

# Maxville Wastewater System

## 2019 Annual Report

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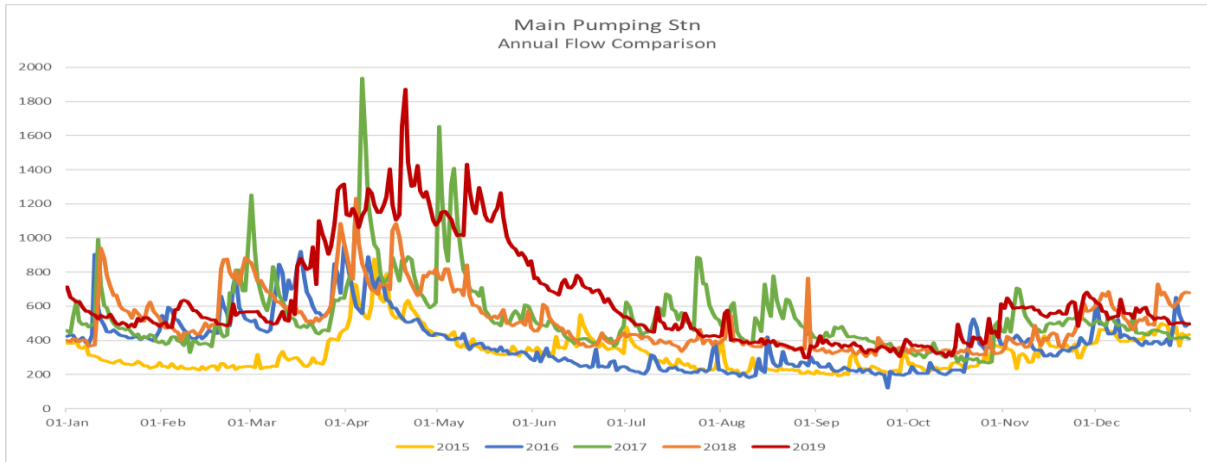
## A. Performance Assessment

Summary and interpretation of all monitoring data collected in accordance with condition 10 and a comparison to the effluent limits outlined in condition 7, including an overview of the success and adequacy of the works

The Maxville Wastewater system is comprised of a collection system and a seasonal discharge lagoon treatment system. This system is categorized as a seasonal discharge class 1 facility. The collection system includes 8.4kms of sanitary sewer mains, containing approximately 286 service connections, 4.2kms of force mains, 1 sanitary lift station, and 1 pumping station. The lagoons are comprised of 2 facultative cells, where the influent is dosed with coagulant year-round to aid in reducing phosphorus levels. The lagoons are discharged annually to coincide with the spring peak flow.

During the 2019 calendar year 232,210m<sup>3</sup> of untreated sewage was directed to the Maxville Lagoon System, which was based on the metered effluent from the Main Pumping Station. In October the main pumping station was taken out of service for check valve replacement, it is estimated that 10m<sup>3</sup> was transported to the lagoons. It was noted that the flows through the main pumping station have increased dramatically from previous years, and that a sanitary system CCTV inspection may be required due to watermain construction that occurred in the village over the last 2 years to ensure there is no major damage to sanitary sewer mains.

Figure 1: 5-year Main Station Flow Comparison



The system operated well during 2019, producing an effluent meeting the Provincial Environmental Compliance Approval limits and Federal Effluent limits. The pre-discharge samples were taken between February 28 and April 9, all of which were below the limits, samples taken throughout March were found to be elevated being near or at the limit. However, all samples taken in April were well below the limits. During the discharge there was 1 sample for CBOD<sub>5</sub> that exceed the limit, but the monthly and annual averages were all well below the allowable limits. Refer to Table 1, Table 2 and Table 3 for below for annual average concentration and limits as required. Please refer to Appendix A for a full summary of all flows, raw influent and treated effluent results.

**i. Raw Sewage Monitoring**

Condition 10 (3) of the ECA requires monthly raw sewage sampling at the Main Station for CBOD<sub>5</sub>, Total Suspended Solids (TSS) and Total Phosphorus (TP). Please refer to the attached table for a full summary of the raw quality analysis.

*Table 1: Raw Sewage Monitoring Requirements*

Parameter	2019 Average Concentrations (mg/L)
BOD <sub>5</sub>	112.3
TSS	222.2
TP	82.1

**ii. Pre-Discharge Monitoring**

Condition 10(3) of the ECA requires the sampling and analysis of BOD<sub>5</sub>, TSS and TP in each lagoon cell 14 days prior to discharge commencement. This was performed to ensure that the effluent limits of each parameter are met. The table below summarizes the dates and sample results prior to discharge. In total 8 sets of samples were taken prior to the commencement of the discharge, with 3 samples being within the 14-day window, any results outside of the window are not considered for the average readings.

*Table 2: Pre-Discharge Sampling Summary*

ECA Effluent Limit Parameters (mg/L)	BOD <sub>5</sub>	TSS	TP	BOD <sub>5</sub>	TSS	TP
	30	30	1	30	30	1
2019 Concentrations (mg/L)	Cell A			Cell B		
February 28, 2019	13	28	0.84	17	22	0.74
March 5, 2019	16	30	0.86	28	10	0.10
March 14, 2019	19	26	0.96	27	28	0.71
March 21, 2019	7	18	0.98	5	16	0.45
March 28, 2019	9	22	0.64	5	16	0.39
April 4, 2019	4	8	0.40	4	12	0.40
April 8, 2019	6	10	0.44	6	12	0.26
April 9, 2019	7	12	0.25	8	20	0.27
Average Readings	5.6	10.0	0.36	6.0	14.6	0.31

