PERFORMANCE REPORT

2023

ST. THOMAS WATER POLLUTION CONTROL PLANT

2023 Annual Performance Report

Amended Environmental Compliance Approval

Number# 6122-BRHL4L (July28,2020-Present)
For the Period:
January 1st to December 31st, 2023

ST. THOMAS
THE RAILWAY CITY

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1 Monitoring Data Overview:

For the purposes of this report the St. Thomas Water Pollution Control Plant shall be referred to as 'the plant' and Ontario Ministry of the Environment, Conservation and Parks Amended Environmental Compliance Approval 6122-BRHL4L shall be referred to as the 'ECA'.

The average and peak daily sewage flow limits, 27,300 m^3/day/year and 54,600 m^3/day respectively, as set out in the ECA, were always maintained throughout 2023, with an annual average day flow of 18,540 m^3/day and a peak day flow of 39,807 m^3/day in April 2023.

Throughout 2023, the monthly average of all sample parameters are within ECA limits and no objective exceedances occurred. However, in the month of November a weekly regulatory Final Effluent Sample was not included in the monthly averages due to the sample being contaminated by a thawing of a frozen sample line, resulting in the Composite Sample being non-representative of the Final Effluent. The Composite Sample was collected on November 30, 2023, which concluded the month of November samples and prevented from a re-sample.

In 2023 there were a total of 3 odour complaints received from 3 different residents. Odour surveys were conducted at the Water Pollution Control Plant and surrounding areas throughout the year, most of which concluded zero to minimum odours coming from the WPCP. Strong winds, planned or emergency maintenance, and cleaning of the Plant may create stronger than normal odours. Most odours that were detected during these surveys came from different sources, such as Solids Treatment Process, Agricultural, and Local Landfills. The City has completed several studies and is in the process of adding additional odour control systems to the plant.

There were 8 momentary instances where disinfection was not continuous as detailed in the Table 6 - Summary of Effluent Quality Control and Environmental Operating Issues.

As indicated by the data presented in this report, the operations of the St. Thomas Water Pollution Control Plant continued to be both adequate and successful throughout 2023.

The following tables and charts provide a summary of the monitoring data collected at the plant throughout 2023:

