



***Maxville
Spring
Discharge
2020***

May 2020

**Township of North Glengarry
Water Works Department**

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Maxville Spring Discharge

2020 Annual Report

Total Days Discharged	19
Total Hours Discharged	433.3
Total Amount Discharge to Creek(m³)	225,314

Maxville Annual Spring Discharge Report										
Date	Start Time (from Sting Ray logs) 24hrs	Total Discharge Hours	River Flow Rate m ³ /s	Discharge Flow Rate m ³ /s	Mixing Ratio (3:1)		Total Discharge Flow (from Sting Ray logs) m ³	Discharge pH	DO mg/L	Temperature °C
19-Mar-20	9:13		1.149	0.095	12.09	:1		6.90	8.18	4.6
20-Mar-20	9:40	24.38	1.554	0.095	16.36	:1	6591.651	7.04	9.7	7.5
21-Mar-20	7:52	22.15	1.970	0.170	11.59	:1	4711.534	6.70	9.36	5.7
22-Mar-20	9:53	25.96	0.770	0.235	3.28	:1	15859.032	6.59	7.05	9.0
23-Mar-20	8:47	22.86	0.504	0.165	3.05	:1	18144.875	6.79	8.86	9.5
24-Mar-20	9:10	24.35	0.429	0.139	3.09	:1	15038.023	6.86	9.33	7.7
25-Mar-20	12:11	26.96	0.462	0.150	3.08	:1	12840.238	7.30	9.00	5.3
26-Mar-20	9:59	21.86	0.603	0.195	3.09	:1	12208.206	7.34	8.45	5.6
27-Mar-20	11:25	25.35	0.869	0.275	3.16	:1	17229.143	7.85	10.70	7.9
28-Mar-20	8:15	20.75	0.818	0.265	3.09	:1	16201.020	6.91	12.83	6.0
29-Mar-20	8:26	24.22	0.592	0.190	3.12	:1	19150.194	7.30	11.51	5.9
30-Mar-20	8:50	24.35	5.405	0.275	19.65	:1	17447.186	7.48	13.80	5.7
31-Mar-20	8:57	24.07	2.433	0.250	9.73	:1	20788.080	7.25	15.03	5.3
01-Apr-20	10:33	25.55	1.033	0.214	4.83	:1	20798.987	7.35	12.73	6.6
02-Apr-20	9:14	23.38	0.851	0.130	6.55	:1	15009.294	7.45	9.40	5.3
03-Apr-20	9:31	24.35	1.048	0.040	26.20	:1	6586.670	7.82	10.40	6.7
04-Apr-20	9:05	23.50	0.903	0.025	36.12	:1	2959.450	7.66	10.22	8.0
05-Apr-20	10:18	25.16	0.584	0.018	32.44	:1	1956.720			
06-Apr-20	10:22	24.07	0.558	0.000		:1	1793.424	7.77	10.30	5.9
								Range		
								6.0-9.5		

Discharge Summary

The annual discharge was continuously run over 19 days from Thursday March 19, 2020 until Monday April 6, 2020. The discharge time frame meets the minimum requirements of 14 and maximum of 45 days and it also coincided with the spring peak flows.

During this time the total flows to the west branch of the Scotch river was 225,314m³, with an average daily flow of 12,517m³. 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 ₅	4	30	9.8	4932	2196.8	0
T.S.S	4	30	31.3	4932	7041.1	2
T.P.	4	1	0.42	164	94.1	0
Nitrite	4		0.1			
Nitrate	4		0.1			
Total Ammonia	4		7.53			
T.K.N.	4		12.28			
H ₂ S	4		1.6			
E. coli (cts/100mL)	4		200			
pH	18		7.24			

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Date	T.S.S. Sample mg/L	T.S.S. Loading kgs	C.B.O.D. Sample mg/L	C.B.O.D. Loading kgs	T.P. Sample mg/L	T.P. Loading kgs	Nitrite mg/L	Nitrate mg/L	Total Ammonia mg/L	T.K.N. mg/L	H ₂ S mg/L	E coli cts/100mL
19-Mar-20	54		15		0.69		< 0.1	< 0.1	11.00	14.8	6.35	88
20-Mar-20		355.95		98.87		4.55						
21-Mar-20		254.42		70.67		3.25						
22-Mar-20		856.39		237.89		10.94						
23-Mar-20		979.82		272.17		12.52						
24-Mar-20	17	255.65	8	120.30	0.14	2.11	< 0.1	< 0.1	6.45	12.6	0.03	168
25-Mar-20		218.28		102.72		1.80						
26-Mar-20		207.54		97.67		1.71						
27-Mar-20		292.90		137.83		2.41						
28-Mar-20		275.42		129.61		2.27						
29-Mar-20		325.55		153.20		2.68						
30-Mar-20		296.60		139.58		2.44						
31-Mar-20	14	291.03	7	145.52	0.24	4.99	< 0.1	0.1	3.51	5.7	0.06	186
1-Apr-20		291.19		145.59		4.99						
2-Apr-20		210.13		105.07		3.60						
3-Apr-20		92.21		46.11		1.58						
4-Apr-20		41.43		20.72		0.71						
5-Apr-20		27.39		13.70		0.47						
6-Apr-20	40	71.74	9	16.14	0.60	71.74	< 0.1	0.1	9.15	16	0.02	356
Minimum	14	27.39	7	13.70	0.14	0.47	0.1	0.1	3.51	5.7	0.02	88
Average	31	296.87	10	114.08	0.42	7.49	0.1	0.1	7.53	12.3	1.62	200
Maximum	54	979.82	15	272.17	0.69	71.74	0.1	0.1	11.00	16.0	6.35	356
Total		5343.65		2053.35		134.76	0.1	0.1	11.00	16.0	6.35	356

Sampling Summary

During this discharge period, sample were taken on 4 occasions. The TSS values to exceed the ECA limits on the first and last samples taken. The second and third sample were well within the limits, but the annual average and average annual waste loading were found to exceed the ECA limits. There was no notation of observed issues during these sampling dates. CBOD₅ and TP were well within normally observed ranges. 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:

- Discharge was started while lagoon cells were still under ice cover, but the receiving river was open and flowing. It was noted that full ice cover was removed from lagoon cells on April 2, 2020.
- First sample results indicated TSS reading above the ECA limit, it was suggested to maintain discharge rates and increase sampling until results from second sample was received, but precautions were not taken. The following sampling results were well below limits.
- Last sample taken prior to shut down for TSS was also found to be over the ECA limits, causing the annual average reading and annual average waste loading values to exceed ECA limits.
- 2 dates displayed lost data logging due to battery issues, these missing logs were short in duration and estimated flows were used to complete the data based on flows before and after observed issues.
- Minor foam observed, near outlet caused by the flow agitation
- Minor H₂S smells were noted during first few days when lagoons were under full ice cover, as ice melted the smell dissipated.
- Discharge pH was taken on April 5, 2020 but the results were never transferred to log sheet, values are no longer available.