MATACHEWAN DRINKING WATER SYSTEM QUARTERLY OPERATIONS REPORT

Prepared By: The Ontario Clean Water Agency

Prepared for: The Township of Matachewan

SYSTEM OVERVIEW | January 1 to March 31, 2020

OPERATIONAL HIGHLIGHTS

The installation of the iron and manganese removal system was completed in December and put into operation on January 6th. The system has been operating well with few issues.

- The operations team has been fine-tuning the operation of the plant to optimize the iron and manganese filtration system.
- Operators configured the filter set points to improve the process.
- The reclaim tank was drained completely to eliminate the high pH water which was causing erratic residual readings from the chlorine analyzer. A different style of analyzer was installed to help reduce the erratic readings.
- The Water plant project is very near complete, COVID 19 pandemic has created some delay however the project will be 100% complete by the end of June.

ASSET MANAGEMENT

Preventative maintenance and equipment calibrations are performed as recommended by the manufacturer. Work is scheduled, assigned and tracked using OCWA's Workplace Management System (Maximo). All monthly and quarterly work orders scheduled for this quarter were completed.

OCWA's Kirkland Lake Cluster is working with the Maximo Workplace Management System team on a new directive to achieve a more comprehensive asset management system.

CAPITAL PLAN PROGRESS

The Township of Matachewan was provided a list of 2020 recommended capital and major maintenance for the water treatment system on January 23, 2020. Refer to the table below for the status of capital works in the first quarter of 2020.

CAPITAL ITEM	STATUS
Piping to reclaim tank (filter project)	Completed January 22nd
Municipal Drinking Water License renewal application	Approved

CALL-OUT SUMMARY

Number of Call-outs this Quarter:	3
Total Call-outs to Date:	3
Annual Call-in Allowance:	8
Details of the Call-outs:	Refer to Appendix A for a detailed call back summary.

FLOW SUMMARY

Matachewan Water Treatment Plant – Historical Flow Comparison

Year	Maximum Treated Flow (m^3/d)	Average Daily Treated Flow (m^3/d)	Average Day % of Rated Capacity (908 m^3/d)
Jan. to Mar. 2020	**593**	**354**	**40.0%**
2019	995	308	33.9%
2018	850	243	26.8%
2017	955	201	22.1%
2016	724	205	22.6%

Refer to Appendix B for flow trends which compare monthly flows from 2016 to March 2020.

REGULATORY

Sampling, Testing and Monitoring

- ✓ All water samples required under O. Regulation 170/03 were collected and tested in the first 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 the first quarter.
- ✓ Refer to Appendix C for a Performance Assessment Report which provides a summary of water usage and regulatory results for the quarter.
- ✓ NOTE: The Ministry of Conservation and Parks (MECP) has implemented a temporary regulatory relief process if sampling cannot be performed due to issues related to the COVID-19 Pandemic state of emergency. It is available on a case by case basis and an application for relief must be submitted for approval. Currently no relief is needed for the Matachewan drinking water system.

Reporting

- ✓ The 2019 Annual/Summary Report for the Matachewan Drinking Water System was submitted to the MECP and Owner as required under O. Regulation 170/03 on February 24, 2020 (due February 28, 2020).
- ✓ The 2019 Annual Water Taking Report was submitted to MOECC as per O. Regulation 387/04 (Water Taking) February 19, 2020 (due March 31, 2020).

Inspections/Audits

- ✓ No audits or inspections were conducted in this quarter.

Other Important Information

- ✓ New classification certificates were received by MECP for the water treatment plant and the distribution system which reflects the new iron and manganese removal filtration system (Water Distribution and Supply Subsystem Class 2 certificate has been replaced with a Water Treatment Subsystem Class 1 and a Water Distribution Subsystem Class 1 certificates).

INCIDENTS

No incidents were reported during this quarter.

COMPLAINTS

Four discoloured water complaints were documented this quarter. An iron and manganese removal filtration system was put into operation on in January which will help reduce the mineral levels in the water. Flushing this spring will also help remove debris in the distribution system.