1.1 Table 1 – Daily Sewage Flow Summary

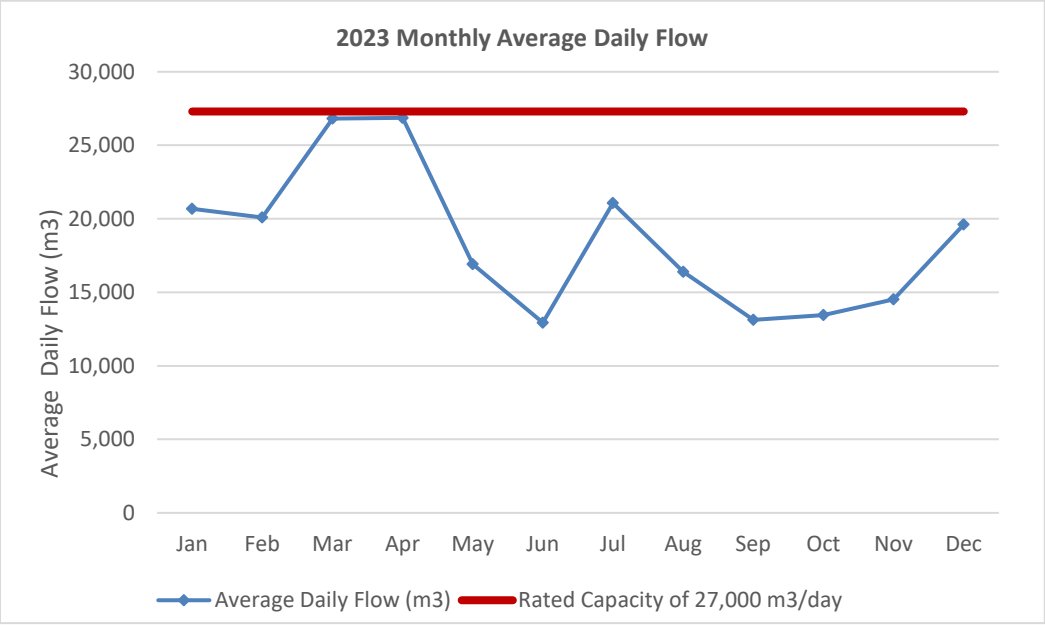
WPCP Daily Sewage Flow Summary - 2023

Date	January Flow (m3)	February Flow (m3)	March Flow (m3)	April Flow (m3)	May Flow (m3)	June Flow (m3)	July Flow (m3)	August Flow (m3)	September Flow (m3)	October Flow (m3)	November Flow (m3)	December Flow (m3)
1	28,678	18,606	23,432	39,807	25,150	13,151	12,944	18,738	13,139	12,042	14,165	22,503
2	21,733	17,754	23,412	39,009	24,371	13,039	24,048	17,646	12,871	12,063	13,713	22,686
3	22,322	16,679	22,685	37,561	24,326	13,013	27,465	16,843	12,748	11,240	12,967	19,753
4	28,579	16,706	37,160	39,039	21,772	13,136	27,496	15,972	13,503	11,673	13,615	17,877
5	27,817	17,123	37,498	38,918	20,338	12,881	18,661	15,077	13,583	13,288	14,004	16,628
6	21,466	16,133	36,679	38,993	19,491	12,392	19,852	15,268	13,163	17,793	12,779	15,962
7	19,310	17,055	29,974	37,888	19,383	12,615	24,692	16,931	21,611	13,251	12,496	15,398
8	18,483	18,695	26,761	36,303	18,468	12,568	22,652	15,115	14,111	12,490	15,155	14,870
9	17,373	31,918	24,569	28,760	17,767	12,104	27,358	14,582	13,438	12,930	18,994	15,576
10	16,540	37,765	24,271	26,789	17,119	11,978	20,186	15,760	13,722	12,490	14,555	16,045
11	15,860	28,392	23,821	25,180	16,678	12,538	19,154	14,613	13,403	12,544	14,036	15,174
12	16,960	24,188	22,424	23,656	16,404	17,931	19,055	18,186	14,311	11,974	13,829	14,585
13	17,240	21,746	20,769	21,039	15,966	14,350	36,710	16,090	13,258	11,822	13,062	14,361
14	16,070	20,057	20,587	21,039	15,815	14,321	24,010	15,045	12,850	12,094	13,007	14,119
15	17,240	19,317	19,837	20,653	15,769	13,184	23,830	24,946	12,444	12,462	12,753	13,839
16	15,253	18,740	20,136	22,402	15,585	14,284	21,478	21,594	12,452	11,964	12,604	13,779
17	18,029	20,543	33,790	21,658	15,135	12,755	18,996	18,678	12,673	11,867	12,807	23,870
18	16,295	18,483	34,809	19,968	14,637	12,695	17,530	17,851	12,449	11,702	12,408	25,279
19	23,952	17,627	25,341	19,096	14,430	12,724	16,506	15,612	12,297	12,174	12,640	21,121
20	34,872	17,811	22,589	18,209	20,119	12,597	18,352	15,102	12,296	16,822	12,204	19,057
21	23,650	16,817	21,136	17,837	14,847	12,228	16,943	14,814	12,315	14,663	20,816	17,727
22	21,306	17,001	20,357	30,826	15,160	12,069	15,456	14,253	12,042	13,552	18,389	16,952
23	19,569	17,557	30,851	23,545	14,804	12,163	15,180	20,446	11,924	12,710	15,557	22,652
24	18,559	19,166	27,826	20,478	14,324	12,292	14,902	17,328	12,220	12,381	14,619	20,469
25	18,642	18,247	32,640	19,476	13,952	12,808	14,620	16,364	11,990	12,468	14,217	17,789
26	20,679	19,013	35,564	18,237	13,844	13,940	17,424	15,052	13,010	17,742	18,386	18,523
27	19,219	18,701	28,676	18,023	13,797	12,669	21,809	14,545	12,224	15,764	17,378	33,467
28	19,339	20,853	25,261	22,580	14,244	12,159	16,566	14,474	12,818	14,373	15,406	35,057
29	24,968		24,315	30,061	13,929	11,942	28,851	14,119	12,499	16,258	14,732	26,731
30	22,647		22,809	28,157	13,628	11,604	29,866	13,933	12,171	17,696	14,104	22,891
31	19,980		31,228		13,391		20,809	13,232		14,517		23,078
Total	**641,271**	**562,693**	**831,207**	**806,091**	**524,643**	**388,130**	**653,401**	**508,209**	**393,535**	**416,809**	**435,397**	**607,818**
Average	20,686	20,096	26,813	26,870	16,924	12,938	21,077	16,394	13,118	13,445	14,513	19,607
Maximum	34,872	37,765	37,498	39,807	25,150	17,931	36,710	24,946	21,611	17,793	20,816	35,057
Minimum	15,253	16,133	19,837	17,837	13,391	11,604	12,944	13,232	11,924	11,240	12,204	13,779

