THE MUNICIPALITY OF OLIVER PAIPOONGE/ROSSLYN VILLAGE

DRINKING WATER SYSTEM

ANNUAL SUMMARY REPORT FOR THE YEAR 2018

RE: TERMS AND CONDITIONS OF
THE SAFE DRINIKING WATER ACT 2002
REGULATION 170/03

Prepared by:	**Water Quality Services**
Completed	**February 28th, 2019**
Submitted to Council	**March, 2019**

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ANNUAL SUMMARY REPORT

This report combines the requirements of O. Reg. 170/03 Section 11 "Annual Reports" and Schedule 22 "Summary Reports for Municipalities". A copy of this report is available at:
Municipality of Oliver Paipoonge Office
3250 Highway 130
Rosslyn, ON P7K 0B1

System users will be notified of the reports availability by:
Notice at the Oliver Paipoonge Municipal Office.

SYSTEM INFORMATION

Drinking Water System Number:	260001081
Drinking Water System Name:	Rosslyn Village Subdivision Well Supply
Drinking Water System Owner:	Municipality of Oliver Paipoonge
Drinking Water System Category:	Small Municipal Residential
Drinking Water System Permit to Take Water Number:	3684-65WJW8
Reporting Period	January 1st, 2018 to December 31st, 2018
Drinking Water Permit Number:	293-201
Municipal Drinking Water Works Licence Number:	293-101

SYSTEM DESCRIPTION

Rosslyn Village receives its raw water supply from two drilled wells. The first has a depth of 34.5 metres and the second has a depth of 38.7 meters. Sodium hypochlorite is used for primary and secondary disinfection. In 2018, the system was upgraded to feed a 10,000 litre storage and sedimentation tank. The system will shut down the low-lift pumps if the chlorine reaches any critical levels. For maintenance or mechanical issues, the system can be switched back to the previously engineered treatment system. Two spin-down filters (a 100 micron and a 20 micron) filter the water before going into the contact tanks. Five 454 litre tanks located in the water treatment facility provide storage and retention time. Two pressure tanks which maintain the discharge pressure are located adjacent to the storage tanks. The water then flows into the storage and sedimentation tank which is then delivered by two high-lift pumps. The distribution system now has a 3-inch flushing line at the dead end of Maple Street and a 2-inch flushing line extending South across Rosslyn Road. In-line monitors record continuous flows, turbidity and chlorine readings. Information on the in-line monitoring data base is accessed on line using Endress Houser Field Data Manager Software program. The equipment allows off-site monitoring complete with the capability of providing reports and alarms. A stand-by diesel generator provides emergency hydro in the event of power failure.

SUMMARY OF NON-COMPLIANCE

On July 15 and July 16, 2018 samples collected were not analyzed for HPC. These were re-samples on adverses. HPC's are not required on re-samples and they also slow down the reporting time. This information was not made available at the time of the Inspection. The Operator will ensure that this type of information will be made available to the Inspector at the time of the Inspection.
Copies of BWA implementation and rescind information was not available for all incidents involving a BWA. Some of the information did not include a date when the BWA was implemented or rescinded. In the future, any exceedances during a 'Boil Water' advisory will be reported as separate AWQI's to the SAC and TBDHU.

NOTIFICATIONS (as required by the Act.reg.170/03, C of A and orders)

The following notification was submitted to the Ministry of the Environment via The Spills Action Centre, The Ministry of Health via the Medical Officer of Health Office.
June 11, 2018 – A 'Boil Water' advisory was put in place. New plumbing was installed at the pump house. After installation, the system was disinfected, flushed and two consecutive samples were taken with good results.
July 23, 2018 – free chlorine residuals above 8.0 mg/L. System was flushed until acceptable limits were achieved.
July 25, 2018 – A 'Boil Water' advisory was put in place. Maintenance causing high turbidity levels probably causing adverse TC present. System flushed and two samples taken with good results.
November 18, 2018 – A 'Boil Water' advisory was put in place. There was a power outage and low of system pressure along with back-up power system failure. Power was restored and sample taken on west end of system with good results.