HEALTH AND SAFETY

- On March 11th, the World Health Organization (WHO) declared COVID-19 a pandemic. In response to this situation, OCWA implemented:
  - Working remotely - staff that are able to, were asked to work from home to help stop the spread of the virus.
  - Appropriate safety precautions - operational staff that cannot work from home are practicing strict safety precautions to ensure the workplace remains safe (physical distancing, increased cleaning practices, more diligent hygiene and handwashing practices, regular inventory review of PPE, cleaning products, sanitizer, etc.)

✓ Health and Safety Training/Sessions completed this quarter includes:

- ✓ Workplace Material Hazardous Information System (WHMIS)
- ✓ Transportation of Dangerous Goods
- ✓ Don't Walk By (potential hazards)

APPENDIX A

Call Back Summary

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Workorder Summary Report

Report Start Date:	Jan 1, 2020 12:00 AM
Report End Date:	Mar 31, 2020 11:59 PM
Location:	7203*
Work Order Type:	CALL,
Work Order Class:	

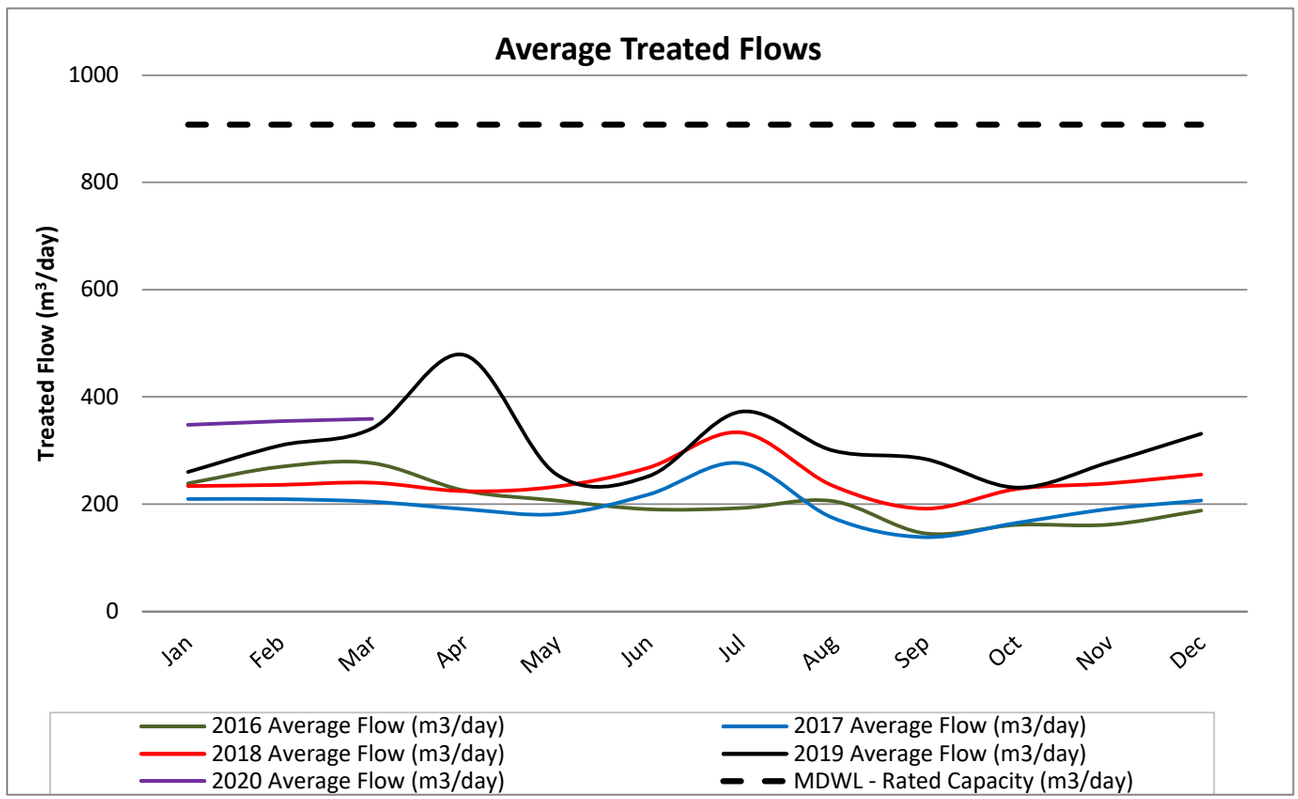
				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
1622826			7203, Matachewan WTP, Process, Disinfection	CALL	Compliance	0		Matachewan low tower	COMP		2/5/20 12:45 AM	2/5/20 07:00 AM	- • called for low tower • found plant had locked out for low Cl • hypo pump failure • cleaned check valve and injector • disabled hypo pump #1 ---- foot valve on surface of hypo • flushed low Cl water from contact chamber with hose on 2 inch valve. • residual increased and plant back to normal operation
1622918			7203, Matachewan WTP, Facility	CALL	Refurbish/ Replace/Repair	0		Low Chlorine Alarm 7203	COMP		1/25/20 08:00 AM	1/25/20 11:45 AM	Low Chlorine Alarm - Tower day tank empty -- added chemical confirmed pump set points and functionality
1662771			7203, Matachewan WTP	CALL	Refurbish/ Replace/Repair	0		Matachewan Low Cl	COMP		3/4/20 01:00 AM	3/4/20 05:30 AM	Matachewan Low Cl -Matach low chlorine lockout. Analyzers read 0 mg/L chlorine handheld confirmed. Plant looked like it had started up to fill tower but then locked out on the low chlorine when it took a nosedive to 0. pulled and cleaned injector which looked normal, ran plant flushing water to waste until registered a residual, then redirected water to distribution.