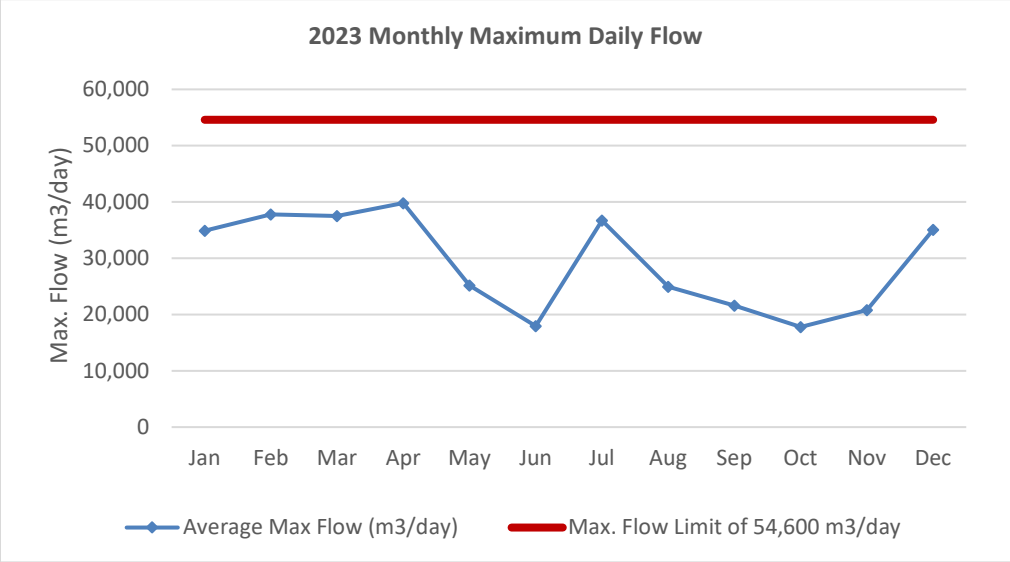
1.2 Table 2 – Monthly Average Sewage Flow Summary

Monthly Average Sewage Flow Summary				
2023	**Total Flow** (m3)	**Average Flow** (m3)	**Min. Flow** (m3)	**Max. Flow** (m3) 54,600 m3/day
January	641,271	20,686	15,253	34,872
February	562,693	20,096	16,133	37,765
March	831,207	26,813	19,837	37,498
April	806,091	26,870	17,837	39,807
May	524,643	16,924	13,391	25,150
June	388,130	12,938	11,604	17,931
July	653,401	21,077	12,944	36,710
August	508,209	16,394	13,232	24,946
September	393,535	13,118	11,924	21,611
October	416,809	13,445	11,240	17,793
November	435,397	14,513	12,204	20,816
December	607,818	19,607	13,779	35,057
Totals	**6,769,204**	**18,540**	**11,240**	**39,807**