**iii. Spring Discharge Monitoring**

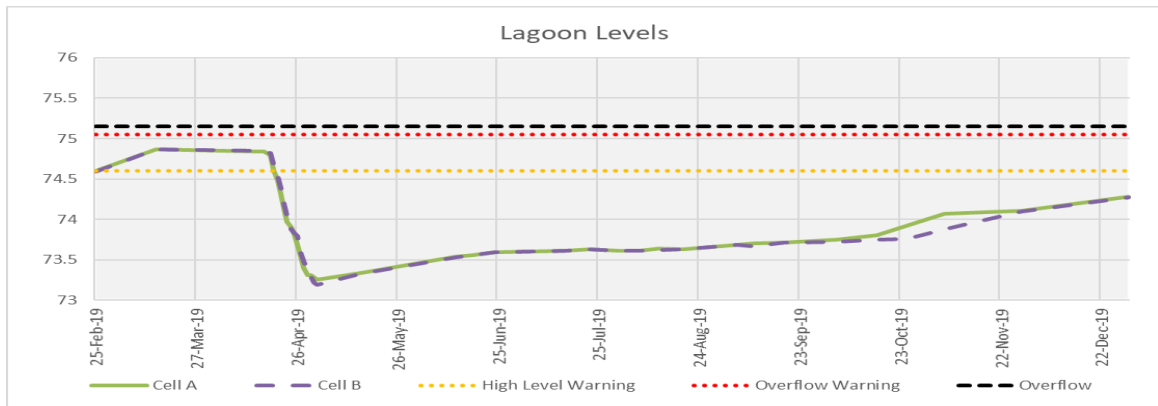
The discharge commenced on Wednesday April 17, 2019 and was terminated on Thursday May 2, 2019, for a total discharge period of 16 days (360.9hrs in total). The total amount of effluent discharged to the West Branch of the Scotch River during this period was 210,512m<sup>3</sup>. The table below summarizes the results for required parameters, please refer to the tables and discharge report for a full summary of all results. All results within the allowable ranges for each parameter.

Table 3: Provincial and Federal Sampling Results

Effluent Parameter	CBOD <sub>5</sub>	TSS	TP	pH	Un-Ionized Ammonia
Provincial Effluent Limits (mg/L)	30	30	1	6.0-9.5	
Federal Effluent Limits (mg/L)	25	25			1.25
2019 Maxville Average Concentration (mg/L)	14	18.5	0.50	7.60	0.10
Provincial Average Waste Loading Limits (kgs)	4932	4932	164		n/a
2019 Maxville Average Waste Loading (kgs)	2947.2	3894.5	95.26		

Figure 1 below displays the lagoon levels as measured throughout 2019. The top of the berm is represented by 76.00m and the bottom of the lagoon cell is represented by 73.00. The high-water level is located at 75.10m, above which are overflow culverts to prevent berm breaching. A high-water level trigger has been set at 76% capacity or 74.60m, at which point the township must start implementing contingency plans to prevent overflow.

Figure 1: Annual Lagoon Levels



## B. Groundwater and Surface Water Monitoring

Summary and Interpretation of all groundwater monitoring data

Condition 10(3) of the current ECA addresses the requirements of the monitoring program for groundwater and surface water. Sampling is to be performed annually, semi-annually or three times per year depending on the parameter, as per Table 6 in the ECA-Groundwater Monitoring and Table 7 in the ECA-Surface Water Monitoring. JP2G Consultants Inc. was retained by the Township to complete the annual monitoring program for the Maxville Lagoon System. An annual report was submitted to the Ministry of Environment, Conservation and Parks and to the Township upon completion each calendar year.

As per the report, the groundwater flow direction is east-northeast direction and results indicate that the lagoons are having some minor impacts on the groundwater in the area. However, there are no potable water user within 500m downgradient, and all results are within compliance levels as set out by the MOE Guideline B-7, so as such there is no requirement for contingency measures

at this time. The surface water results indicated the lagoons had little to no impact on the West Branch of the Scotch River, and the results observed in river were significantly outside the concentrations measured in the eastern cell of the lagoons.

### C. Operational Problem Summary

*A description of any operating problems encountered and corrected*

#### Collection System:

- Increased influent flows without population growth, replaced check valves.
- Repair safety chains and minor parts
- Damaged Bell Lines causing loss of alarms. Bell repaired lines at pole and alarms restored.
- Replace defective electrical panel components

#### Treatment System:

- Unable to switch over lagoon influent from cell to cell, cleaned gates, chains and channels.
- Loss of coagulant dosing caused crystallization in discharge lines; lines were replaced.

### D. Maintenance Summary

*Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works*

#### Collection System:

- Monthly generator full load testing
- Monthly pest control started in November
- Cleaned wet well at the Main Pumping Station (Sep)
- Annual force main inspection and replaced defective or missing signage was completed by operational staff
- Annual generator maintenance and testing.
- Level monitoring equipment annual calibration.
- Chain Block and hoisting device annual inspection.
- Installation of a generator at the lift station

#### Treatment System:

- Replacement of minor coagulant pump parts and calibration as required
- Influent chamber cleaned (Sept)
- Monthly pest control started in November
- Annual generator maintenance and testing.
- Annual Structure inspections completed by operational staff

### E. Effluent Quality Control and Assurance

*Summary of any effluent quality assurance or control measures undertaken in the reporting period*

All sampling was performed within provincial guidelines by licensed operators. Effluent quality control and assurance measures were undertaken by the MOE certified laboratory, Caduceon Environmental Laboratories and AGAT Laboratories, which conducts analysis for the Township.

## F. Flow Measurement and Equipment Calibration

Summary of the calibration and maintenance carried out on all effluent monitoring equipment

Annual calibration was completed by St- Laurent Instrumentation in November 2019. Calibrations were performed on all detection units (pumping station levels and chemical tank levels), and flow sensing devices (megameters, miltronics, etc.).

