



LAKE ROSALIND DRINKING WATER SYSTEM 2018 SUMMARY REPORT

PREPARED IN ACCORDANCE WITH SCHEDULE 22 and SECTION 11 OF
ONTARIO REGULATION 170/03, AS AMENDED

PREPARED BY VEOLIA WATER CANADA
FOR THE MUNICIPALITY OF BROCKTON

February 25, 2019

DWS NAME : LAKE ROSALIND DRINKING WATER SYSTEM

DWS # : 220007800

CATEGORY: SMALL MUNICIPAL RESIDENTIAL

REPORTING PERIOD: JANUARY 1, 2018 TO DECEMBER 31, 2018

Summary of Reporting Requirements

Section 11 O. Reg. 170/03 - Annual Report

1. Brief description of the system
2. A summary of reports to MOECC (including corrective actions)
3. A summary of Analysis
4. Major expenses
5. Location of where report can be inspected
6. Please Note: the Municipality is responsible for effective steps to advise users the reports are available and the obligation to supply the report to “Designated Facilities”.

This report will be sent to the Municipality of Brockton by **February 28th of the current year.**

Schedule 22 O. Reg. 170/03 – Summary Report

1. Include any orders the system failed to meet and the duration and corrective actions.
2. Summary of Flows
3. A comparison to the rated capacity.

Infrastructure Review – As part of the Drinking Water Quality Management System (DWQMS) an Infrastructure Review is required on an Annual Basis. The Brockton Utilities Manager and the Veolia Water Project Manager review Infrastructure on a regular basis. In the DWQMS Operational Plan it States: *The procedure will be for the Project Manager / Overall Responsible Operator to compile information received from the Maintenance Lead and Operators throughout the year based on work orders and observations relating to the infrastructure of the water treatment system. This information will be summarized in an Infrastructure section of the annual summary report and presented to the Owner on an annual basis. The Annual Summary is required to be submitted to the Owner by March 30th of each year.*

Water Taking Data has been submitted to the MOECC (WTRS) for annual water taking for the Permit to Take Water.

SUMMARY

This report is a summary of the water quality and quantity information submitted in accordance with Schedule 22 of Ontario Regulation 170/03, as amended for the reporting period between **January 1, 2018 and December 31, 2018**.

Description

The Lake Rosalind Water System consists of two wells referred to as Well #1 and #3. Well #1 is a shallow dug well rated at 21 L/min and Well #3 is a drilled well rated at 77 L/min. The water is pumped through two stage filtration (5 micron and 1 micron). Dilute 12% sodium hypochlorite (4%) is injected prior to filtration to achieve disinfection. The water then passes through a 30.1 m³ chlorine contact tank and enters the 91 m³ storage area. It is pumped to the distribution via two high lift pumps. The System has a standby diesel generator for emergency situations.

Water Treatment Chemicals

Water Treatment chemical used is NSF Certified Sodium Hypochlorite (12%), diluted to approximately 4% with treated water.

Location of Report

This report is available upon request to the Municipality of Brockton at the Office of Veolia Water (Operating Authority) at 130 Wallace St., Walkerton, Ontario, or The Municipality of Brockton Office at 100 Scott St., Walkerton, Ontario.

TREATMENT CAPACITY ASSESSMENT**Well #1 Raw Water Flow**

Month	Raw Water Flow			
	Average	Minimum	Maximum	Monthly
	Daily	Daily	Daily	Total
	m3	m3	m3	m3
Jan '18	5	3	15	161
Feb '18	4	2	7	117
Mar '18	4	3	6	133
Apr '18	5	3	7	136
May '18	6	3	10	179
Jun '18	8	4	15	235
Jul '18	7	4	15	213
Aug '18	6	2	10	172
Sep '18	5	0	11	128
Oct '18	4	3	5	30
Nov '18	5	3	21	138
Dec '18	4	2	5	121
Annual Summary				
Total				1,763
Average	5			
Minimum		0		
Maximum			21	

Well #3 Raw Water Flow

Month	Raw Water Flow			
	Average	Minimum	Maximum	Monthly
	Daily	Daily	Daily	Total
	m3	m3	m3	m3
Jan '18	14	7	42	442
Feb '18	12	9	20	341
Mar '18	12	8	17	382
Apr '18	13	10	18	389
May '18	17	11	30	520
Jun '18	25	7	45	738
Jul '18	25	14	53	780
Aug '18	19	14	33	595
Sep '18	18	13	32	553
Oct '18	21	10	39	640
Nov '18	13	0	19	398
Dec '18	15	8	22	455
Annual Summary				
Total				6,233
Average	17			
Minimum		0		
Maximum			53	

