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Township of North Glengarry

Maxville Wastewater System

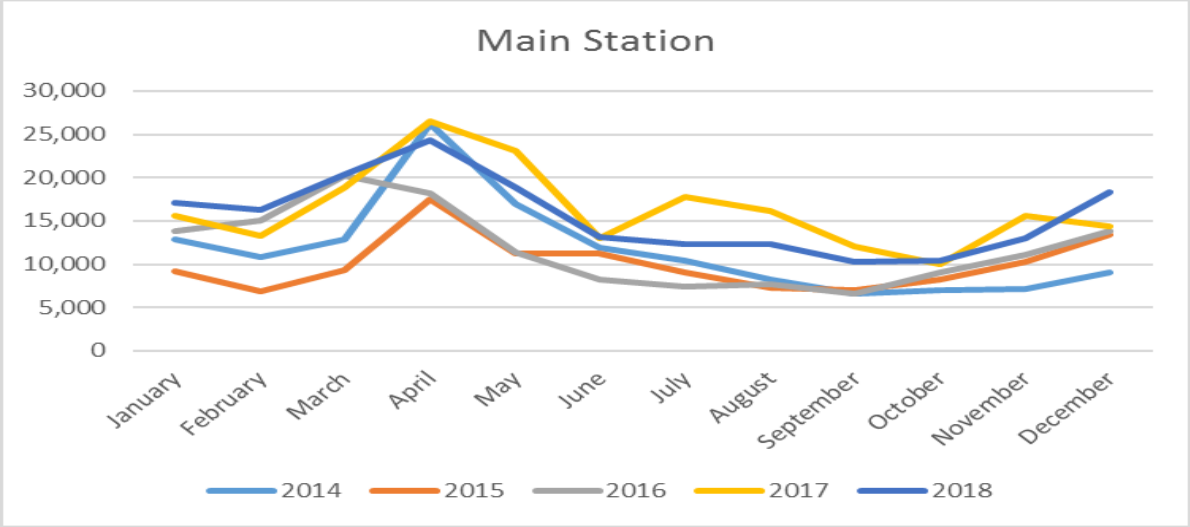
2018 Annual Report

Contents

1. 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, 2 pumping station and a lagoon treatment system, which is discharged once annually. The lagoons are dosed with coagulant year-round to aid in reducing phosphorus levels. The flows into the system where slightly higher then previously observed values, some of these flows may be attributed to rain events observed, as there was no population or system increases.



The system operated well during 2018, producing an effluent meeting the provincial environmental compliance approval limits and federal effluent limits. The pre-discharge samples were taken between February 27 and March 29, there were 2 pre-samples for CBOD5 in Cell A that exceeded the limit, but the average reading of all samples and the subsequent samples indicated levels below the effluent limits. During the discharge there were 2 sample for TSS that were also elevated above the limits, but once again all final averages were below the allowable effluent limits.

Refer to Table 1, Table 2 and Table 3 for below for annual average concentration. 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 $CBOD_5$, 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	2018 Average Concentrations (mg/L)
BOD_5	157.4
TSS	212.1
TP	3.9

ii. Pre-Discharge Monitoring

Condition 10(3) of the ECA requires the sampling and analysis of BOD_5, 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, within the 14-day period. In total 7 sets of samples were taken prior to the commencement of the discharge, but only 2 were within required time frame.

Table 2: Pre-Discharge Sampling Summary

ECA Effluent Limit Parameters (mg/L)	*BOD_5*	*TSS*	*TP*	*BOD_5*	*TSS*	*TP*
	30	*30*	*1*	*30*	*30*	*1*
2018 Concentrations (mg/L)	***Cell A***			***Cell B***		
February 27, 2018	7	14	0.34	< 3	< 3	0.19
March 8, 2018	16	5	0.33	13	6	0.23
March 12, 2018	31	22	0.68	11	14	0.55
March 13, 2018	63	21	0.74	30	16	0.69
March 20, 2018	8	26	0.32	12	19	0.42
March 28, 2018	19	27	0.47	8	4	0.31
March 29, 2018	28	20	0.46	11	19	0.61
Average Readings	23.5	23.5	0.46	9.5	11.5	0.46

iii. Spring Discharge Monitoring

The discharge commenced on Thursday April 5, 2018 and was terminated on Monday April 30, 2018, for a total discharge period of 26 days (600.88hrs). The total amount of effluent discharged to the West Branch of the Scotch River during this period was 237,322m^3. 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, with the exception to the TSS loading, were within the allowable ranges for each parameter.