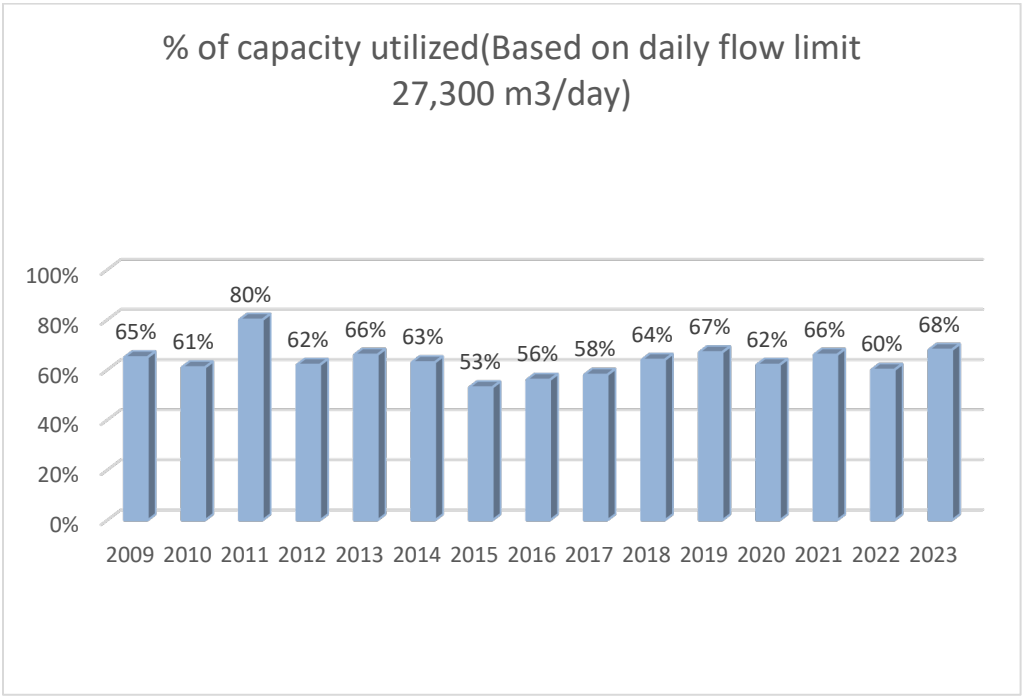
1.3 Chart 1 – Monthly Average Day Sewage Flow



1.4 Chart 2 – Monthly Maximum Day Sewage Flow



1.5 Chart 3 – Annual Average Day as a percent of WPCP Average Day Flow Capacity



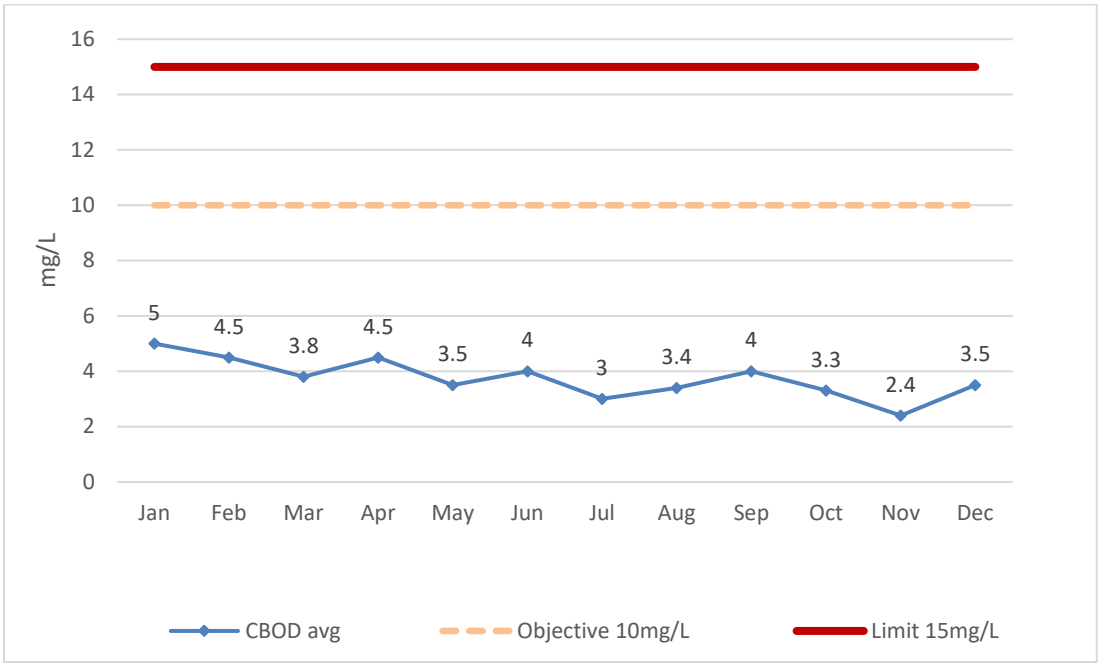
1.6 Table 4 - Weekly Laboratory Analytical Data and Un-ionized Ammonia