Well 1&3 Combined Raw Water Flow				
Month	Raw Water Flow			
	Average	Maximum	Minimum	Monthly
	Daily	Daily	Daily	Total
	m3	m3	m3	m3
Jan '18	19	57	10	603
Feb '18	16	27	12	458
Mar '18	17	23	11	515
Apr '18	18	25	13	525
May '18	23	40	15	699
Jun '18	32	60	11	973
Jul '18	32	68	19	993
Aug '18	25	43	17	767
Sep '18	23	43	17	681
Oct '18	22	39	12	670
Nov '18	18	24	13	536
Dec '18	19	27	10	576
Annual Summary				
Total				7,996
Average	22			
Minimum			10	
Maximum		68		

The above table outlines the average daily, maximum daily and total monthly flows for the raw water conveyed through treatment at the Lake Rosalind WTP. The maximum allowable water taking outlined in the Permit to Take Water (PTTW) is 140,832 Liters in 24 hours. In **2018**, the average daily flow was at **15.62%** of the PTTW. Peak flow for Well #1 was **69.45%** of the well #1 PTTW capacity (30,240 L). Peak flow for Well #3 was **47.92%** of the well #3 PTTW rated capacity (110,592 L).

ISSUES OF NON-COMPLIANCE

The following table lists the requirements of the Act, Regulation, Order or System Approval(s) that the system failed to meet during the reporting period and includes a summary of action taken to correct each failure.

Requirement Type	Requirement the System Failed to Meet	Duration	Corrective Action	Status
NA				

There were no Non-Compliance issues within the reporting period.

Precautionary Boil Water/Adverse Notices

Date	Reason	Duration	Resolution
October 10, 2018	Received a Sodium result which exceeded MAC of 20.0 mg/L AWQI # 143814	October 10, 2018- December 5, 2018	<u>Oct. 30/18</u> - Resampled for sodium at the treatment source <u>Nov. 8/18</u> - Notified the health unit that resample result of 27.3 mg/L was received <u>Nov 22/18</u> - Received sodium fact sheet from the Health Unit <u>Nov. 28/18</u> - Received a letter from the Health Unit to be distributed to the water users <u>Dec. 4/18</u> - Sent the letter and fact sheet to the municipality of Brockton. Anne Graph confirmed that the letter and fact sheet will be sent to the users by Dec. 11/18 with their water bills

Issues from June 7, 2018 Ministry of the Environment and Climate Change Inspection**Non Compliance Items:**

There were no issues noted

Operational Issues (For more details see monthly reports)

- January 18th - Repaired a water main break in front of #497 Lake Rosalind Rd 4
- May 31st - ICS Instrumentation completed annual flow meter verification.
- September 27th - Turned off Well#1 due to issues with the flowmeter. A replacement unit was ordered.
- October 24th - Following the installation of the new Well #1 flow meter the Permit to Take Water flow rate was exceeded for approximately 45 minutes. The MOE was notified and did not request further action
- November (throughout) - Dealt with the Health Unit in regards to exceeding the Maximum Allowable Concentration for sodium in the treated water. A letter was sent to the users to notify them of the exceedance. Notifying the users is required every 5 years and was last completed in 2013
- November 28th-30th - Lotowater was on site testing Well 1 and 3. As part of this work a new well pump was installed, and a video inspection was completed on Well 3.

Drinking Water Quality Management System (DWQMS)

- January 26th – The System Audit of the DWQMS was conducted by SAI. No Non-Conformances were noted.
- February 15th – Completed Annual Emergency Response Training
- March 12th & 13th – An Internal Audit of the DWQMS was conducted- Minor Non-Conformity (resolved)
- June 12th– Annual Risk Review was conducted
- December 7th – The Annual Management Review was completed by Veolia and the Municipality

Lake Rosalind Infrastructure Review

The following items have been identified as potential improvements for the Lake Rosalind Drinking Water System:

- Extend the well casing for Well #3 and repair small hole. These were identified during the Inspection completed by Lotowater
- Long term plans to obtain an additional Raw Water source to replace Well #1

Information Included in Appendices

Appendix 1	Chemical Usage, Turbidity and Disinfection Data
Appendix 2	Bacteriological Samples: Distribution, Well #1 and #3
Appendix 3	Additional Samples