## G. Effluent Objectives

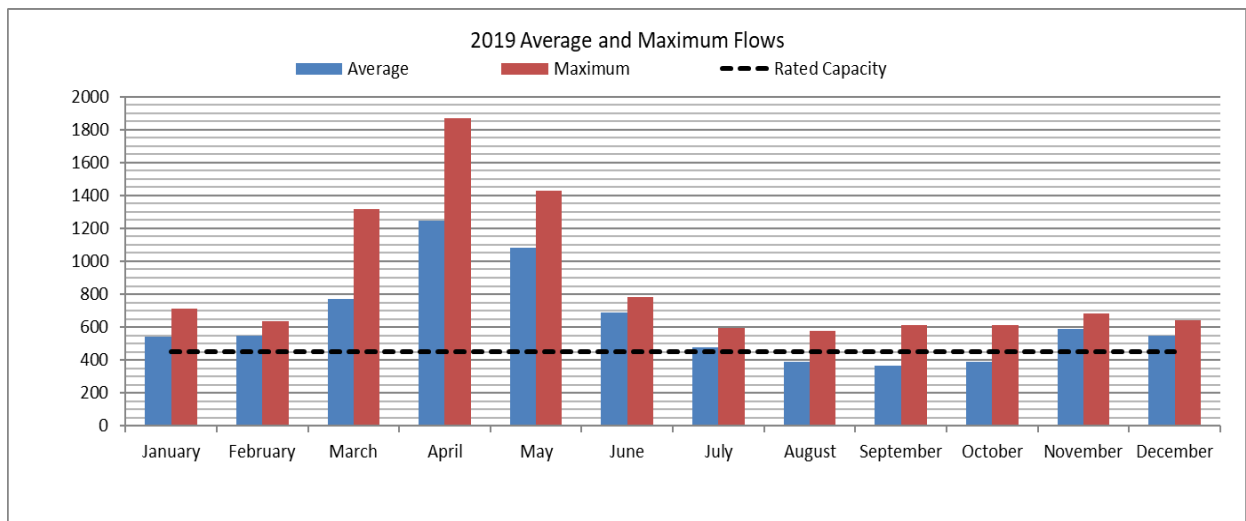
A description of efforts made, and results achieved in meeting the effluent objectives of condition 6

All parameter averages were below the Provincial ECA effluent objectives, ECA effluent limits and the Federal Wastewater Effluent Regulation standards. Only 1 CBOD<sub>5</sub> sample was found to have exceeded the limits during effluent testing, this sample was taken prior to discharge shut down, there was no notation of abnormal observances during sampling or an indication the sample had a increased suspended solids from appearance. Please refer to table 4 for a summary all sampling results or to appendix A for a detailed flow summary and final effluent quality analysis for the Maxville Sewage Treatment Works.

Table 4: Annual Effluent Summary:

Effluent Parameter	CBOD <sub>5</sub>	TSS	TP	pH	Un-Ionized Ammonia
Provincial Effluent Objectives (mg/L)	25	25	0.8		
Provincial Effluent Limits (mg/L)	30	30	1.0	6.0-9.5	
Federal Effluent Limits (mg/L)	25	25			1.25
2019 Maxville Average Concentration (mg/L)	14	18.5	0.50	7.60	0.10
Provincial Average Waste Loading Limits (kgs)	4932	4932	164		n/a
2019 Maxville Average Waste Loading (kgs)	2947.2	3894.5	95.26		

The annual average daily flow for 2019 is calculated to be 636m<sup>3</sup>/day, and the maximum daily flow for the year was reported to be 1,871m<sup>3</sup>/day. This represents 141% of the total rated capacity for this facility, which is out compliance for the rated capacity of this facility. Please refer to the chart below and to Appendix A for a full summary of flows, for the Maxville Sewage Treatment Works.

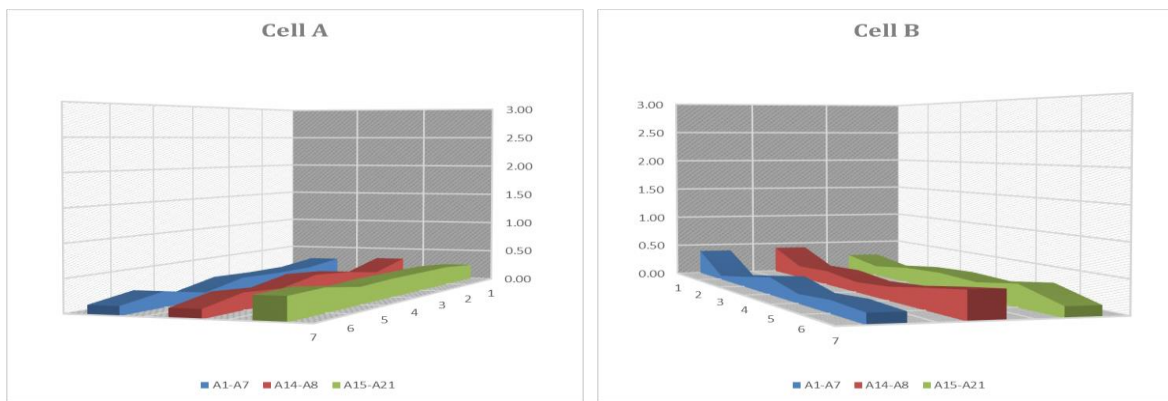


There were no reports made in regard to floating or settleable solids within the wastewater effluent. There were also no reports made that the effluent wastewater contained oil or any other substance that created a visible film, sheen, foam or discoloration to the receiving waters.

### H. Sludge Accumulation

*A tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed*

A Sludge Management Plan was put into place in 2008. Sludge levels in Cell A and Cell B were not collected in 2017 or 2018, but were measured on October 29, 2019. As per previous findings there was no point that exceeded a volume threshold but the total sludge volume in both cells increased, Cell A 15% and Cell B 8%. Sludge triggers near both cells' outlet piping, may indicate that sludge dispersion may be required.



### I. Complaints

*Summary of any complaints received during the reporting period and any steps taken to address the complaints.*

There were no complaints generated from the wastewater system within this reporting period. All complaints were regarding the water system construction or issues with private well yields.

### J. Bypass, Overflow, Spill or Abnormal Discharge Event

*A summary of all bypass, overflow, spill, abnormal discharge events*

There were no bypasses, overflows, spills or abnormal discharge events in 2019.

