



City of Summerside
Waste Water Treatment Plant
Report for 2015

Date Submitted: January, 2016

Submitted by: Summerside Waste Water Treatment Facility

1. Introduction

The City of Summerside operates a Treatment Facility that services approximately 15,000 people within the city. The plant is a tertiary BNR system that removes ammonia, phosphorus, and nitrogen from the water before it leaves the facility. The facility is also responsible for three lift stations at Northumberland Street, Eustane Street, and Reid's Corner. This report is prepared to give the public a clear understanding of the facilities operation over the past year, 2015.

2. Summary of Wastewater Effluent Data Operation

The City of Summerside is required to meet maximum concentrations of 25mg/L of carbonaceous Biochemical Oxygen Demand (cBOD) and 25 mg/L of Total Suspended Solids (TSS) with Faecal Coliform of 200 Most Probable Number (MPN) / 100ml. These parameters are as per our Certificate of Approval from the Province of Prince Edward Island.

3. Summary of Discharge Notifications

During 2015 the City of Summerside reported 2 wastewater discharges from the Summerside Waste Water Treatment plant. The first occurred on June 29 when sampling showed the final effluent contained TSS = 29 mg/L. The plant remained in noncompliant status until July 6 when a farther sample showed the TSS = 10 mg/L at that time. During this event Faecal Coliform sampling frequency was increased. Reporting of this plant failure was done according to the method outlined in the Conditional Management Plan.

The second discharge reported in 2015 began on August 5 when samples showed TSS = 28 mg/L and continued until August 11 when a sample showed TSS = 10 mg/L. Again, reporting of this failure was done according to the Conditional Management Plan.

As shown with lab results in Table 1, there were no problems with Faecal Coliform Bacteria or cBOD results being non-compliant all year, including the time periods of the two events described above.

4. Major Operational Modifications

The City of Summerside made no major operational modifications or plant design changes in 2015.

5. Major Construction Projects

The City has had no major upgrades to the Waste Water Treatment Plant in 2015. We continue to maintain good quality maintenance on the existing equipment to insure its proper operation. For major collection system upgrades please refer to section 8 of this report for details on 2 major lift station upgrades which occurred in 2015.

6. Summary of Biosolids Production

The City of Summerside produced a total of 3997 tons of product through their N-Viro system. See table 3 for the breakdown of product used.

7. Summary of Flow Metering

The flows at the City of Summerside WWTP is measured using a parshall flume and electronic instrument and recorded on our SCADA system. See Appendix D for daily flow readings.

8. Summary of Waste Water Collection System

In 2015 the City of Summerside continued to operate a modern Waste Water Collection System including gravity mains, force mains, and lift stations. There were no overflows or discharges from the system in 2015. Major modifications were contained to 2 projects: The Granville Street Lift Station was upgraded to a new station with a new concrete wet well, new pumps, new control panels, new backup diesel generator, and new building. Crozier Drive lift station was upgraded to a new station with a new concrete wet well, new pumps, new control panel, backup diesel generator, and new building. Below are a list of lift stations under the care of the City of Summerside which all continued to receive maintenance as per usual in 2015:

Summerside Lift Station ID number	Location
LS 1	Northumberland Street
LS 2	Eustane Street
LS 3	Read's Corner
LS 4	Red Bridge
LS 5	Crozier Drive
LS 6	Glover's Shore Road
LS 7	Whitecap Drive
LS 8	Heather Moyse Drive

LS 9	MacKenzie Drive
LS 10	Briggs Street
LS 11	Granville Street

Date Sampled	Sample Location (WWTP)	ID #	cBOD (mg/L)	TSS (mg/L)	Faecal (MPN/100mL)
January 15 2015	After UV Lights	W150115001	<10	4	<2
January 29 2015	After UV Lights	W150129005	Unavailable*	3	<2
February 11 2015	After UV Lights	W150211001	<10	<1	<2
February 26 2015	After UV Lights	W150226001	<10	7	<2
March 11 2015	After UV Lights	W150311009	<10	2	<2
March 25 2015	After UV Lights	W150325004	<10	3	<2
April 8 2015	After UV Lights	W150408007	<10	<1	<2
April 23 2015	After UV Lights	W150423001	<10	3	<2
May 6 2015	After UV Lights	W150506007	<10	5	<2
May 20 2015	After UV Lights	W150520006	<10	5	<2
June 3 2015	After UV Lights	W150603011	<10	5	<2
June 17 2015	After UV Lights	W150617013	<10	5	<2
June 23 2015	After UV Lights	W150623011	<10	Not requested	<2
June 29 2015	After UV Lights	W150629005	Not requested	29	<2
June 29 2015	After UV Lights	W150629006	Not Requested	Not requested	<2
June 29 2015	After UV Lights	W150629007	Not Requested	Not requested	2
June 30 2015	After UV Lights	W150630006	Unavailable*2	29	<2
July 2 2015	After UV Lights	W150702012	10	Not requested	Not requested
July 6 2015	After UV Lights	W150706001	Not Requested	10	<2
July 8 2015	After UV Lights	W150708025	<10	12	<2
July 22 2015	After UV Lights	W150722002	<10	10	<2
August 5, 2015	After UV Lights	W150805005	<10	28	<2
August-11 2015	After UV Lights	W150811003	<10	10	<2
August-19-2015	After UV Lights	W150819006	<10	4	<2
September 2 2015	After UV Lights	W150902002	<10	19	<2
September 16 2015	After UV Lights	W150916008	<10	3	<2
September 30 2015	After UV Lights	W150930007	<10	2	130
October 14 2015	After UV Lights	W151014004	<10	4	<2
October 28-2015	After UV Lights	W151028002	<10	3	<2
November 12 2015	After UV Lights	W151112002	<10	9	7
November 25 2015	After UV Lights	W151125003	<10	12	5
December 9 2015	After UV Lights	W151209007	<10	4	<2
December 17 2015	After UV Lights	W151217005	<10	3	<2