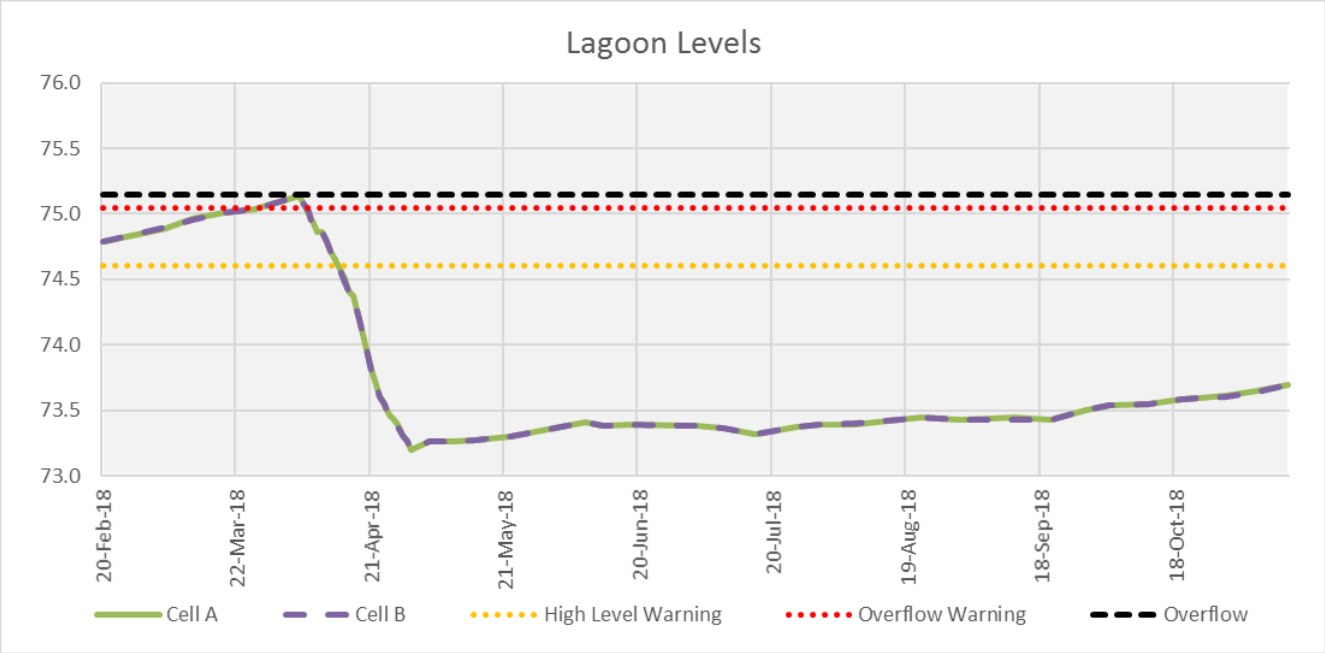
Table 3: Provincial and Federal Sampling Results

Effluent Parameter	$CBOD_5$	TSS	TP	pH	Un-Ionized Ammonia
Provincial Effluent Limits (mg/L)	30	30	1	6.0 – 9.5	n/a
Federal Effluent Limits (mg/L)	25	25	n/a	n/a	1.25
Provincial Average Waste Loading Limits (kgs)	4932	4932	164	n/a	n/a
2018 Maxville Average Concentration (mg/L)	7.7	21.3	0.3	7.67	0.07
2018 Maxville Average Waste Loading (kgs)	1827	5055	75		

The figure below displays the lagoon levels as measured throughout 2018. 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. Sampling is to be performed annually, semi-annually or three times per year depending on the parameter, as per Table 6-Groundwater Monitoring and Table 7-Surface Water Monitoring. JP2G Consultants in association with the Greer Galloway Group was retained by the Township to complete the annual monitoring program for the Maxville lagoon system. An annual report is submitted to the Ministry of Environment and to the Township upon completion each calendar year.

As per the 2017 report, the groundwater results indicate that the lagoons are having some impact on the groundwater in the area, but as there are no potable water user within 500m downgradient, there is no requirement for contingency measures at this time. Even though minor impacts were observed, the final results were well within the compliance requirements of the MOECC B-7 guideline. 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.

Although the 2018 summary report has not yet been issued, a review of the sampling parameters as provide by the consultant indicated that all parameters were similar to previously observed values.

3. Operational Problems

A description of any operating problems encountered and corrected

Collection System:

- Force main damaged by construction company installing distribution piping. Station was isolated, and piping was repaired by Water Woks staff.
- Check valve replacement was scheduled but not completed due to on-site equipment issues. Job was rescheduled for 2019
- Phone line damaged, Bell technician was contacted, and lines were repaired.
- Bumble bees nesting inside roof of main pumping station, access points once again sealed, and all bee were destroyed, as per bee keeper.

Treatment System:

- Trapper contracted to remove all muskrats from area
- Trees and shrubs cut/removed from around berms and discharge channel.

4. Maintenance

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

Collection System:

- GenRep performed annual maintenance, no reported issues
- St Laurent on-site to calibrate flow meters, no issues reported
- Annual fire extinguisher maintenance, no issues reported
- Stations wet wells were cleaned

Treatment System:

- Internal inspection programs completed, minor groundwater infiltration noted, only visible when groundwater levels were high
- During spring discharge, sludge build-up noted near outfalls, to investigate dispersion options
- Annual fire extinguisher maintenance, no issues reported
- J.C Cayer performed annual maintenance, no issues reported.

5. 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 assurances measures were undertaken by the MOE certified laboratory, Caduceon Environmental Laboratories and AGAT Laboratories, which conducts analysis for the Township.

6. Flow Measurement and Calibration

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

Annual calibration was completed by St- Laurent Instrumentation in December 2018. Calibrations were performed on all detection units (pumping station levels and chemical tank levels), and flow sensing devices (magmeters, miltronics, etc). No issues were noted from inspection.