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Appendix 1

Disinfection Summary

Treated Water Chlorine Residuals

Month	Chlorine Analyzer Reading (mg/l)		
	Minimum	Maximum	Average
	Residual	Residual	Residual
Jan '18	1.17	1.28	1.22
Feb '18	1.26	1.35	1.30
Mar '18	1.07	1.22	1.13
Apr '18	1.17	1.36	1.25
May '18	1.12	1.28	1.20
Jun '18	1.09	1.25	1.15
Jul '18	1.05	1.28	1.18
Aug '18	1.11	1.30	1.20
Sep '18	1.11	1.26	1.19
Oct '18	1.09	1.17	1.12
Nov '18	1.10	1.15	1.12
Dec '18	1.08	1.20	1.13
Annual Summary			
# of Samples			365
Minimum	1.05		
Maximum		1.36	
Average			1.18

Chlorine Usage and Dosage

Month	Chlorine Used	
	Usage	Dosage
	Kg.	mg/L
Jan '18	1.528	2.56
Feb '18	1.071	2.34
Mar '18	1.120	2.20
Apr '18	1.259	2.39
May '18	1.602	2.31
Jun '18	2.092	2.21
Jul '18	2.321	2.37
Aug '18	1.953	2.54
Sep '18	1.847	2.75
Oct '18	1.831	2.75
Nov '18	1.414	2.64
Dec '18	1.602	2.80
Annual Summary		
Total	19.64	
Average		2.49
Minimum		1.29
Maximum		3.81

Distribution Chlorine Residual Results

Month	No. of	No. of	Average
	Dist. Samp.	Samples	Free
	Collected	< 0.05	Residual (mg/l)
Jan '18	13	0	1.15
Feb '18	12	0	1.26
Mar '18	16	0	1.05
Apr '18	16	0	1.08
May '18	18	0	1.08
Jun '18	21	0	1.01
Jul '18	21	0	1.03
Aug '18	22	0	1.04
Sep '18	18	0	1.06
Oct '18	22	0	0.96
Nov '18	21	0	0.99
Dec '18	18	0	0.98
Annual Summary			
Total	218	0	
Max			1.33
Min			0.81
Average			1.04

Turbidity

<u>Filter Effluent Turbidity</u>				<u>Raw Water Turbidity</u>		
Month	Average Grab NTU	Average Turbidity NTU	No. of Samples > 1NTU	Month	Well #1 Average Grab NTU	Well #3 Average Grab NTU
Jan '18	0.11	0.06	0	Jan '18	0.12	0.11
Feb '18	0.10	0.07	0	Feb '18	0.13	0.11
Mar '18	0.12	0.07	0	Mar '18	0.15	0.16
Apr '18	0.11	0.08	0	Apr '18	0.14	0.12
May '18	0.10	0.08	0	May '18	0.10	0.11
Jun '18	0.10	0.09	0	Jun '18	0.09	0.08
Jul '18	0.10	0.09	0	Jul '18	0.11	0.11
Aug '18	0.08	0.09	0	Aug '18	0.10	0.10
Sep '18	0.09	0.09	0	Sep '18	0.11	0.09
Oct '18	0.10	0.09	0	Oct '18	0.14	0.12
Nov '18	0.10	0.09	0	Nov '18	0.10	0.09
Dec '18	0.12	0.10	0	Dec '18	0.12	0.40
Annual Summary				Annual Summary		
Total			0	Total		
Average	0.10	0.08		Average	0.12	0.14
Maximum	0.17	0.19		Maximum	0.20	0.54
Minimum	0.05	0.05		Minimum	0.06	0.07
# of Samples	130.0			# of Samples	53	53

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Appendix 2

Distribution Water - Bacteriological Results

<u>DW - E Coli</u>				<u>DW - Total Coliform</u>				<u>DW - HPC</u>			
Month	Minimum cfu/100 ml	Maximum cfu/100ml	# of Samples	Month	Minimum cfu/100 ml	Maximum cfu/100ml	# of Samples	Month	Minimum	Maximum	# of Samples
Jan '18	0	0	5	Jan '18	0	0	5	Jan '18	0	0	5
Feb '18	0	0	4	Feb '18	0	0	4	Feb '18	0	0	4
Mar '18	0	0	4	Mar '18	0	0	4	Mar '18	0	1	4
Apr '18	0	0	4	Apr '18	0	0	4	Apr '18	0	1	4
May '18	0	0	5	May '18	0	0	5	May '18	0	1	5
Jun '18	0	0	4	Jun '18	0	0	4	Jun '18	0	1	4
Jul '18	0	0	5	Jul '18	0	0	5	Jul '18	0	0	5
Aug '18	0	0	4	Aug '18	0	0	4	Aug '18	0	1	4
Sep '18	0	0	4	Sep '18	0	0	4	Sep '18	0	3	4
Oct '18	0	0	5	Oct '18	0	0	5	Oct '18	0	2	5
Nov '18	0	0	4	Nov '18	0	0	4	Nov '18	0	1	4
Dec '18	0	0	4	Dec '18	0	0	4	Dec '18	0	1	4
Annual Summary				Annual Summary				Annual Summary			
Min.	0			Min.	0			Min.	0		
Max.		0		Max.		0		Max.		3	
Avg.		0		Avg.		0		Avg.		0	
Total			52	Total			52	Total			52