### K. Other

*Any other information the District Manager requires from time to time*

There are no additional monitoring or reporting requirements at this time

# Appendix A

## TOWNSHIP OF NORTH GLENGARRY WASTEWATER TREATMENT WORKS PERFORMANCE RESULTS

Municipality: North Glengarry

Year: 2019

Project: Maxville WWTP

Receiving Stream: West Branch Scotch River

Description: 1 Pumping Station, 2 Facultative Cells  
Seasonal Discharge with Phosphorous Re

Design Capacity: 450 m<sup>3</sup>/day

Month	Flows						BIOCHEMICAL O <sub>2</sub> DEMAND				SUSPENDED SOLIDS				PHOSPHORUS				TKN		
	Total Influent Flow (m <sup>3</sup> )	Average Daily Influent Flow (m <sup>3</sup> )	Maximum Daily Influent Flow (m <sup>3</sup> )	Total Effluent Flow (m <sup>3</sup> )	Average Daily Effluent Flow (m <sup>3</sup> )	Maximum Daily Effluent Flow (m <sup>3</sup> )	Average Raw BOD (mg/L)	Average Effluent BOD (mg/L)	BOD Loading (kgs)	Percent Removal (%)	Average Raw TSS (mg/L)	Average Effluent TSS (mg/L)	TSS Loading (kgs)	Percent Removal (%)	Average Raw TP (mg/L)	Average Effluent TP (mg/L)	TP Loading (kgs)	Percent Removal (%)	Average Raw TKN (mg/L)	Average Effluent TKN (mg/L)	Percent Removal (%)
JAN	16,875	544	713				115				325				2.75				22.95		
FEB	15,266	545	637				99				140				2.64				22.70		
MAR	23,932	772	1,316				46				88				1.79				16.75		
APR	37,403	1,247	1,871	194,641	14,972	21,163	19	7	98	66	58	22	323	63	1.14	0.50	7.57	56	7.39	9.85	-33
MAY	33,625	1,085	1,431	15,872	7,936	8,143	64	22	168	66	110	16	125	86	1.60	0.41	3.25	74	12.03	8.60	29
JUN	20,617	687	783				101				240				3.20				22.25		
JUL	14,803	478	594				244				660				6.70				43.20		
AUG	12,063	389	577				306				661				6.45				42.47		
SEP	10,919	364	426				90				205				4.99				36.50		
OCT	12,079	390	614				133				358				4.42				39.63		
NOV	17,706	590	683				265				147				3.65				31.00		
DEC	16,922	546	641				57				65				2.27				20.70		
TOTAL	232,210			210,513			1,537		265				448				10.82				
AVE	19,351	636		105,256	11,454		128	14		66	255	19		74	3.47	0.45		65	26.46	9.23	-2
MAX	37,403		1,871	194,641		21,163	306	22		66	661	22		86	6.70	0.50		74	43.20	9.85	29
CRITERIA		450						30	4932			30	4932		1	164					

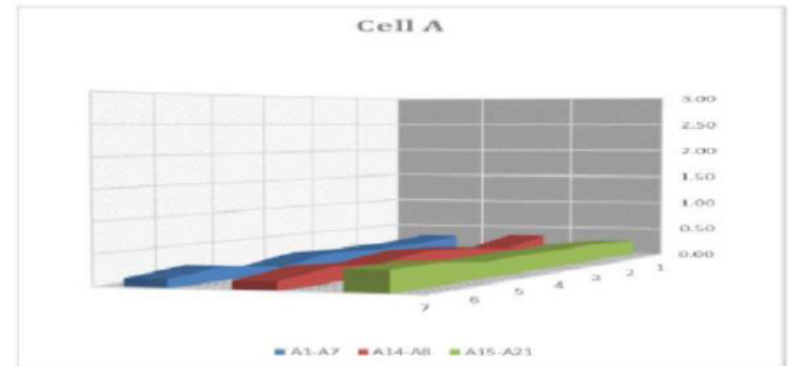
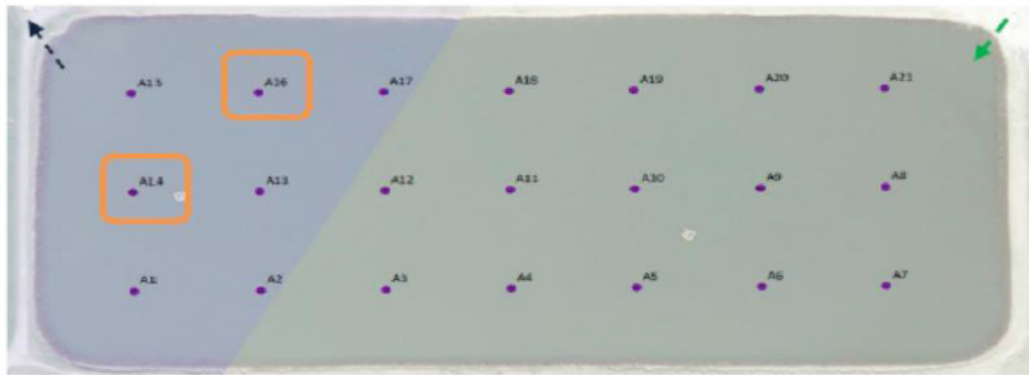




# Appendix B

## Cell A

Maxville	Cell A-Sample Point Sludge Volume (m <sup>3</sup> )																				Total Sludge Volume (m <sup>3</sup> )	Total Sludge Volume (%)	Warning Trigger <sup>2</sup>	
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
12-Nov-08	1754	271	624	458	937	791	545	715	608	608	608	608	608	1038	356	624	624	937	937	624	1446	15,717	62	Total Sludge Volume is Elevated
22-Apr-09	356	312	312	562	312	146	711	392	203	608	1215	871	810	254	284	728	312	312	937	416	1067	11,119	44	
27-Apr-10	711	416	583	520	416	271	237	0	101	263	263	304	101	415	237	271	167	416	520	416	711	7,340	29	
07-Oct-10	237	354	312	208	250	312	284	277	405	243	1337	243	142	2076	356	458	354	312	312	208	284	8,963	36	
08-Dec-11	0	0	0	0	0	312	237	277	203	142	0	0	0	119	146	42	312	354	1186	1114	4,442	18		
24-Oct-12	119	104	146	0	146	42	166	115	101	41	0	101	203	231	47	42	104	42	42	104	356	2,249	9	
06-Oct-14	521	395	291	271	291	395	427	438	81	446	162	344	284	438	616	437	479	458	333	500	403	8,010	32	
06-Nov-15	379	437	1478	229	541	437	498	369	324	324	527	628	628	600	379	541	749	645	1082	749	379	11,923	47	
07-Nov-16	403	125	458	333	229	562	142	369	324	446	446	446	446	507	24	562	354	458	458	250	261	7,600	30	
29-Oct-19	687	458	458	500	229	500	332	323	527	425	648	547	344	738	569	604	604	604	562	770	853	11,279	45	