RESULTS OF TESTS

Ontario Regulation 170/03 requires Small Municipal Residential Systems to submit 1 raw water sample monthly from each well and one distribution sample bi-weekly.

Microbiological testing done under Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

	Number of Samples	Range of E.Coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results(min #)-(max #)	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Raw	26	Absent	Absent		
Treated					
Distribution	33	Absent	Absent-Present	32	0 – 1.0 CFU/ml

Nitrate/Nitrite

Treated water is tested for nitrate and nitrite concentrations on a quarterly basis in accordance with Schedule 13 of Ontario Regulation 170/03. All results were below the associated Ontario Drinking Water Quality Standards.

Nitrate and Nitrite Sampling Results:

Sample Date Result 2018	Nitrate Result mg/L	Nitrite Result mg/L	Nitrate & Nitrite mg/L
Jan. 24/18	<0.020	<0.010	<0.040
May 9/18	<0.020	<0.010	<0.040
Aug. 15/18	<0.020	<0.010	<0.040
Nov. 7/18	<0.020	<0.010	<0.040
ODWQS	10	1	10.0

Trihalomethanes

The Ontario Drinking Water Quality Standards for total trihalomethanes (THMs) is calculated as a running annual average.

Total Trihalomethanes Sampling Results

Sample Date 2018	THMs Result ug/l	2017 Annual Average ug/L	2016 Annual Average ug/L	2015 Annual Average ug/L	ODWQS ug/L
Jan. 24/18	8.5	**10.72**	**13.73**	**22.82**	**100**
May 9/18	9.9				
Aug. 15/18	18.7				
Nov. 7/18	20.6				
Average	14.43				

Treated source tests for sodium and fluoride are required every 60 months. The last sodium and fluoride testing was done with Schedule 23 & 24 inorganic and organic sampling and was conducted in 2016.
Sodium is naturally occurring in the area. A Drinking Water Advisory issued by the Thunder Bay District Health Unit is in place.
The next Schedule 23 & 24 is due in 2021.

Lead Sampling

The Rosslyn Village Drinking Water System is now exempt from plumbing samples. In the Winter Sampling Period there were pH and alkalinity samples taken from the distribution system and in the Summer Sampling Period there were pH and alkalinity samples taken.

Lead Sampling Results

Sample Date	pH	Alkalinity mg/L as CaCO3	Lead Result ug/L
April 14/18	7.6	76.3	
Oct. 14/18	7.6	73.5	

Chlorine

In addition, The Procedure for Disinfection of Drinking Water in Ontario states "The maximum chlorine residual at any time and at any location within the distribution system should not exceed 4.0 mg/L when measured as free chlorine". On July 23, 2018 an AWQI was reported for 'free chlorine residuals above 8.0 mg/L. Corrective actions included implementing a BWA.

Specifically, Regulation 170/03 says the following with respect to reporting chlorine residuals measured in the distribution system

16-3. (1)

4. If the drinking water system is required to take free chlorine residual tests under clause 7 (2) (a) or to provide secondary disinfection in accordance with section 1-5 of Schedule 1 or section 2-5 of Schedule 2, the system provides chlorination, the system does not provide chloramination and a report under subsection 18 (1) of the Act has not been made in respect of free chlorine residual in the preceding 24 hours, a result indicating that the concentration of free chlorine residual is less than 0.05 milligrams per litre in,
   i. a distribution sample that is a grab sample, or
   ii. two distribution samples that are tested by continuous monitoring equipment, if the two samples were taken 15 minutes or more apart and the later of the two samples was the first sample that was taken 15 minutes or more after the earlier sample.

The free chlorine analyzer is located in the Water Treatment Plant and records measured values and sends them to the data base. The signal is also connected to an automatic dialer that calls operators in the event chlorine residuals drop below or rise above alarm set points.

There were no reportable instances in 2018 for failure to meet the minimum chlorine concentration

Turbidity

Turbidity measurement is essentially the measurement of how clean the water is. The standard is not based on an aesthetic value but instead on a value that ensures the disinfection process within the treatment plant is effective. The turbidity in the drinking water system is monitored continuously by an in-line monitor. The turbidity level must not exceed 4.0 NTU. The highest reading in 2018 was 1.65 NTU.

