



October 13, 2022

Mr. Don Turner
Environmental Project Officer
Water Security Agency
Suite 300 – 2365 Albert Street
Regina, SK S4P 4K1

Dear Mr. Turner:

RE: Monthly Report: **September 2022**

In compliance with the City of Regina “Permit to Operate a Sewage Works” # 0050853-07-00 please find attached the monthly report for September 2022.

I trust this meets with your approval, should you have any questions please do not hesitate to contact me directly at (306) 519-9054 or Justin Allan at (306) 551-3180.

Yours truly,

A handwritten signature in blue ink, appearing to read "Joe Zimmer".

Joe Zimmer, P. Eng.
Manager, Regina Operations
EPCOR Water Services

City of Regina - Wastewater Treatment Plant

September 2022

Final Effluent Results

Permit# 00050853-07-00

Date	Flow to Creek	Total Coliform	<i>E. coli</i>	Enterococci	Dissolved Oxygen (Field Test)	Temp. (Field Test)	Chloride (Field Test)	Total Phosphorus	pH @15±1°C	Total Suspended Solids	CBOD	Ammonia Nitrogen	Unionized Ammonia @15±1°C	Total Kjeldahl Nitrogen	Total Nitrogen
	(ML)	(MPN /100mL)	(MPN /100mL)		(mg/L)	(°C)	(mg/L)	(mg P/L)	(SU)	(mg/L)	(mg/L)	(mg N/L)	(mg N/L)	(mg N/L)	(mg N/L)
01	62.98	980	107		8.01	20.1	197	0.44	7.44	10.2	4.4	0.47	< 0.030	2.7	7.4
02	61.96	2,247	315		8.53	20.1		0.49		11.2		0.34		2.8	8.0
03	57.77				8.66	19.9		0.52		12.6		0.17		2.5	7.6
04	57.50				7.74	19.8	198	0.49	7.50	11.6	3.1	0.21	< 0.030	2.6	7.7
05	61.02	629	64		7.67	19.8	201	0.78	7.47	18.0	5.6	0.69	< 0.030	3.4	7.9
06	61.09	977	140	33	6.31	19.8	204	0.67	7.48	14.6	4.9	0.32	< 0.030	3.2	8.4
07	59.68	980	98		8.75	19.7	211	0.63	7.41	15.0	4.2	0.20	< 0.030	2.8	7.9
08	60.46	921	88		8.34	19.5	212	0.66	7.48	15.2	4.6	0.22	< 0.030	2.8	8.6
09	60.88	2,282	457		8.51	19.5		0.63		14.0		0.14		2.6	8.9
10	60.19				9.14	19.5		0.62		13.2		0.18		2.9	9.3
11	61.94				8.72	19.6	205	0.68	7.46	16.0	4.5	0.48	< 0.030	3.3	8.4
12	62.86	1,200	206	46	8.69	19.7	203	0.63	7.47	14.0	4.9	0.11	< 0.030	2.5	7.2
13	60.26	870	165		7.01	19.4	207	0.57	7.54	12.6	4.4	< 0.30	< 0.030	2.4	7.9
14	59.82	4,350	525		9.03	19.3	204	0.94	7.35	24.4	7.1	1.14	< 0.030	4.3	11
15	60.46	8,660	1,030		8.94	19.4	184	0.51	7.53	11.2	4.9	0.78	< 0.030	2.9	8.5
16	61.68	416	15		6.84	19.5		0.53		11.6		1.75		3.9	8.8
17	54.25	387	23		8.85	19.6		0.63		13.8		2.65		4.2	9.2
18	62.76	105	8		8.40	19.6	203	0.51	7.48	11.4	3.7	1.72	< 0.030	4.0	8.6
19	38.07	86	4		6.45	19.6	186	0.49	7.48	10.4	4.7	1.50	< 0.030	3.8	6.7
20	51.67	112	3	<	8.87	19.0	187	0.53	7.42	12.2	4.7	2.17	< 0.030	4.6	8.5
21	63.28	201	12		8.02	19.1	199	0.48	7.35	10.0	3.7	5.22	0.032	7.7	12
22	66.06	143	2		9.02	18.8	204	0.53	7.51	10.1	4.2	6.44	0.056	8.8	14
23	64.57	613	<	10	8.44	18.9		0.51		9.4		3.15		5.5	12
24	63.79				8.60	19.0		0.49		8.8		1.49		4.0	10
25	65.29				8.42	19.3	194	0.46	7.40	8.0	3.0	2.82	< 0.030	4.9	10
26	64.49	111	6	3	6.74	19.5	199	0.54	7.29	10.7	3.8	2.30	< 0.030	5.0	11
27	70.58	77	4		9.05	19.3	204	0.64	7.43	15.3	4.9	1.19	< 0.030	4.1	9.7
28	62.48	166	6		8.96	19.4	199	0.56	7.53	11.2	5.2	1.15	< 0.030	3.9	9.9
29	62.89	345	16		6.62	19.6	202	0.50	7.38	10.0	4.7	1.74	< 0.030	4.4	11
30	63.69	225	9		8.63	19.6		0.51		10.6		1.94		4.7	12
Sum	1824.42														
Avg	60.81				8.20	19.5	200	0.57	7.45	13	5	1	0.031	3.9	9
Min	38.07				6.31	18.8	184	0.44	7.29	8.0	3.0	0.11	< 0.030	2.4	6.7
Max	70.58		1,030		9.14	20.1	212	0.94	7.54	24.4	7.1	6.44	0.056	8.8	14
Permit Limits			≤1,000					≤0.75		≤15	≤15	≤4	≤1.24		≤10

