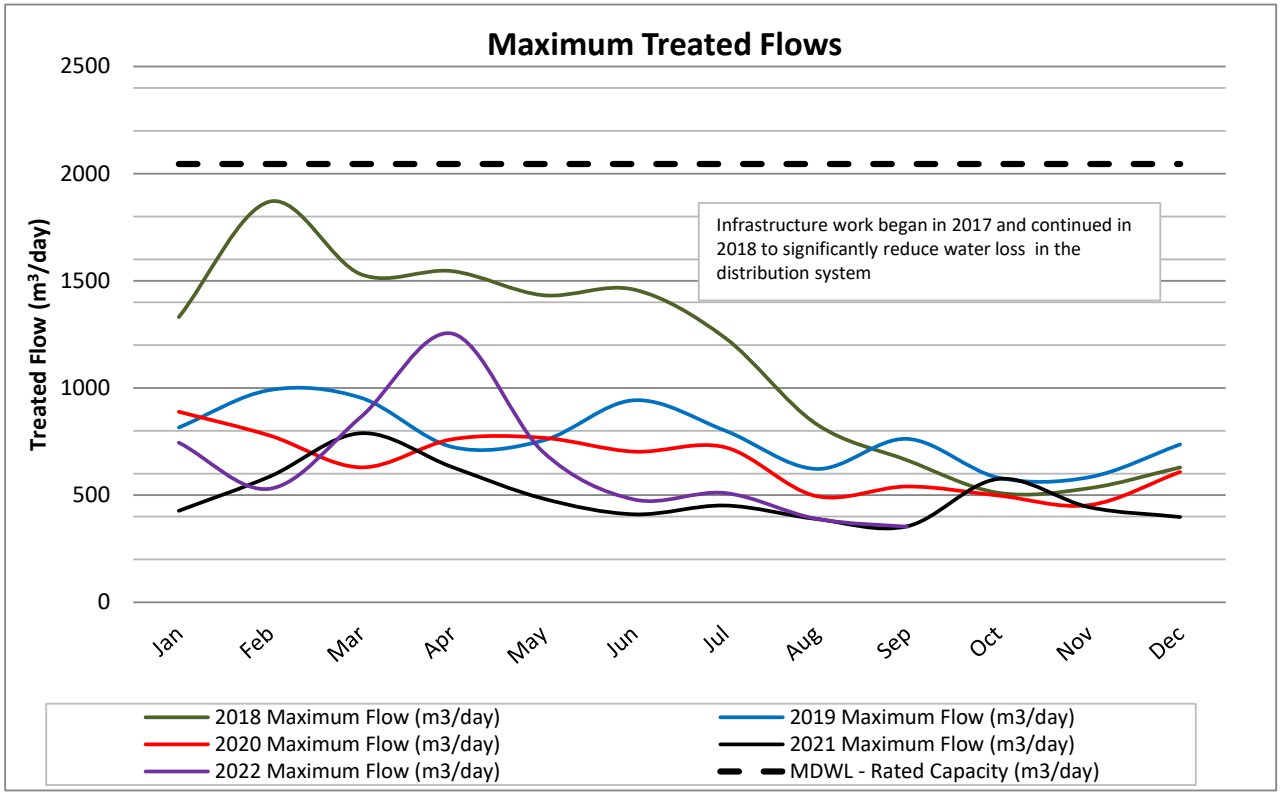
Virginiatown-Kearns Water Treatment System - Average Treated Water Tower Flows from 2018 to 2022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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	355	378	355
2022 Average Flow (m^3/day)	434	410	570	610	535	455	449	315	288			
MDWL - Rated Capacity (m^3/day)	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045



Virginiatown-Kearns Water Treatment System - Maximum Treated Water Tower Flows from 2018 to 2022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018 Maximum Flow (m^3/day)	1331	1870	1531	1545	1433	1459	1234	833	663	511	532	629
2019 Maximum Flow (m^3/day)	816	991	954	725	755	943	801	622	763	582	584	737
2020 Maximum Flow (m^3/day)	889	778	630	761	768	703	724	496	541	499	454	608
2021 Maximum Flow (m^3/day)	427	587	789	632	484	411	452	389	355	576	444	398
2022 Maximum Flow (m^3/day)	745	530	865	1254	702	480	510	390	353			
MDWL - Rated Capacity (m^3/day)	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045	2045



McGarry Lagoon - Average Influent Flows from 2018 to 2022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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	690	524	634
2022 Average Flow (m^3/day)	412	389	839	3311	1635	1081	1340	1328	2398			
ECA - Rated Capacity (m^3/day)	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135	1135