Raw Influent						Final Effluent												
Date	BOD5 (mg/L)	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen as N (mg/L)	Ammonia+ Ammonium as N (mg/L)	CBOD (mg/L)	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen as N (mg/L)	Ammonia+ Ammonium as N (mg/L)	NO2 (mg/L)	NO3 (mg/L)	NO2 + NO3 (mg/L)	E.Coli (cfu/ 100mL)	pH @ Temp 15°C (Cert)	pH (In-House)	Temp (°C)	UV% Power	Unionized Ammonia (ug/L)
05-Jan-23	71	76	1.84	17.7	11.9	6	10	0.37	3.7	2.2	0.99	10.5	11.5	70	7.90	7.33	13.7	88	11.5716
12-Jan-23	118	114	2.84	33.2	23.9	3	8	0.37	3.4	2.1	1.75	17.2	19	20	7.81	7.13	13.8	64	7.0362
19-Jan-23	206	222	2.77	25.6	21.4	5	6	0.38	1.6	0.4	1.76	18.4	20.2	3	7.98	7.08	13.1	84	1.1328
26-Jan-23	74	53	2.18	22.5	19	6	8	0.38	1	0.7	1.62	17.3	18.9	20	7.58	7.58	10.9	73	5.2635
Average	**117.3**	**116.25**	**2.4075**	**24.75**	**19.05**	**5**	**8**	**0.375**	**2.43**	**1.35**	**1.53**	**15.85**	**17.4**	**17**					**6.2510**
02-Feb-23	92	57	2.09	23.9	18.9	4	4	0.33	3.8	0.4	1.04	17.6	18.6	16	8.19	7.10	11.7	72	1.0650
09-Feb-23	126	114	2.4	22.2	18.3	8	9	0.49	1.8	0.6	0.68	18.6	19.2	40	8.14	7.17	12.3	100	1.9648
16-Feb-23	128	118	2.53	23.4	18.6	4	4	0.28	1	0.05	0.21	18.6	18.9	18	8.03	7.24	12.5	68	0.1952
23-Feb-23	200	188	3.24	28	21.9	2	10	0.4	1.9	0.5	0.27	21	21.3	6	7.31	7.04	11.1	64	1.1072
Average	**136.5**	**119.25**	**2.565**	**24.375**	**19.425**	**4.5**	**6.8**	**0.38**	**2.1**	**0.39**	**0.55**	**18.95**	**19.5**	**16**					**1.0831**
02-Mar-23	114	143	2.02	18.1	14.8	4	8	0.35	0.8	0.9	0.32	15.4	15.7	10	8.19	7.26	12.4	90	3.6510
09-Mar-23	155	226	3.06	17.5	13.8	2	6	0.26	0.6	0.3	0.22	13.7	13.9	14	8.43	7.12	11.2	80	0.8045
16-Mar-23	155	173	2.42	22.5	18.6	3	8	0.32	0.25	0.2	0.18	17.5	17.7	20	8.09	7.50	11.6	60	1.3220
23-Mar-23	140	159	2.41	22.4	17.2	6	9	0.4	2.6	0.4	0.2	16.8	17	26	8.05	7.19	11.7	84	1.3094
30-Mar-23	135	144	1.94	19.6	15.5	4	9	0.29	1.6	0.5	0.18	15	15.2	16	7.57	7.34	10.7	80	2.1370
Average	**139.8**	**169**	**2.37**	**20.02**	**15.98**	**3.8**	**8**	**0.32**	**1.2**	**0.46**	**0.22**	**15.68**	**15.9**	**16**					**1.8448**
05-Apr-23	37	29	0.74	9.7	5.1	5	10	0.18	0.6	0.1	0.04	8.55	8.59	40	8.11	7.34	10.7	68	0.4274
13-Apr-23	106	121	2.31	19.4	15.2	7	10	0.28	3.9	0.3	0.14	15.6	15.8	8	7.69	7.16	13	76	1.0131
20-Apr-23	140	223	3.62	28.4	19.4	2	4	0.28	0.5	0.1	0.2	20	20.2	60	8.18	7.22	12.9	74	0.3846