APPENDIX B

Historical Flow Trends

Matachewan Water Treatment System - Average Treated Water Flows from 2016 to March 2020

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016 Average Flow (m^3/day)	239	270	276	225	207	190	193	206	145	161	162	188
2017 Average Flow (m^3/day)	209	209	204	191	181	218	276	174	138	165	191	207
2018 Average Flow (m^3/day)	234	236	240	224	233	268	334	234	192	228	239	255
2019 Average Flow (m^3/day)	260	309	341	478	255	252	372	300	284	231	278	331
2020 Average Flow (m^3/day)	348	355	359									
MDWL - Rated Capacity (m^3/day)	908	908	908	908	908	908	908	908	908	908	908	908



APPENDIX C

Performance Assessment Report

Facility: **[7203] MATACHEWAN DRINKING WATER SYSTEM**

Works: **[220003653]**

WATER USAGE		01/2020		02/2020		03/2020		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Max. Capacity
Flows:																
Raw Flow: Monthly Total - Raw Water Total (m^3)		10571.33		10136.94		10985.66		31693.93								
Raw Flow: Monthly Avg - Raw Water Total (m^3/d)		341.01		349.55		354.38				348.3						
Raw Flow: Monthly Max - Raw Water Total (m^3/d)		453.03		587.79		390.51						587.79				908
Raw Flow: Monthly Total - Well 1 (m^3)		8318.82		4978.53		5604.16		18901.51								
Raw Flow: Monthly Avg - Well 1 (m^3/d)		268.35		171.67		180.78				206.9						
Raw Flow: Monthly Max - Well 1 (m^3/d)		453.03		234.06		372.86						453.03				454
Raw Flow: Monthly Total - Well 2 (m^3)		2252.52		5158.4		5381.5		12792.42								
Raw Flow: Monthly Avg - Well 2 (m^3/d)		72.66		177.88		173.6				141.4						
Raw Flow: Monthly Max - Well 2 (m^3/d)		306.88		403.51		262.32						403.51				454
Treated Flow: Monthly Total - Treated Water (POE) (m^3)		10780.26		10284.23		11130.04		32194.53								
Treated Flow: Monthly Avg - Treated Water (POE) (m^3/d)		347.75		354.63		359.03				353.8						
Treated Flow: Monthly Max - Treated Water (POE) (m^3/d)		468.14		592.46		399.95						592.46				908
RAW WATER		01/2020		02/2020		03/2020		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Turbidity:																
Raw: Max Turbidity - Well 1 (NTU)		0.35		0.49		0.485						0.49				
Raw: Max Turbidity - Well 2 (NTU)		0.48		0.45		0.445						0.48				
TREATED WATER		01/2020		02/2020		03/2020		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Chlorine Residuals:																
Treated: Min Free Cl2 Resid - Treated Water (POE) (mg/L)		0.551		0.217		0.559								0.217		CT*
Treated: Max Free Cl2 Resid - Treated Water (POE) (mg/L)		3.47		3.926		2.545						3.47				
Bacti Samples:																