7. Effluent Objectives

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

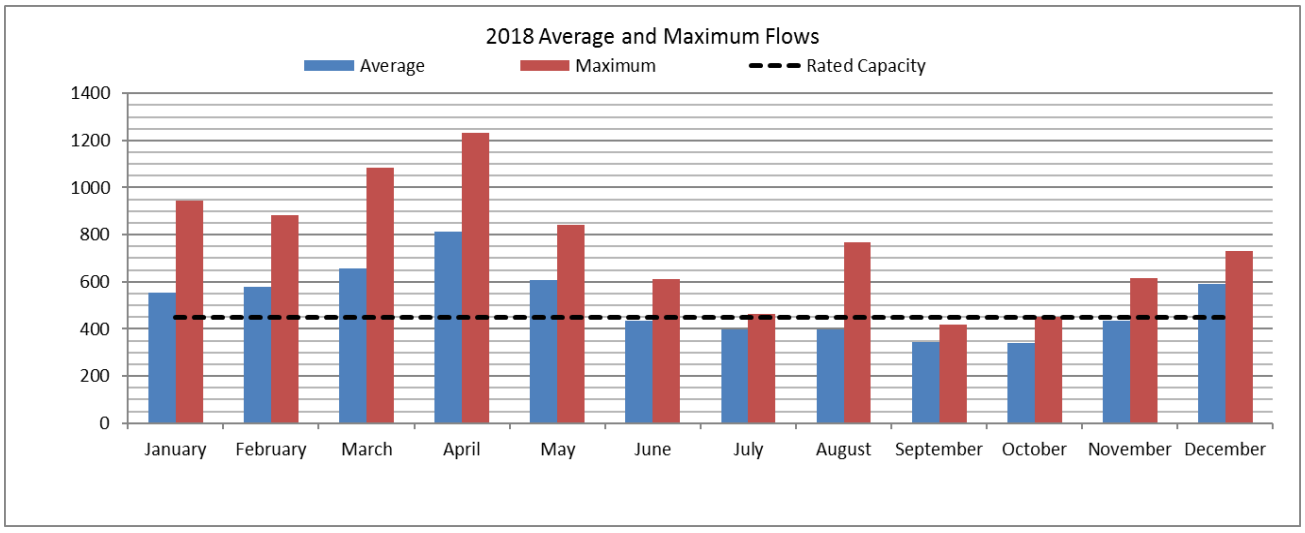
All required effluent parameters tested were below the provincial effluent objectives, the provincial effluent limits and federal effluent limits. Testing for acute lethality was completed towards the end of the discharge and the sample was found to meet the federal requirements. It was found when calculating the effluent loading that the TSS parameter was out of compliance, the loading was found to exceed the limit by 123kgs and believed to be caused by 2 elevated samples midway through and at the end of the discharge. There were no notations to explain these elevations.

During the commencement of the discharge a moderate to heavy hydrogen sulphide odour was observed. The discharge was started under ice cover and all testing indicated that although the smell was present and samples at the discharge where higher then normal, once the discharge water reached the Athol River convergence area, the levels were significantly decreased. Once the ice cover was removed, odours were no longer observed. Please refer to the attached table for a full summary of flows, raw and treated effluent quality analysis for the Alexandria Sewage Treatment Works.

Table 4: Annual Effluent Summary:

Effluent Parameter	$CBOD_5$	TSS	TP	Un-Ionized Ammonia
Provincial Effluent Objectives (mg/L)	25	25	0.8	n/a
Provincial Effluent Limits (mg/L)	30	30	1	n/a
Federal Effluent Limits (mg/L)	25	25	n/a	1.25
2018 Maxville Average Concentration (mg/L)	8	21	0.31	0.07
Provincial Effluent Waste Loading Limits (Kg)				
2018 Maxville Average Waste Loading	1827	5055	40	

The annual average daily flow for 2018 is calculated to be 513m^3/day, and the maximum daily flow for the year was reported to be 1231m^3/day. This represents 114% 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.

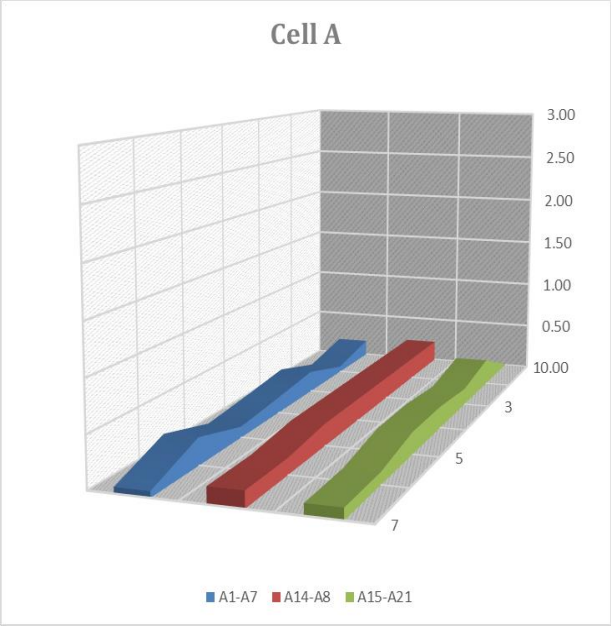


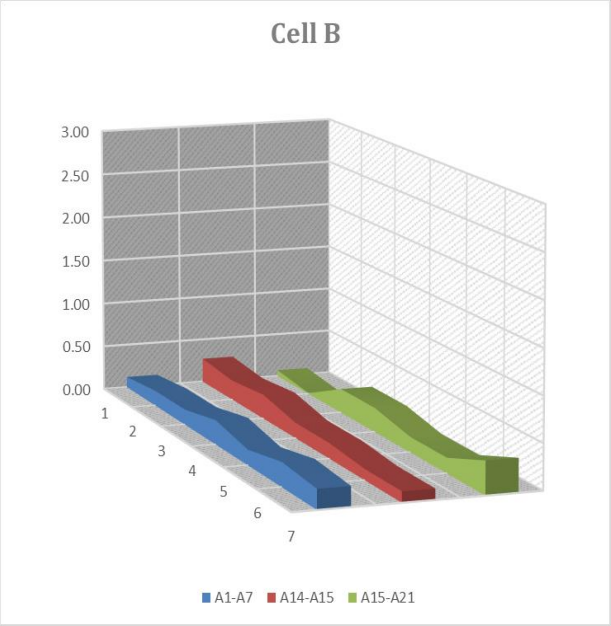
There were no reports made in regard to floating or settleable solids within the wastewater effluent. There were also no reports made that the effluent wastewater contained oil or any other substance that created a visible film, sheen, foam or discolouration to the receiving waters.