Table 1: Summary of Wastewater Effluent Data

*Due to inclement weather the laboratory was unable to test cBOD on the Jan 29 sample as noted on the sample report provided to Summerside WWTP by PEI Analytical Lab

*2 cBOD not analysed for June 30 samples due to sample age as noted on the sample report provided to Summerside WWTP by PEI Analytical Lab

Date Sampled	Sample Location (WWTP Unless noted Lagoon)	ID #	Ammonia-N (ppm)	pH	Total Nitrogen (ppm)	Total Phosphorus (ppb)
January 15 2015	After UV Lights	W150129005	0.928	6.9		
February 26 2015	After UV Lights	W150226001	0.170	7.3		
March 25 2015	After UV Lights	W150325004	0.864	7.4		
May 6 2015	After UV Lights	W150506007	0.491	6.8	1.7	12
May 20 2015	After UV Lights	W150520006	0.160	7.1		
August 5 2015	After UV Lights	W150805005	0.179		4.1	4250
November 12 2015	After UV Lights	W151112002	<0.100	7.5	7.0	307

Table 2: Summary of Wastewater Effluent Chemistry Data

Table 3: Summary of Discharge Notifications

Date	Time	WW Type	Location	Period of Discharge	Total Discharge	Reason for Discharge
June 29 2015	8 am	Treated Wastewater	WWTP	Until July 6 2015	TSS = 29 ppm	BNR Plant Performance Issue due to incoming load
August 5 2015	8 am	Treated Wastewater	WWTP	Until August 11 2015	TSS = 28 ppm	BNR Plant Performance Issue due to incoming load

Table 4: Summary of Biosolids Production Data

Sludge Total (Kg)	Lime Total (Kg)	Lime Dust Total (Kg)	Fournier Press % Solids Average	Final Product % Solids Average	Product Total (tonnes)
5,443,928	256,057	2,125,403	22.59	69.41	3997

Appendix A: Effluent Wastewater Lab Reports

See data in Table 1 of this report. For original copies of PEI Analytical Laboratories Reports please contact Sam Arsenault, Summerside Wastewater Treatment Supervisor at sam.arsenault@city.summerside.pe.ca

Appendix B: Discharge Notification Reports

See data in Table 3 of this report. For original copies of Discharge Notification Reports please contact Sam Arsenault, Summerside Wastewater Treatment Supervisor at sam.arsenault@city.summerside.pe.ca

Appendix C: Biosolids Quality Lab Reports

	Lime	Lime	Lime	Lime	Lime	Units
Date	26/02/2015	07/05/2015	28/7/2015	22/09/2015	07/12/2015	
Lot Number	2015-1	2015-1	2015-2	2015-2	2015-2	
Lab Number	617017	1317003	2097035	2677021	3447015	
Fecal Coliform	<3	<3	<3	<3	<3	MPN/g
Salmonella	NEGITIVE	Negative	Negative	Negative	Negative	MPN/4g
pH	8.2	8.66	10.93	11.67	11.21	
Volatile Solids	15.09	10.98	18.43	20.82	25.26	%
Ammonia (NH ₃ -N)	2416.93	2784.05	1309.42	1097.02	1495.9	ug/g
TNV	80.75	85.25	73.75	71.25	65.75	%
Total Phosphorus (As P ₂ O ₅)	1.02	0.86	0.92	1.27	1.73	%
Nitrogen (Total)	0.97	0.66	1.22	1.05	1.44	%
Phosphorus (Available P ₂ O ₅)	0.9	0.83	1.1	1.16	1.49	%
Potassium (Soluble K ₂ O)	0.3	0.29	BDL	BDL	0.34	%
Aluminium	783.50	1631.5	965.5	1110.0	1352	ug/g
Boron	11.20	6.44	8.21	23.83	42.98	ug/g
Calcium	319800	351300	415800	416185	328250	ug/g
Copper	38.77	32.08	50.35	85.8	80.20	ug/g
Iron	1379	1498	1280	2003.5	1830.5	ug/g
Magnesium	3342.5	3735.5	3329	3351.00	2822.50	ug/g
Manganese	319.95	340.75	300.9	317.45	178.4	ug/g
Phosphorus	4474.50	3754.5	4002	5555	7550.0	ug/g
Potassium	5340.00	2534.5	2077	2561.5	3326	ug/g
Sodium	842	403.15	215.45	BDL	233.35	ug/g
Sulphur	1501.50	1303.00	1587	2068.5	2300.00	ug/g
Zinc	36.04	33.59	54.10	81.85	78.39	ug/g
Organic Matter @ 550deg C	15.09	10.98	18.43	20.82	25.26	%
Moisture (as received)	26.06	18.14	19.79	21.81	30.15	%
Total Neutralizing Value (CCE)	68	81	71	58.62	90.29	
Sieve #10 (% Passing)	99.8	98.8	98.5	97.2	96.9	%
Sieve #60 (% Passing)	88.60	89.7	85.6	77.2	78.2	%