Raw Water - E Coli. Results

Well #1				Well #3			
Month	Minimum cfu/100 ml	Maximum cfu/100ml	# of Samples	Month	Minimum cfu/100 ml	Maximum cfu/100ml	# of Samples
Jan '18	6	6	1	Jan '18	0	0	1
Feb '18	0	0	1	Feb '18	0	0	1
Mar '18	0	0	1	Mar '18	0	0	1
Apr '18	0	0	1	Apr '18	0	0	1
May '18	0	0	1	May '18	0	0	1
Jun '18	0	0	1	Jun '18	0	0	1
Jul '18	0	0	1	Jul '18	0	0	1
Aug '18	1	1	1	Aug '18	0	0	1
Sep '18	1	1	1	Sep '18	0	0	1
Oct '18	0	0	1	Oct '18	0	0	1
Nov '18	0	0	1	Nov '18	0	0	1
Dec '18	4	4	1	Dec '18	0	0	1
Annual Summary				Annual Summary			
Min.	0			Min.	0		
Max.		6		Max.		0	
Avg.		1		Avg.		0	
Total			12	Total			12

Raw Water - Total Coliform Results

<u>Well #1</u>				<u>Well #3</u>			
Month	Minimum cfu/100 ml	Maximum cfu/100ml	# of Samples	Month	Minimum cfu/100 ml	Maximum cfu/100ml	# of Samples
Jan '18	410	410	1	Jan '18	0	0	1
Feb '18	6	6	1	Feb '18	0	0	1
Mar '18	1	1	1	Mar '18	0	0	1
Apr '18	2	2	1	Apr '18	0	0	1
May '18	2	2	1	May '18	0	0	1
Jun '18	1	1	1	Jun '18	0	0	1
Jul '18	35	35	1	Jul '18	0	0	1
Aug '18	14	14	1	Aug '18	0	0	1
Sep '18	41	41	1	Sep '18	0	0	1
Oct '18	7	7	1	Oct '18	0	0	1
Nov '18	125	125	1	Nov '18	0	0	1
Dec '18	68	68	1	Dec '18	0	0	1
Annual Summary				Annual Summary			
Min.	1			Min.	0		
Max.		410		Max.		0	
Avg.		59		Avg.		0	
Total			12	Total			12

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Appendix 3

Lake Rosalind Additional Sampling Results 2018

TW - Nitrates			TW - Nitrites		
MAC: 10 mg/l			MAC: 10 mg/l		
1/2 MAC: 5 mg/l			1/2 MAC: 5 mg/l		
Date	Nitrates (mg/l)	Excedences	Date	Nitrates (mg/l)	Excedences
Jan 09, '18	6.30	0	Jan 09, '18	<0.100	0
Apr 10, '18	6.93	0	Apr 10, '18	<0.010	0
Jul 10, '18	5.76	0	Jul 10, '18	<0.010	0
Oct 16, '18	4.85	0	Oct 16, '18	<0.010	0
Min	4.85		Min	<0.010	
Max	6.93		Max	<0.100	
Avg	5.96		Avg	<0.033	
Total		0	Total		0

DW - Trihalomethanes			DW - Lead		
MAC: 100 ug/l			MAC: 10 ug/l		
1/2 MAC: 50 ug/l			1/2 MAC: 5 ug/l		
Date	THM's (ug/l)	Excedences	Date	Lead (ug/l)	Excedences
Jan 09, '18	13	0	Oct 16, '18	<1.00	0
Apr 10, '18	24	0			
Jul 10, '18	22	0			
Oct 16, '18	23	0			
Min	13		Min	1.00	
Max	24		Max	1.00	
Avg	20		Avg	1.00	
Total		0	Total		0