E. coli Geometric Mean = 33 MPN/100mL, Limit = 200 MPN/100mL

Plant Notes:

Sep 15 - The *E. coli* in the final effluent exceeded the Permit Limit of 1000 MPN / 100mL. This was immediately reported to the Water Security Agency. The investigation identified that pond weed had become dislodged in the secondary clarifier and became entangled in one of the UV channels, preventing complete disinfection. Operations had identified and corrected this after seeing an elevated result on September 14. Note that the test method requires a 24 hour incubation period, therefore the routine sample for the 15th was collected in advance of the operational correction made that same day. Moving forward, additional inspections and more preventative maintenance will be conducted to ensure aquatic plant growth is removed before it can cause a similar issue.

WSA Notes:

- Sep 2, 9, and 23 - Total coliforms and *E. coli* tested by an external accredited laboratory.
- Sep 4, 11, 18, and 25 - CBOD tested by an external accredited laboratory.
- Sep 1 to 12 - Ammonia-N tested by an external accredited laboratory.
- Sep 1 to 30 - TKN and total nitrogen tested by an external accredited laboratory.
- Sep 16 and 17 - Total coliforms and *E. coli* were analyzed past hold time.
- Sep 27 and 28 - CBOD results qualified.
- Sep 13 - Acute lethality was tested and passed.

Creek Monthly Report to Water Security Agency

Tuesday, September 20, 2022

Permit# 00050853-07-00

Test Description	Riske's Crossing	Final Effluent	Sidmar Crossing	Wascana above the Qu'Appelle	Qu'Appelle above the Wascana	Lumsden
Dissolved Oxygen (Field Test)	9.13	8.87	6.06	9.45	9.24	9.22
pH (Field Test for Creek Samples)	8.14	7.42	6.85	7.73	8.00	7.72
Temperature (Field Test)	11.9	19.0	14.4	12.9	11.6	12.4
Total Suspended Solids	22.6	12.2	4.3	25.2	36.0	38.0
Carbonaceous Biochemical Oxygen Demand	5.3	4.7	<2.0	<2.0	4.4	2.2
Total Phosphorus	0.30	0.53	0.35	0.20	0.14	0.17
Total Kjeldahl Nitrogen*	1.7	4.6	1.9	1.2	1.2	1.4
Ammonia Nitrogen	<0.30	2.17	0.39	0.78	<0.30	0.31
Nitrate Nitrogen*	<0.01	3.9	2.1	3.4	<0.01	1.3
Total Nitrogen*	1.7	8.5	4.0	4.6	1.2	2.7
Phenol Alkalinity	7	0	0	0	5	0
Total Alkalinity	185	140	143	151	163	164
Carbonate	9	0	0	0	5	0
Bicarbonate	208	171	175	184	192	200
Chloride (Field Test)	76.0	187	178	186	22.9	126
Total Coliform	1,410	112	12,000	7,980	2,360	6,890
<i>E. coli</i>	78	3	921	219	192	172
Enterococci	96	<1	248	326	115	194
Total Hardness*	283	309	309	330	193	281
Calcium*	59	68	68	73	38	60
Magnesium*	33	34	34	36	24	32
Potassium*	10	18	17	17	6.0	13
Sodium*	74	149	146	151	60	114
Sulfate*	170	260	260	270	130	210
Total Dissolved Solids*		860				
Conductivity at 25°C*		1400				
Phenolics*		0.010				
Mercury*		0.000002				
Aluminum*		0.075				
Antimony*		0.0010				
Arsenic*		0.0011				
Barium*		0.042				
Beryllium*		<0.0001				
Boron*		0.36				
Cadmium*		0.00001				
Chromium*		0.0007				
Cobalt*		0.0004				
Copper*		0.017				
Iron*		0.067				
Lead*		0.0014				
Manganese*		0.23				
Molybdenum*		0.0053				
Nickel*		0.0023				
Selenium*		0.0029				
Silver*		<0.00005				
Strontium*		0.46				
Thallium*		<0.0002				
Uranium*		0.0004				
Vanadium*		0.0006				
Zinc*		0.034				

Notes:

* Tests conducted by an external accredited laboratory.

Results are in mg/L except total coliforms, *E. coli*, enterococci (MPN/100mL), temperature (°C), conductivity (µS/cm) and pH (SU).

Sep 27 - PI BOD result qualified.

Primary Influent BOD Results (mg/L)

Sep 1 - 201; Sep 6 - 248; Sep 8 - 243; Sep 13 - 227; Sep 15 - 207; Sep 20 - 212; Sep 22 - 209; Sep 27 - 196; Sep 29 - 245