8. 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 2018, last measured on November 6, 2016. As per the last report, no points exceeded the volume/depth elevation as per setpoints developed through the plan. Elevated sludge depth measurements were observed near Cell A outfall pipe, the west side of Cell A, the east side of Cell B, as well as around Cell B influent pipe. The township is to monitor levels and determine if any action is required.





9. Complaints

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

There were no recorded complaints within this reporting period.

10. 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 2018.

11. Other

Any other information the District Manager requires from time to time

There were no additional monitoring or reporting requirements throughout 2018.

Appendix A

TOWNSHIP OF NORTH GLENGARRY
WASTEWATER TREATMENT WORKS PERFORMANCE RESULTS

Municipality: North Glengarry
Project: Maxville WWTP
Description: 1 Pumping Station, 2 Facultative Cells
Seasonal Discharge with Phosphorous Removal.

Year: 2018
Receiving Stream: West Branch Scotch River
Design Capacity: 450 m^3/day

Month	Flows						BIOCHEMICAL O_2 DEMAND				SUSPENDED SOLIDS				PHOSPHORUS				TKN		
	Total Influent Flow (m^3)	Average Influent Flow (m^3)	Maximum Influent Flow (m^3)	Total Effluent Flow (m3)	Average Effluent Flow (m3)	Maximum Effluent Flow (m3)	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	17,144	553	943				134.5				116.0				2.8				24.90		
FEB	16,219	579	883				212.0				134.0				3.0				22.70		
MAR	20,367	657	1,085				62.5				55.5				2.3				19.85		
APR	24,362	812	1,231	237,322	9,493	14,567	93.3	7.7	1830.4	91.7	115.0	21.3	5051.6	81.5	1.9	0.3	74.6	83.6	10.15	11.47	-12.97
MAY	18,873	609	843				239.0				650.0				6.1				39.10		
JUN	13,098	437	611				201.0				224.0				4.4				33.80		
JUL	12,346	398	465				223.0				596.0				7.2				43.50		
AUG	12,355	399	766				250.2				656.1				7.6				44.47		
SEP	10,317	344	417				165.5				158.0				3.9				31.40		
OCT	10,483	338	449				192.5				175.0				5.1				40.95		
NOV	13,076	436	616				156.0				133.0				4.2				33.60		
DEC	18,359	592	730				76.0				50.0				2.9				22.00		
TOTAL	186,998.9			237,321.8			2,005.5		1,830.4	91.7				81.5	51.5		74.6	83.6	366.4	11.5	-13.0
AVE	15,583.2	512.8		237,321.8	9,492.9		167.1	7.7		91.7	255.2	21.3		81.5	4.3	0.3		83.6	30.5	11.5	-13.0
MAX	24,362.0	812.1	1,231.0	237,321.8	9,492.9	14,566.7	250.2	7.7		91.7	656.1	21.3		81.5	7.6	0.3		83.6	44.5	11.5	-13.0
CRITERIA		450						30 mg/L	4932			30 mg/L	4932			1.0 mg/L	164				