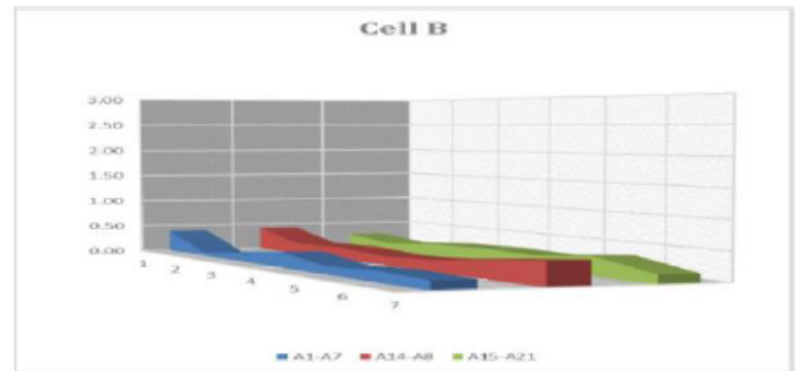
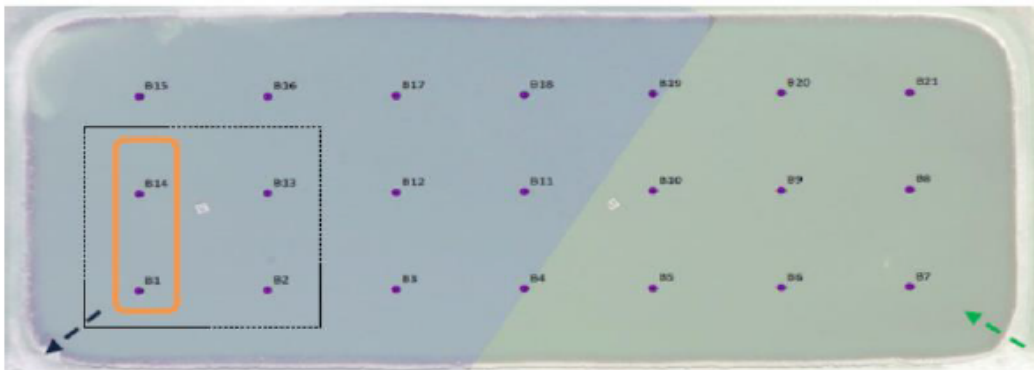
### Triggers and Suggested Actions

- Sludge depths completed October 29, 2019.
- Currently at 45% of allowable volume, which is an increase of 15% since 2016
- No locations exceeded sludge depth volumes triggers and cell did not exceed the total sludge volume limit
- Cell Outlet triggers were surpassed, see Lagoon Outlet Triggers for more information

# Appendix B

## Cell B

Maxville	Cell B-Sample Point Sludge Volume (m <sup>3</sup> )																					Total Sludge Volume (m <sup>3</sup> )	Total Sludge Volume (%)	Warning Trigger <sup>2</sup>	
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21				
12-Nov-08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
22-Apr-09	1422	312	354	624	624	791	1185	507	405	304	203	770	446	1268	1304	624	937	1249	687	1145	1730	16,890	67	Total Sludge Volume is Elevated	
27-Apr-10	474	312	583	479	312	167	308	346	101	0	304	0	405	185	853	479	104	312	208	208	237	6,376	25		
07-Oct-10	356	104	250	250	104	208	284	231	304	304	203	243	243	0	119	146	458	312	354	146	356	4,972	20		
08-Dec-11	0	0	354	312	354	312	1967	231	446	142	142	101	668	0	166	208	146	520	562	312	521	7,464	30		
24-Oct-12	237	208	250	208	146	208	166	346	243	142	304	142	203	161	166	146	104	146	104	146	237	4,011	16		
06-Oct-14	640	333	666	479	541	395	593	254	263	263	81	101	284	392	403	520	458	187	479	208	593	8,133	32		
06-Nov-15	640	458	333	333	229	229	735	369	225	20	243	344	344	623	640	354	125	354	770	229	261	7,857	31		
07-Nov-16	284	354	354	562	354	562	521	277	243	344	344	547	446	623	166	21	562	562	354	354	877	8,710	35		
29-Oct-19	924	125	333	562	291	395	379	969	648	425	324	446	385	969	616	333	500	562	500	708	379	10,772	43		



### Triggers and Suggested Actions

- Sludge depths completed October 29, 2019.
- Currently at 43% of allowable volume, which is an increase of 8% since 2016
- No locations exceeded sludge depth volumes triggers and cell did not exceed the total sludge volume limit
- Cell Outlet triggers were surpassed, see Lagoon Outlet Triggers for more information

# Appendix B

## Lagoon System Outlet Triggers

Triggers	Monitoring Point	Warning <sup>1</sup> - Sludge Depth Exceeds Trigger on	Monitoring Point	Warning <sup>1</sup> - Sludge Depth Exceeds Trigger on	Monitoring Point	Warning <sup>1</sup> - Sludge Depth Exceeds Trigger on	Monitoring Point	Warning <sup>1</sup> - Sludge Depth Exceeds Trigger on
Cell A	13	12-Nov-08	14	12-Nov-08	15		16	12-Nov-08
	13	22-Apr-09	14		15		16	22-Apr-09
	13		14		15		16	
	13		14	07-Oct-10	15		16	
	13		14		15		16	
	13		14		15		16	
	13		14		15	06-Oct-14	16	
	13	06-Nov-15	14	06-Nov-15	15		16	06-Nov-15
	13		14		15		16	07-Nov-16
	13		14	29-Oct-19	15		16	29-Oct-19
	13		14		15		16	
	13		14		15		16	
	13		14		15		16	
Cell B	1		2		13		14	
	1	22-Apr-09	2		13		14	22-Apr-09
	1		2		13		14	
	1		2		13		14	
	1		2		13	08-Dec-11	14	
	1		2		13		14	
	1	06-Oct-14	2		13		14	
	1	06-Nov-15	2		13		14	06-Nov-15
	1		2		13		14	07-Nov-16
	1	29-Oct-19	2		13		14	29-Oct-19
	1		2		13		14	
	1		2		13		14	
	1		2		13		14	
1		2		13		14		



### Triggers and Suggested Actions

1	Trigger depth of 0.25 m near outlet is exceeded Removal or Dispersal of sludge may be required
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***Maxville  
Spring  
Discharge  
2019***