27-Apr-23	146	224	3.05	27.9	21.1	4	5	0.42	1.7	0.1	0.13	19.5	19.7	14	8.19	7.27	14.5	76	0.4871
Average	**107.3**	**149.25**	**2.43**	**21.35**	**15.2**	**4.5**	**7.3**	**0.29**	**1.7**	**0.15**	**0.13**	**15.91**	**16.07**	**23**					**0.5780**
04-May-23	277	216	2.67	20.6	16.5	6	11	0.46	0.5	0.2	0.11	15.8	15.9	42	7.84	7.14	13.1	84	0.6500
11-May-23	89	63	2.5	28.8	23.5	3	6	0.44	1.8	0.1	0.18	19.6	19.8	14	8.07	7.20	15.3	60	0.4407
18-May-23	305	350	4.64	32.1	26.1	3	3	0.43	1.9	0.1	0.13	22.7	22.8	10	7.73	7.40	14.8	74	0.6710
25-May-23	220	269	4.21	35.2	31	2	4	0.59	0.5	0.1	0.19	24.1	24.3	4	7.70	6.86	15.4	64	0.2034
Average	**222.8**	**224.5**	**3.505**	**29.175**	**24.275**	**3.5**	**6.0**	**0.48**	**1.2**	**0.13**	**0.15**	**20.55**	**20.7**	**12**					**0.4913**
01-Jun-23	250	219	3.62	34.8	30.9	4	6	0.7	2.2	0.1	0.26	25.5	25.7	26	7.71	6.99	17.2	64	0.3138
08-Jun-23	329	388	5.03	42.4	34.6	4	7	0.66	1.2	0.1	0.62	26.2	27	30	7.69	6.97	17.2	72	0.2997
15-Jun-23	139	211	3.3	35.3	26.6	4	4	0.52	2	0.1	0.28	21.7	22	38	7.37	6.50	17.9	60	0.1072
22-Jun-23	254	222	3.99	38.5	32.2	5	8	0.62	1	0.6	0.67	24.3	25	16	7.27	7.09	19.1	64	2.7244
29-Jun-23	149	211	3.71	36	32.2	3	7	0.5	2.9	0.1	0.33	26	26.3	168	7.17	6.90	18.6	60	0.2830
Average	**224.2**	**250.2**	**3.93**	**37.4**	**31.3**	**4.0**	**6.4**	**0.60**	**1.86**	**0.20**	**0.43**	**24.74**	**25.16**	**38**					**0.7456**
06-Jul-23	110	50	2.16	26.6	20.2	3	5	0.27	2.9	0.3	0.27	15.3	15.6	26	7.57	7.39	20.5	60	2.9950
13-Jul-23	130	173	2.66	22.3	17.6	4	10	0.5	3.1	1.6	0.3	15.9	16.2	960	7.65	7.23	18.7	72	9.7223
20-Jul-23	64	84	27	24.6	22.7	2	5	0.47	0.25	0.1	0.11	19.6	19.7	2	7.71	7.22	19.9	160	0.6483
27-Jul-23	94	71	2.17	23.2	18.4	3	5	0.45	1.3	0.5	0.38	19.3	19.7	2	7.49	6.80	20	174	1.2464
Average	**99.5**	**94.5**	**8.50**	**24.18**	**19.73**	**3.0**	**6.3**	**0.42**	**1.89**	**0.63**	**0.27**	**17.53**	**17.80**	**18**					**3.6530**
03-Aug-23	172	140	2.62	25.8	20.4	3	3	0.42	1.6	0.05	0.1	17.1	17.2	10	7.82	7.15	19.8	164	0.2742
10-Aug-23	141	184	3.59	31.6	25.8	3	5	0.45	1.5	0.05	0.14	18.4	18.5	2	7.60	7.26	20.6	160	0.3737
17-Aug-23	149	142	2.56	23.1	18.5	5	4	0.37	0.25	0.05	0.09	13.4	13.5	1	7.66	7.49	20.5	160	0.6268
24-Aug-23	79	156	2.26	21.3	17	3	4	0.46	0.25	0.3	0.23	15.9	16.1	1	7.51	7.24	20.6	200	2.1419
31-Aug-23	134	78	2.79	31.1	24.6	3	7	0.44	0.25	0.1	0.16	20.8	21	2	7.58	7.00	20.2	160	0.4003