TOWNSHIP OF NORTH GLENGARRY

WASTEWATER TREATMENT WORKS PERFORMANCE RESULTS

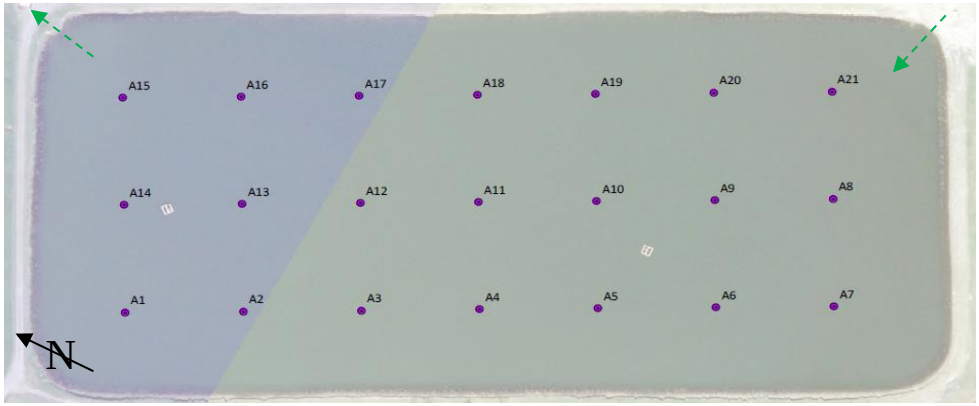
2018

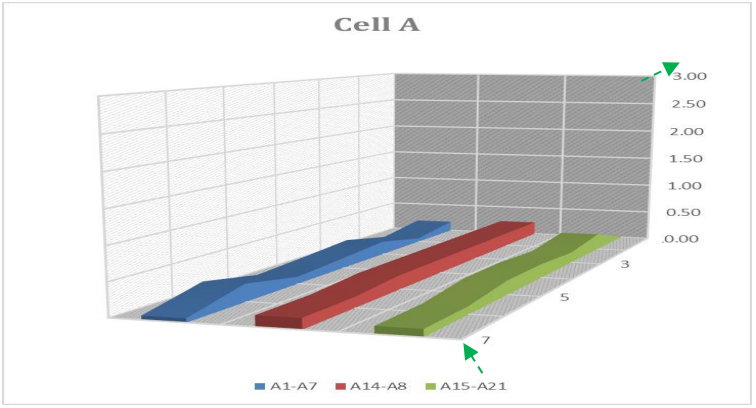
Month	NITRITE			NITRATE			Total Dissolved Solids			O-Phosphate			Ammonia			E-Coli		
	Average Raw Nitrite (mg/L)	Average Effluent Nitrite (mg/L)	Percent Removal %	Average Raw Nitrate (mg/L)	Average Effluent Nitrate (mg/L)	Percent Removal %	Average Raw TDS (mg/L)	Average Effluent TDS (mg/L)	Percent Removal %	Average Raw O-Phosphate (mg/L)	Average Effluent O-Phosphate (mg/L)	Percent Removal %	Average Raw Ammonia (mg/L)	Average Effluent Ammonia (mg/L)	Percent Removal %	Average Raw E.Coli (mg/L)	Average Effluent E.Coli (mg/L)	Percent Removal %
JAN	0.1			0.1			851.5			1.01			17.00			795,000		
FEB	0.1			0.1			999.0			0.94			10.15			1,795,000		
MAR	0.1			0.1			927.0			0.91			10.57			760,000		
APR	0.1	0.1	0.0	0.1	0.1	0.0	633.0	528	16.6	6.69	0.06	99.1	7.00	6.98	0.3	1,630,000	7307.5	99.6
MAY	0.1			0.1			704.0			1.20			11.87			835,000		
JUN	0.1			0.1			772.5			2.24			9.08			3,650,000		
JUL	0.1			0.1			789.0			1.79			17.40			3,595,000		
AUG	0.1			0.1			1063.0			10.68			114.82			4,198,826		
SEP	0.1			0.1			885.5			2.61			20.55			2,700,000		
OCT	0.1			0.1			979.5			2.77			24.75			2,800,000		
NOV	0.1			0.1			931.7			2.42			81.70			633,333		
DEC	0.1			0.1			897.0			1.97			14.60			920,000		
TOTAL	1.1	0.1	0.0	1.1	0.1	0.0	10,432.7	528.0	16.6	35.2	0.1	99.1	339.5	7.0	0.3	24,312,159.4	7,307.5	99.6
AVE	0.1	0.1	0.0	0.1	0.1	0.0	869.4	528.0	16.6	2.9	0.1	99.1	28.3	7.0	0.3	2,026,013.3	7,307.5	99.6
MAX	0.1	0.1	0.0	0.1	0.1	0.0	1,063.0	528.0	16.6	10.7	0.1	99.1	114.8	7.0	0.3	4,198,826.1	7,307.5	99.6
CRITERIA																		

Appendix B

Cell A

Maxville	Cell A-Sample Point Sludge Volume (m^3)																					Total Sludge Volume (m^3)	Total Sludge Volume (%)	Warning Trigger [2]
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	15717	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	11119	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	7340	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	8963	36	
08-Dec-11	0	0	0	0	0	312	237	277	203	142	0	0	0	0	119	146	42	312	354	1186	1114	4442	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	2249	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	8010	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	11923	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	7600	30	