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***June-19***

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**Township of North Glengarry  
Water Works Department**

**Authored by: Angela Cullen**

## Maxville Spring Discharge 2019 Annual Report

<b>Total Days Discharged</b>	16
<b>Total Hours Discharged</b>	360.9
<b>Total Amount Discharge to Creek(m<sup>3</sup>)</b>	210,512.9

Maxville Annual Spring Discharge Report										
Date	Start Time (from Sting Ray Logs)	Total hours	River Flow m <sup>3</sup> /s	Discharge Rate m <sup>3</sup> /s	Mixing Ratio (3:1)		Discharge Amount m <sup>3</sup> (from Sting Ray)	Discharge pH	DO mg/L	Temperature °C
17-Apr-19	8:07		1.050	0.093	11.29	-1		6.94	7.07	4.6
18-Apr-19	8:11	24.06	0.922	0.230	4.01	-1	6399.914	7.45	7.9	5.8
19-Apr-19	8:47	24.60	1.341	0.250	5.36	-1	19,648.697	7.45	6.25	7.7
20-Apr-19	9:03	24.26	5.787	0.250	23.15	-1	20,410.935			
21-Apr-19	6:56	21.86	2.136	0.245	8.72	-1	18,539.428			
22-Apr-19	9:30	26.57	0.942	0.245	3.84	-1	21,162.995			
23-Apr-19	9:04	23.57	0.778	0.160	4.86	-1	16,639.076	8.14	12.24	11.3
24-Apr-19	9:11	24.12	1.445	0.155	9.32	-1	13,238.775			
25-Apr-19	8:33	23.37	0.960	0.155	6.19	-1	13,475.141	7.80	11.75	9.8
26-Apr-19	9:40	25.17	0.702	0.180	3.90	-1	13,787.211	7.65	11.40	10.0
27-Apr-19	8:15	22.58	0.788	0.172	4.58	-1	14,083.202	8.35	9.62	9.5
28-Apr-19	8:57	24.70	0.618	0.172	3.59	-1	15,085.024	8.78	12.95	6.2
29-Apr-19	9:09	24.20	0.304	0.095	3.20	-1	14,529.613	8.26	12.16	10.1
30-Apr-19	9:09	24.00	0.289	0.095	3.04	-1	7,640.494	8.21	10.23	10.6
01-May-19	9:02	23.88	0.287	0.094	3.05	-1	8,142.730	7.82	8.85	8.1
02-May-19	8:58	23.82	0.560				7,729.620	8.03	9.40	4.9
								Range		
								6.0-9.5		

### Discharge Summary

The annual discharge was continuously run over 16 days from Wednesday April 17, 2019 until Thursday May 2, 2019. The discharge time frame meets the minimum requirements of 14 and maximum of 45 day and it also coincided with the spring peak flows.

During this time the total flows to the west branch of the Scotch river was 210,513m<sup>3</sup>, with an average daily flow of 14,034m<sup>3</sup>. The flows were maintained to ensure greater than 3:1 mixing ratio, for a 4-part downstream flow.

Parameter	# Samples Taken	ECA Parameter Limits (mg/L)	Average Reading (mg/L)	ECA Average Waste Loading Limits (Kgs)	Average Waste Loading (kgs)	Adverse Samples
CBOD <sub>5</sub>	4	30	14.0	4932	2947.18	0
T.S.S	4	30	18.5	4932	3894.49	0
T.P.	4	1	0.5	164	95.26	0
Nitrite	4		0.1			
Nitrate	4		0.1			
Total Ammonia	4		6.1			
T.K.N.	4		9.2			
H <sub>2</sub> S	4		1.2			
E. coli (cts/100mL)	1		1.0			
pH	12		7.91			

Date	T.S.S. Sample mg/L	T.S.S. Loading kg	C.B.O.D. Sample mg/L	C.B.O.D. Loading kg	T.P. Sample mg/L	T.P. Loading kg	Nitrite mg/L	Nitrate mg/L	Total Ammonia mg/L	T.K.N. mg/L	H <sub>2</sub> S mg/L	E coli cts/100mL	Acute Lethality
17-Apr-19	23		7		0.68		0.01	< 0.1	7.85	11.1	4.54	272	
18-Apr-19		147.20		44.80		4.35							
19-Apr-19		451.92		137.54		13.36							
20-Apr-19		469.45		142.88		13.88							
21-Apr-19		426.41		129.78		12.61							
22-Apr-19		486.75		148.14		14.39							
23-Apr-19		382.70		116.47		11.31							
24-Apr-19	20	264.78	6	79.43	0.31	4.10	< 0.1	0.1	5.69	8.6	0.04	170	< 1.0
25-Apr-19		269.50		80.85		4.18							
26-Apr-19		275.74		82.72		4.27							
27-Apr-19		281.66		84.50		4.37							
28-Apr-19		301.70		90.51		4.68							
29-Apr-19		290.59		87.18		4.50							
30-Apr-19		152.81		45.84		2.37							
1-May-19	24	195.43	7	57.00	0.41	3.34	< 0.1	0.2	5.72	8.9	0.08	3920	
2-May-19	7	54.11	36	278.27	0.41	3.17	< 0.1	0.1	5.02	8.3	0.01	> 400	
<b>Minimum</b>	7	54.11	6	44.80	0.31	2.37	0.0	0.1	5.0	8.3	0.01	170	1.0
<b>Average</b>	19	296.72	14	107.06	0.45	6.99	0.1	0.1	6.1	9.2	1.17	1191	1.0
<b>Maximum</b>	24	486.75	36	278.27	0.68	14.39	0.1	0.2	7.9	11.1	4.54	3920	1.0
<b>Total</b>	4	4450.75	4	1605.91	4	104.88	4	4	4	4	4	4	1

**Sampling Summary**

During this discharge period, sample were taken on 4 occasions. The TSS values were slightly higher than normally observed, but no adverse samples were observed during this sampling period. CBOD<sub>5</sub> and TP were well within normally observed ranges, with exception to the last CBOD<sub>5</sub> sample which exceeded the sample limit but not the annual average limit, the sample was taken just prior to shut down.

All other samples were within normally observed ranges and the acute lethality test results passed.