Treated Bacti: # of samples - Treated Water (POE)		4		4		5		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)	<	0.05									<	0.05				10
DISTRIBUTION WATER		01/2020		02/2020		03/2020		<--Total-->		<--Avg.-->		<--Max.-->		<--Min.-->		Limits
Chlorine Residuals:																
Dist: Min Free Cl2 Resid - Residual No. 1 (mg/L)		0.52		0.54		0.40								0.40		0.05
Dist: Min Free Cl2 Resid - Residual No. 2 (mg/L)		0.57		0.44		0.71								0.44		0.05
Dist: Min Free Cl2 Resid - Residual No. 3 (mg/L)		0.53		0.71		0.84								0.53		0.05
Dist: Min Free Cl2 Resid - Residual No. 4 (mg/L)		0.74		0.99		0.58								0.58		0.05
Dist: Max Free Cl2 Resid - Residual No. 1 (mg/L)		2.2		1.5		1.08						2.2				
Dist: Max Free Cl2 Resid - Residual No. 2 (mg/L)		2.05		1.23		5						5				
Dist: Max Free Cl2 Resid - Residual No. 3 (mg/L)		2.2		1.35		1.47						2.2				
Dist: Max Free Cl2 Resid - Residual No. 4 (mg/L)		1.5		1.49		1.13						1.5				
Bacti Samples:																
Dist Bacti: # of samples - MW-3 (Bacti)		4		4		5		13								13
Dist Bacti: # of TC exceedances - MW-3 (Bacti)		0		0		0		0								0
Dist Bacti: # of EC exceedances - MW-3 (Bacti)		0		0		0		0								0
Dist Bacti: # of samples - MW-4 (Bacti)		4		4		5		13								13
Dist Bacti: # of TC exceedances - MW-4 (Bacti)		0		0		0		0								0
Dist Bacti: # of EC exceedances - MW-4 (Bacti)		0		0		0		0								0
Chemical Parameters:																
Distribution: Max THM - Distribution Water (µg/l)		92.4		98.9		97.6						98.9				100**
Distribution: Max HAA - Distribution Water (µg/l)		68		62		62						62				80***
Dist Alkalinty/pH/Temperature/Lead: # of samples						1		1								1
Dist. Max Alkalinity (as CaCO3) - mg/L						116						116				N/A
Dist. Max pH Field: Lab Upload - ---						8.11						8.11				N/A
Dist. Max Temperature Field: Lab Upload - °C						7.4						7.4				N/A
Dist. Max Lead - ug/L						0.1						0.1				10

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 calculationsare performed for the Matachewan water plant if the free chlorine residual level drops below 0.15 mg/L to ensure primary disinfection is achieved.

** Maximum Allowable Concentration (MAC) for Trihalomethanes (THMs) = 100 ug/L (Four Quarter Running Average). The running average to the end of the quarter = **81.6 ug/L**

*** Maximum Allowable Concentration (MAC) for Haleoacetic Acids (HAAs) = 80 ug/L (Four Quarter Running Average). The running average to the end of the quarter = **56.9 ug/L**

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