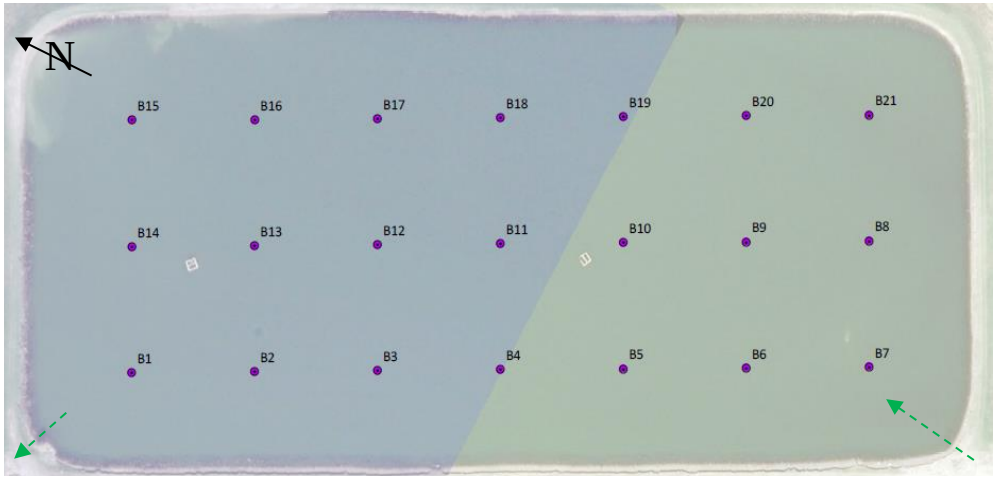


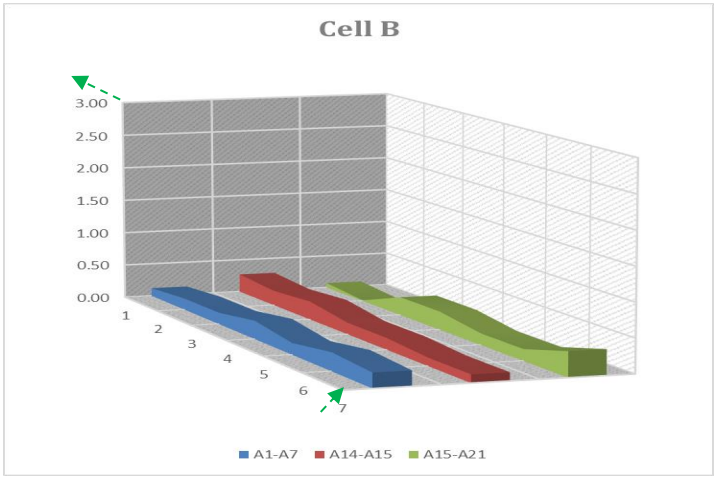


- Sludge depths completed on Nov 7, 2016
- Cell A currently at 30% of allowable volume
- No locations that indicated high sludge level
- Minor sludge build-up along west berm

Cell B

Maxville	Cell B-Sample Point Sludge Volume (m^3)																					Total Sludge Volume (m^3)	Total Sludge Volume (%)	Warning Trigger [2]
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	
22-Apr-09	1422	312	354	624	624	791	1185	507	405	304	203	770	446	1268	1304	624	937	1249	687	1145	1730	16890	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	6376	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	4972	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	7464	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	4011	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	8133	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	7857	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	8710	35	





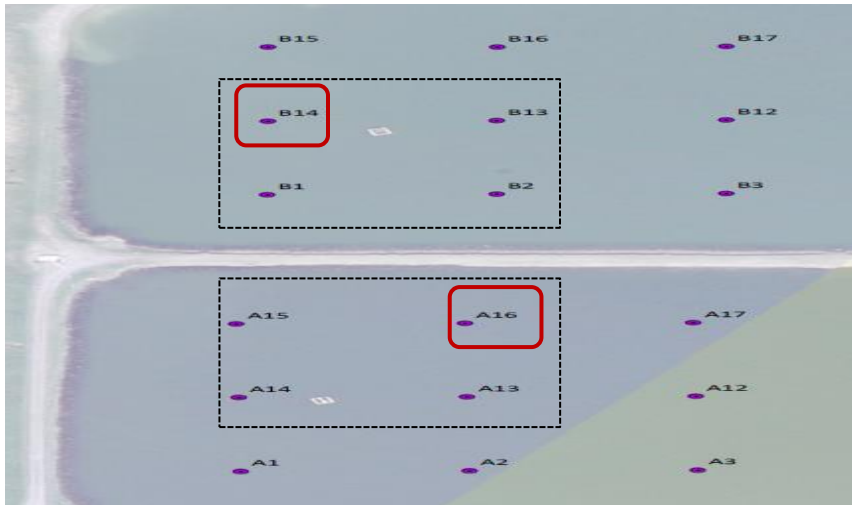
- Sludge depths completed on Nov 6, 2016
- Cell A currently at 31% of allowable volume
- No locations that indicated high sludge level
- Minor sludge build-up along east berm

Triggers

Triggers	Monitoring Point	Warning [1] - Sludge Depth Exceeds Trigger on	Monitoring Point	Warning [1] - Sludge Depth Exceeds Trigger on	Monitoring Point	Warning [1] - Sludge Depth Exceeds Trigger on	Monitoring Point	Warning [1] - 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		15		16	
	13		14		15		16	
	13		14		15		16	
	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		2		13		14	
	1		2		13		14	
	1		2		13		14	
	1		2		13		14	
	1		2		13		14	
	1		2		13		14	