Sieve #100 (% Passing)	82.60	86.5	82.6	74.4	74.6%
Arsenic	BDL	BDL	2.21	1.79	1.19 ug/g
Cadmium	BDL	BDL	BDL	BDL	BDL ug/g
Chromium	3.19	4.19	5.53	6.35	5.14 ug/g
Cobalt	BDL	BDL	BDL	BDL	BDL ug/g
Lead	5.88	7.04	5.67	6.49	4.23 ug/g
Mercury	BDL	BDL	BDL	BDL	0.15 ug/g
Molybdenum	BDL	BDL	BDL	1.1	1.4 ug/g
Nickel	2.13	2.18	3.36	3.98	3.10 ug/g
Selenium	BDL	BDL	1.22	BDL	BDL ug/g

Notes: All Data above is from testing performed by A&L Laboratories
BDL = Below Detection Limit

Appendix D: Daily Flow Meter Average Monthly Readings

Note: Readings are in cubic meters per day

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1	9951	8736	7904	9107	16857	10591	9393	8177	8029	9172	8164	8938
2	10695	8629	9022	8343	16510	10724	9251	8086	8189	8811	8041	10985
3	10702	7916	8017	9509	16486	11046	9789	8759	7636	8120	7828	10618
4	9972	8731	9005	10474	17250	10350	8908	8963	7823	7872	8007	10196
5	10945	8938	8009	9199	16954	10205	8957	8534	7221	7395	7670	9601
6	10523	8750	7752	9280	16003	9871	9633	8122	6974	7163	8088	10874
7	10154	8301	7841	9666	15235	9639	9336	8358	7669	7437	Na	10969
8	10317	8243	7956	9452	14501	10117	9403	7863	8008	7870	Na	10390
9	9855	8627	7834	9584	13959	10798	9223	7832	7742	8674	11004	9899
10	9597	8688	8271	13309	13844	10219	9081	8887	7321	7789	7679	10371
11	9550	8505	9268	18458	14006	9745	8007	8530	12527	7603	7267	9768
12	9578	8101	8231	16084	14558	9960	8708	8956	8097	7729	8006	10791
13	9247	8694	8167	18084	13601	9770	9264	8241	7904	9903	7812	9675
14	9145	7927	7899	20551	12820	9403	9118	8273	8785	8177	7439	10326
15	9045	7709	7321	16406	12938	10210	9490	7634	8257	7695	7181	10236
16	9245	7746	7436	14432	11894	10441	8897	7646	8131	8372	7982	12120
17	8682	8315	8120	15051	11753	9773	9028	8171	7853	7662	7527	11278
18	9126	8166	8132	14934	11806	9503	8656	8105	8004	7771	7490	16061
19	15549	9744	8187	14257	12742	10520	9506	8083	7471	8134	7181	13334
20	10204	8350	7899	14604	12369	9140	9637	7869	7708	7926	8088	11445
21	9564	7896	7761	20768	11423	12200	9284	8186	7953	7841	8148	11263
22	9317	8364	7658	20673	11712	13668	9033	7707	7781	8432	10904	11603
23	9220	8461	7838	19162	10857	12035	8827	7711	7728	7912	20969	12222
24	13385	8103	8847	18059	10783	11532	8832	8646	7233	7339	10825	16662
25	10466	8280	8591	16529	11853	10496	8247	8199	7548	7505	9708	12336
26	9280	8132	10015	16303	12983	10263	8890	8698	6951	7505	9104	12388
27	8926	8280	9891	18122	11579	9616	9152	9862	7136	7285	9935	12123
28	9181	8132	8513	20991	10844	10030	8946	8237	7722	7435	9118	11798
29	8926		8393	19298	11152	10328	8840	7551	7696	8398	8863	11911
30	9181		9055	17701	10721	10308	8833	7662	13324	7358	9154	11803
31	9083		9355			10591	8853	8664		7065		11978

Appendix E
Ortho Map