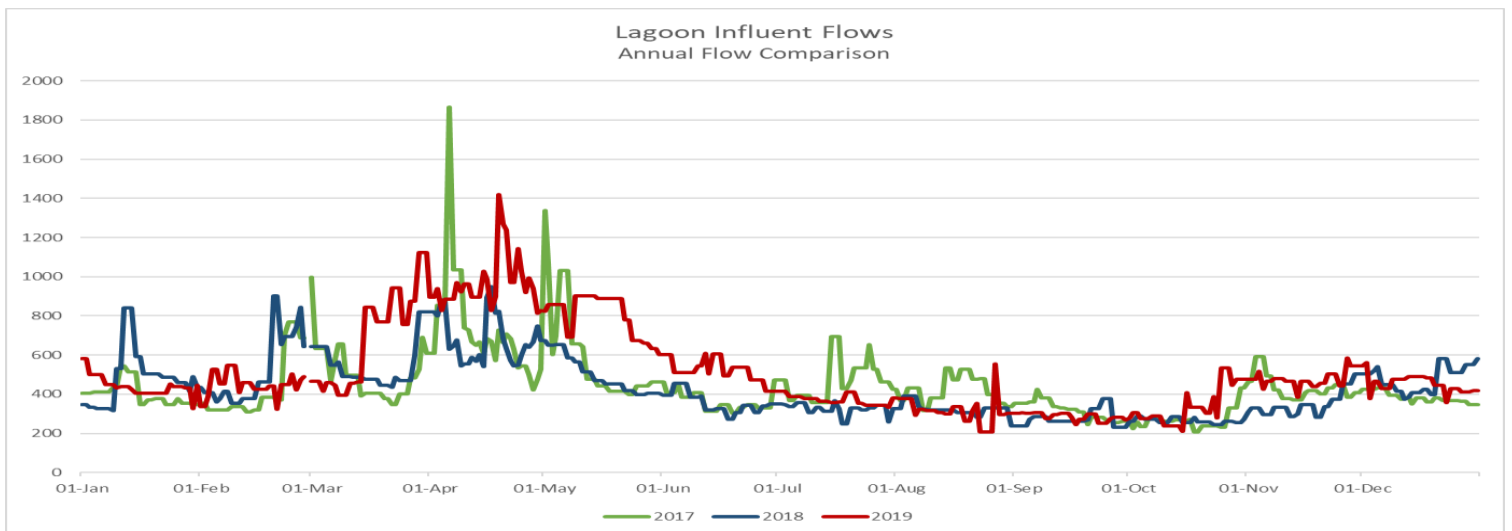
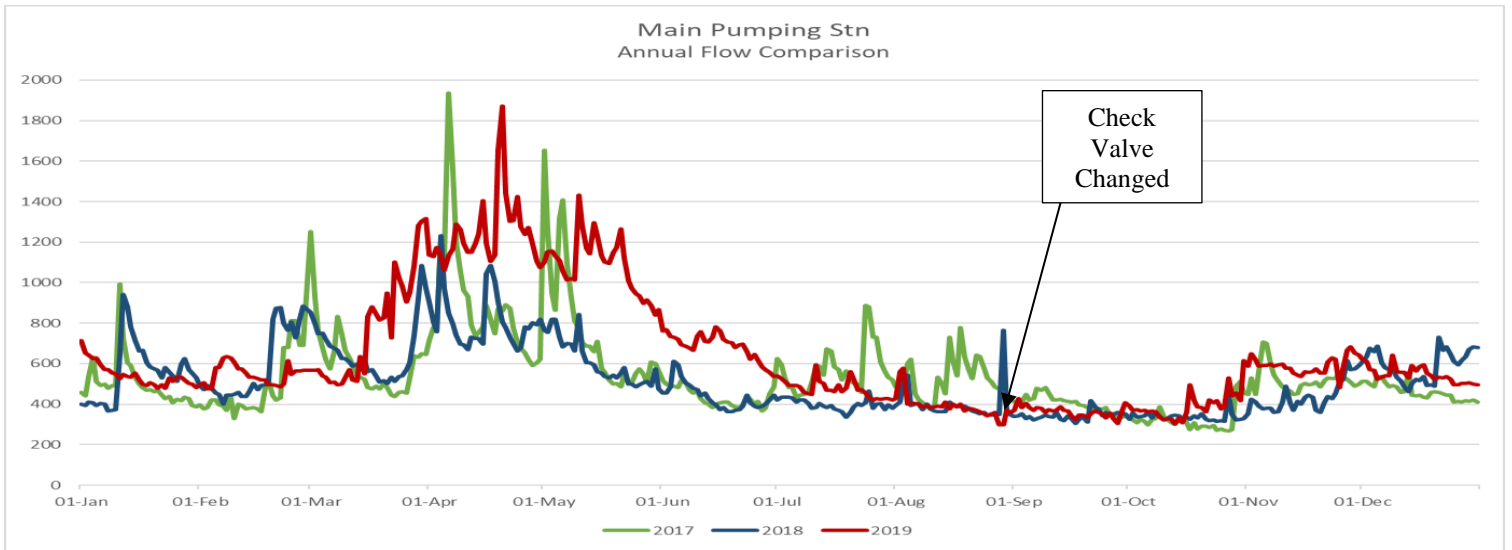
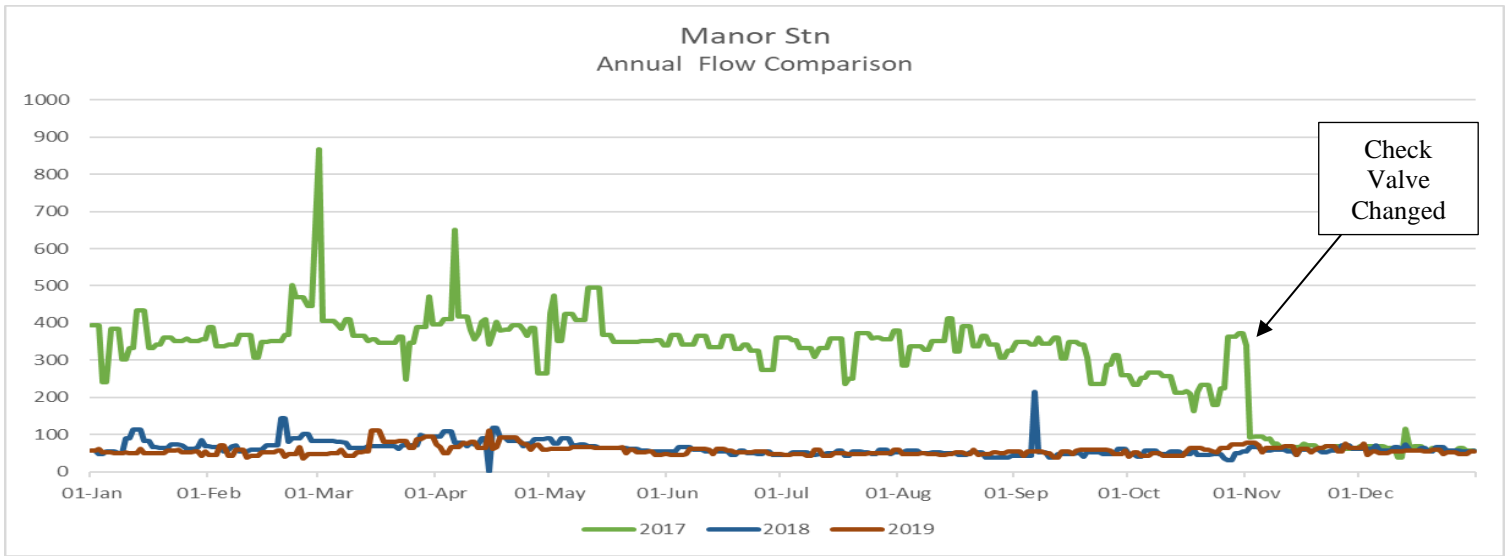
## Issues