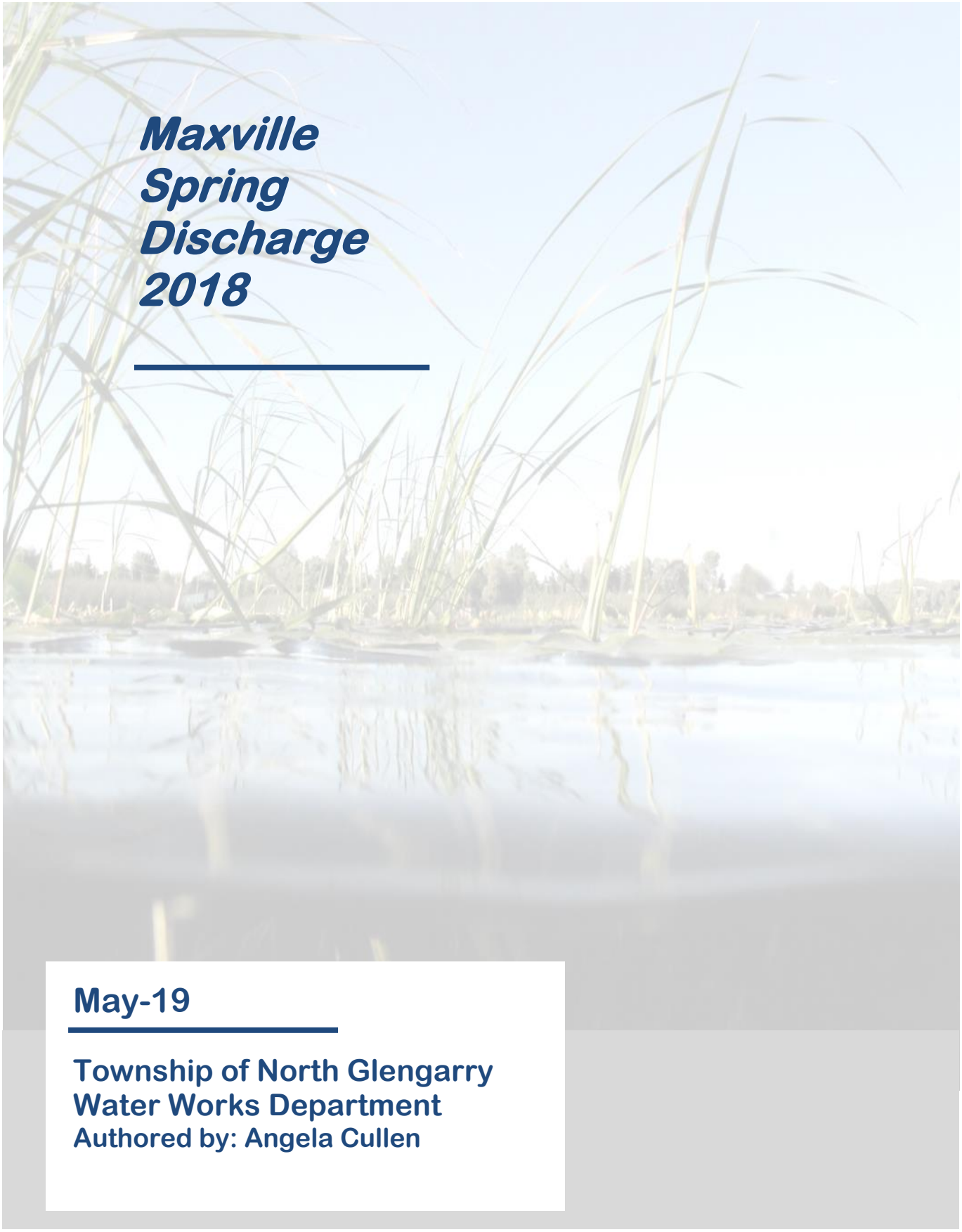
Triggers and Suggested Actions

_____	Note [2]: If a sample point is underlined, this signifies that the volume/depth of a sludge in that section of the cell is elvated and action might be required to obtain a uniform sludge ditribution
1	Trigger depth of 0.25 m near outlet is exceeded **Removal or Dispersal of sludge mat be required**
2	More than half the *Total Sludge Volume* (*25,170 m3*) noted on the ECA is estmated in each cell **Depending on location of elevated sludge depths, removal or dispersal of sludge may be required**
3	The trigger sludge depths (see *Sample Points Area* sheet) is exceeded in this cell **At an individual locations, the sludge depth in more than 1/3 of the working depth in the cell (1.8 m); sludge removal or dispersal may be required**



- Trigger point depth of 0.25m exceeded near the outlet
- Removal or Disposal may be required

Appendix C



Maxville Spring Discharge 2018

May-19

Township of North Glengarry
Water Works Department
Authored by: Angela Cullen

Maxville Spring Discharge

2018 Annual Report

Total Days Discharged	26
Total Hours Discharged	600.88
Total Amount Discharge to Creek(m^3)	237322

Maxville Annual Spring Discharge Report

Date	Start Time (from Sting Ray Logs)	Total hours	River Flow m^3/s	Discharge Rate m^3/s	Mixing Ratio (3:1)		Discharge Amount m^3 (from Sting Ray)	Discharge pH	DO mg/L	Temperature ^0C
5-Apr-18	9:17		2.041	0.106	19.25	:1		7.1	7.08	3.7
6-Apr-18	9:45	24.47	0.670	0.095	7.05	:1	7695.206	7.64	7.3	4.1
7-Apr-18	7:50	22.08	0.506	0.095	5.33	:1	7389.083	7.25	6.90	5.0
8-Apr-18	7:53	24.05	0.420	0.120	3.50	:1	7753.193	7.17	6.63	5.0
9-Apr-18	9:04	25.18	0.143	0.036	3.97	:1	10288.221	7.22	6.52	5.0
10-Apr-18	8:17	23.22	0.376	0.101	3.72	:1	2239.553	7.34	8.69	4.5
11-Apr-18	8:26	24.15	0.377	0.119	3.17	:1	8102.233	7.67	7.57	4.4
12-Apr-18	8:23	23.95	0.392	0.122	3.21	:1	10250.676	7.60	7.68	4.5
13-Apr-18	8:15	23.86	0.888	0.134	6.63	:1	9440.125	7.58	8.12	4.6
14-Apr-18	8:14	23.98	0.611	0.130	4.70	:1	9430.612	7.34	8.21	5.2
15-Apr-18	9:26	25.20	0.450	0.129	3.49	:1	10543.689	7.52	8.66	7.2
16-Apr-18	8:24	22.97	0.447	0.142	3.15	:1	10262.402	8.07	9.07	4.2
17-Apr-18	8:30	24.10	2.878	0.153	18.81	:1	11129.137	7.68	9.89	3.3
18-Apr-18	8:55	24.83	1.760	0.169	10.41	:1	12538.703	7.57	10.45	3.9
19-Apr-18	7:55	23.00	1.293	0.160	8.08	:1	12819.468	7.60	10.91	4.0
20-Apr-18	10:06	26.18	0.603	0.165	3.65	:1	14566.684	7.83	12.31	5.8
21-Apr-18	11:36	25.50	0.405	0.130	3.12	:1	14058.683	8.43	13.93	6.6
22-Apr-18	11:38	24.03	0.430	0.128	3.36	:1	11906.240	8.14	13.73	7.7
23-Apr-18	9:40	22.03	0.273	0.088	3.10	:1	10880.217	7.80	11.51	10.9
24-Apr-18	8:28	22.80	0.300	0.091	3.30	:1	7046.588	7.71	10.01	11.7
25-Apr-18	8:25	23.95	0.263	0.085	3.09	:1	8220.818	7.98	7.96	12.9
26-Apr-18	8:36	24.18	0.474	0.100	4.74	:1	7541.253	7.73	6.07	12.3
27-Apr-18	8:16	23.67	0.386	0.125	3.09	:1	8345.005	7.58	6.64	8.8
28-Apr-18	8:16	24.00	0.279	0.090	3.10	:1	8744.639	8.25	6.52	11.2
29-Apr-18	8:11	23.92	0.503	0.091	5.53	:1	7728.141	7.81	6.87	9.5
30-Apr-18	9:46	25.58	1.014	0.000		:1	8401.262	7.83	7.40	2.5
								Range		
								6.0-9.5		