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03

	Number of Grab Samples	Range of Results (min #)-(max #)	Unit of Measure
Turbidity	**8760**	**0.39 – 1.65**	**NTU**
Chlorine	**8760**	**0.80 – 1.54**	**mg/L**
Fluoride (If the DWS provides fluoridation)			

***NOTE**: For continuous monitors use 8760 as the number of samples.*

EXPENSES

Expenses incurred during this reporting period include

Waterworks

$25,142.57	Maintenance Contract WQS
$1,145.40	Telephone
$3,825.66	Hydro
$4,258.61	Testing/Lab fees ALS
$1,526.40	Meter calibration
$166.69	Hydrochloride
$1,024.72	Maintenance
$528.54	Sodium
$150,424.06	Project #1 – Completion of Water Storage Project

Total $187,875.96

SUMMARY OF FLOWS

As per the 'Permit to Take Water', the rate of taking shall not exceed a maximum of 136 litres/minute from either well; however, the maximum daily rate of taking water from either well shall be 124,378.5 litres per day for a maximum total taking of 248,757 litres per day. There were no exceedances of water taking during the period January 1st 2018 to December 31st, 2018

Monthly Treated Water Flows 2015, 2016, 2017 and 2018

(Rated capacity is 249.12 m/3 per day)

The unit of measure used is metres cubed (m/3).

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015											
340.5	274.1	341.6	300.4	355.6	473.2	435.1	411.9	388.8	312.1	261.3	282.6
2016											
866.2	479.7	466.6	460.7	551.5	579.9	582.4	622.4	470.9	476.6	435.5	470.2
2017											
431.4	380.9	416.4	506.6	476.2	548.7	546.6	597.3	400.9	472.1	403.4	438.7
2018											
412.3	369.4	423.5	418.4	649.0	582.9	728.1	522.8	435.6	431.4	304.2	202.9

Daily Average Volumes and Maximum Daily Volumes for Each Month 2018

North Well

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.74	8.21	8.10	8.09	11.81	11.36	14.94	9.64	7.54	6.13	5.95	6.33
9.2	9.6	13.1	13.2	20.4	15.3	43.8	26.1	13.0	10.2	8.0	10.8

South Well

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
4.25	7.50	7.41	7.48	10.61	9.90	11.89	9.54	5.15	3.24	0.04	0.04
8.3	8.9	11.6	12.4	18.4	16.4	30.0	16.7	7.4	0.10	0.10	0.10

The above tables list daily average volumes on the first line and the maximum daily volumes for each month. The unit of measure used is metres cubed (m/3).

SUMMARY
2018

Treated Water				Distribution	
Month	**Turbidity NTU Minimum**	**Turbidity NTU Maximum**		**CL2 mg/L Minimum**	**CL2 mg/L Maximum**
January	1.02	1.44		0.55	1.28
February	1.31	1.44		0.68	1.25
March	1.01	1.75		0.75	1.27
April	1.11	1.44		0.64	1.34
May	1.10	1.54		1.01	1.36
June	1.26	1.51		0.84	0.94
July	0.77	2.60		0.80	1.35
August	0.43	1.65		0.91	1.36
September	0.64	1.38		0.91	1.36
October	0.39	1.40		0.90	1.30
November	0.71	0.94		0.87	1.22
December	0.90	1.15		0.87	1.04
Range	**0.39**	**2.60**		**0.55**	**1.36**

COMMENTS BY THE O.R.O.

In 2018 the System was upgraded to run off a newly designed treatment system and flushing system. The water quality should continue to improve as the previously deposited sediment from the old system will eventually flush from the distribution lines. In Spring and Fall there will be two scheduled flushing days. We will notify all consumers of these scheduled maintenance days.
We would like everyone to follow the Face Book Page – ROSSLYN Mdws – for continuous updates on power outages, 'Boil Water' Advisories and maintenance issues. Any questions or comments can be directed to the Face Book Page or can be forwarded to wqsjohn@shaw.ca.