Observed issues noted during this discharge period were minor in nature and include the following:

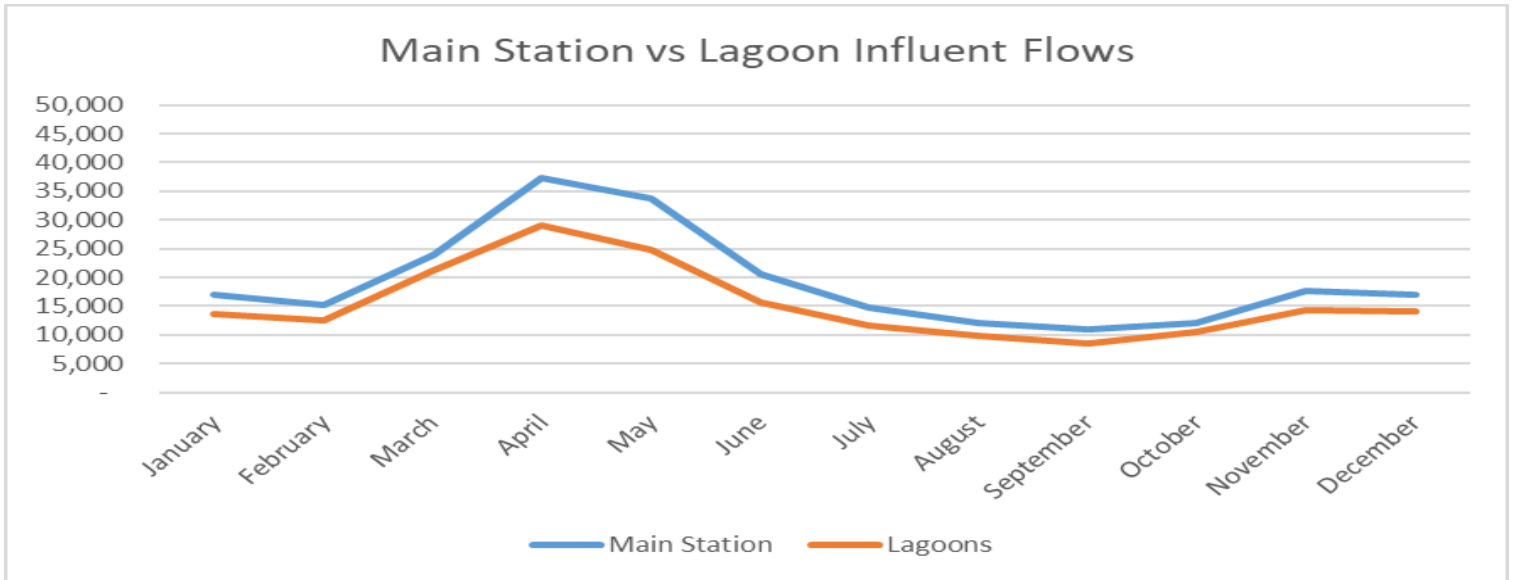
- Issues with instrumentation: pH meter not operating properly during daily testing, unit brought to shop for inspection, samples not taken daily between April 20 and April 24. When samples were taken a pH, temperature and D.O. readings were always taken.
- minor flow limitations due to valve operation, operators operated the cell gates and the main gate to achieve the best possible flow based on flow allowances. All changes were noted in the log book
- During the first major valve adjustment and increase in flow a slight H<sub>2</sub>S smell was noted. Once flows stabilized no smells were noted.
- During flow adjustments, mild foaming was noted at discharge ditch. It was believed to be caused by turbulence at the transition from the end of the discharge pipe and entry into the creek. All foam was dissipated prior to entry into the confluence area.



# Appendix D



# Appendix D



2019							
Month	Flows					Level Fluctuation	
	Main Station	Lagoons	Difference	Discharge		Increase	Decrease
January	16,875	13,737	3,138				
February	15,266	12,586	2,680				
March	23,932	21,265	2,667			0.27	
April	37,403	28,994	8,409	14	194,641		1.53
May	33,625	24,903	8,722	2	15,872	0.09	0.06
June	20,617	15,693	4,924			0.25	
July	14,803	11,550	3,253			0.04	0.20
August	12,063	9,772	2,290			0.03	0.01
September	10,919	8,600	2,319			0.08	
October	12,079	10,483	1,596			0.21	
November	17,706	14,329	3,377			0.34	
December	16,922	14,069	2,853			0.21	
Annual	232,210	185,980	46,230	16	210,513	1.52	1.80