Discharge Summary

The annual discharge was continuously run over 26 days from Thursday April 5, 2018 until Monday April 30, 2018. This is well within minimum requirements of 14 and maximum of 45 days. This also coincided with the spring peak flows

During this time the total flows to the west branch of the Scotch river was 237,322m^3, with an average daily flow of 9,492.9m^3. The flows were maintained to ensure greater then 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
$CBOD_5$	7	**30**	7.7	**4932**	1827.38	0
T.S.S	7	**30**	21.3	**4932**	5054.96	0
T.P.	7	**1**	0.3	**164**	71.20	0
Nitrite	3		0.1			
Nitrate	3		0.1			
Total Ammonia	3		7.0			
T.K.N.	3		11.5			
H_2S	4		1.8			
E. coli (cts/100mL)	4		7307.5			
pH	26		7.67			

Maxville Annual Spring Discharge Report

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_2S mg/L	E coli cts/100mL
5-Apr-18	20		14		0.49		< 0.1	< 0.1	8.14	13	3.44	12600
6-Apr-18		153.90		107.73		3.77						
7-Apr-18		147.78		103.45		3.62						
8-Apr-18		155.06		108.54		3.80						
9-Apr-18		205.76		144.04		5.04						
10-Apr-18		44.79		31.35		1.10						
11-Apr-18		162.04		113.43		3.97						
12-Apr-18	19	194.76	11	112.76	0.41	4.20	< 0.1	< 0.1	7.28	12.6	3.07	13600
13-Apr-18		179.36		103.84		3.87						
14-Apr-18		179.18		103.74		3.87						
15-Apr-18		200.33		115.98		4.32						
16-Apr-18	17	174.46	11	112.89	0.04	0.41						
17-Apr-18		189.20		122.42		0.45						
18-Apr-18		213.16		137.93		0.50						
19-Apr-18	33	423.04	< 3	38.46	0.29	3.72					0.62	1980
20-Apr-18		480.70		43.70		4.22						
21-Apr-18		463.94		42.18		4.08						
22-Apr-18		392.91		35.72		3.45						
23-Apr-18	18	195.84	5	54.40	0.24	2.61						
24-Apr-18		126.84		35.23		1.69						
25-Apr-18		147.97		41.10		1.97						
26-Apr-18	8	60.33	5	37.71	0.32	2.41						
27-Apr-18		66.76		41.73		2.67						
28-Apr-18		69.96		43.72		2.80						
29-Apr-18		61.83		38.64		2.47						
30-Apr-18	34	285.64	5	42.01	0.41	3.44	< 0.1	< 0.1	5.53	8.8	0.07	1050
Minimum	8	44.79	3	31.35	0.04	0.41	0.1	0.1	5.53	8.8	0.07	1050
Average	21	199.02	8	76.51	0.31	2.98	0.1	0.1	6.98	11.5	1.80	7308
Maximum	34	480.70	14	144.04	0.49	5.04	0.1	0.1	8.1	13.0	3.44	13600
Total		4975.56		1912.69		74.47	0.1	0.1	8.14	13.0	3.44	13600

Sampling Summary

During this discharge period, sample were taken on 7 occasions. Most of the sampled parameters were slightly higher than normally observed during the first two sets of samples, but as the discharge continued the level dropped to normally observed values.

The only exception to this was the TSS, these samples results began to drop, then spiked at the mid-point and end of the sampling period. Even though parameters were slightly higher than

normally observed the overall average was below the effluent objectives and limits as mentioned in the ECA. Although the effluent limits were not exceeded it was found that the annual waste loading limits were exceeded.

Observed Issues

Observed issues noted during this discharge period include an intermittent H2S smell noted when ice cover was still visible on the lagoon cells and flow restrictions due to backflow causing reading issues on the sting ray.

- Samples were taken from discharge outfall and just prior to discharge mixing zone to verify levels. It was found that levels did decrease from outfall to where effluent meets the river water at the mixing zone.

It was also noted at the end of the discharge that the sludge near the cell influent piping and discharge piping was elevated. It may be noted that sludge dispersion plan should be considered to help disperse the sludge throughout the cell to prevent build-up