Average	**135**	**140**	**2.764**	**26.58**	**21.26**	**3.4**	**4.6**	**0.43**	**0.77**	**0.11**	**0.14**	**17.12**	**17.26**	**2**					**0.7634**
07-Sep-23	215	169	3.38	31.3	26.6	5	5	0.45	1.1	0.3	0.21	19.7	19.9	1	7.67	6.78	21.3	160	0.7850
14-Sep-23	196	158	3.37	33.6	29.2	4	6	0.44	0.25	0.1	0.14	22.1	22.3	1	7.44	7.20	20.2	160	0.6329
21-Sep-23	149	95	3.3	31.2	31.7	4	7	0.52	0.25	0.1	0.24	25.2	25.4	1	7.48	7.19	20.5	168	0.6322
27-Sep-23	148	114	3.18	37	30.3	3	3	0.63	0.25	0.1	0.22	24.9	25.1	1	7.21	7.50	20.4	160	1.2732
Average	**177**	**134**	**3.3075**	**33.275**	**29.45**	**4.0**	**5.3**	**0.51**	**0.46**	**0.15**	**0.20**	**22.98**	**23.18**	**1**					**0.8308**
05-Oct-23	379	336	3.51	39.4	34.3	1	3	0.64	2.2	0.2	0.25	28	28.3	2	7.14	6.88	21.3	160	0.6584
12-Oct-23	304	332	4.68	33.3	30.2	3	4	0.37	1.4	0.2	0.17	27.3	27.5	1	7.34	7.60	19.4	160	2.9730
19-Oct-23	292	296	4.31	39.9	32.7	4	6	0.65	1.1	0.2	0.11	29.5	29.6	17	7.07	6.88	19.4	60	0.5734
26-Oct-23	355	428	4.12	31.8	25.9	5	9	0.61	1.1	0.6	0.3	25.7	26	162	7.46	6.95	19.7	72	2.0648
Average	**332.5**	**348**	**4.155**	**36.1**	**30.775**	**3.3**	**5.5**	**0.57**	**1.45**	**0.30**	**0.21**	**27.63**	**27.85**	**9**					**1.5674**
02-Nov-23	346	435	3.72	31.4	25.2	3	3	0.5	0.25	0.1	0.19	23.6	23.8	2	7.53	7.36	17	160	0.7217
09-Nov-23	311	900	3.17	29.1	22.5	4	9	0.65	5.2	1.6	0.62	22.2	22.8	106	7.30	6.94	17.2	176	4.4759
16-Nov-23	729	900	4.69	35.1	29.2	3	6	0.76	1.7	0.3	0.57	26.3	26.9	144	7.44	6.89	17.1	167	0.7426
23-Nov-23	132	133	1.92	25.8	20.8	2	2	0.43	1.1	0.3	0.49	18.3	18.8	1	7.70	7.36	15.9	160	1.9949
30-Nov-23	355	568	4.68	31.4	29									1		7.87	15	160	0.0000
Average	**374.6**	**587.2**	**3.636**	**30.56**	**25.34**	**3.0**	**5.0**	**0.59**	**2.06**	**0.58**	**0.47**	**22.60**	**23.08**	**8**					**1.5870**
07-Dec-23	228	282	3.48	27.6	19.6	3	7	0.52	0.25	0.2	0.83	22.6	23.4	4	7.51	7.24	15	163	0.9444
14-Dec-23	475	507	6.88	37	28.9	4	9	0.51	2	2.1	1.86	20.6	22.5	6	7.37	6.80	15	160	3.6113
21-Dec-23	214	233	3	28.4	20.2	5	7	0.34	4	1.8	2.63	13.5	16.1	1	7.81	7.40	14.3	170	11.6301
28-Dec-23	24	35	1.04	15.5	7.3	2	10	0.39	4.2	2	1.01	7.98	8.99	152	7.10	7.48	13.6	160	14.7152
Average	**235.3**	**264.25**	**3.6**	**27.125**	**19**	**3.5**	**8.3**	**0.44**	**2.61**	**1.53**	**1.58**	**16.17**	**17.75**	**8**					**7.7252**

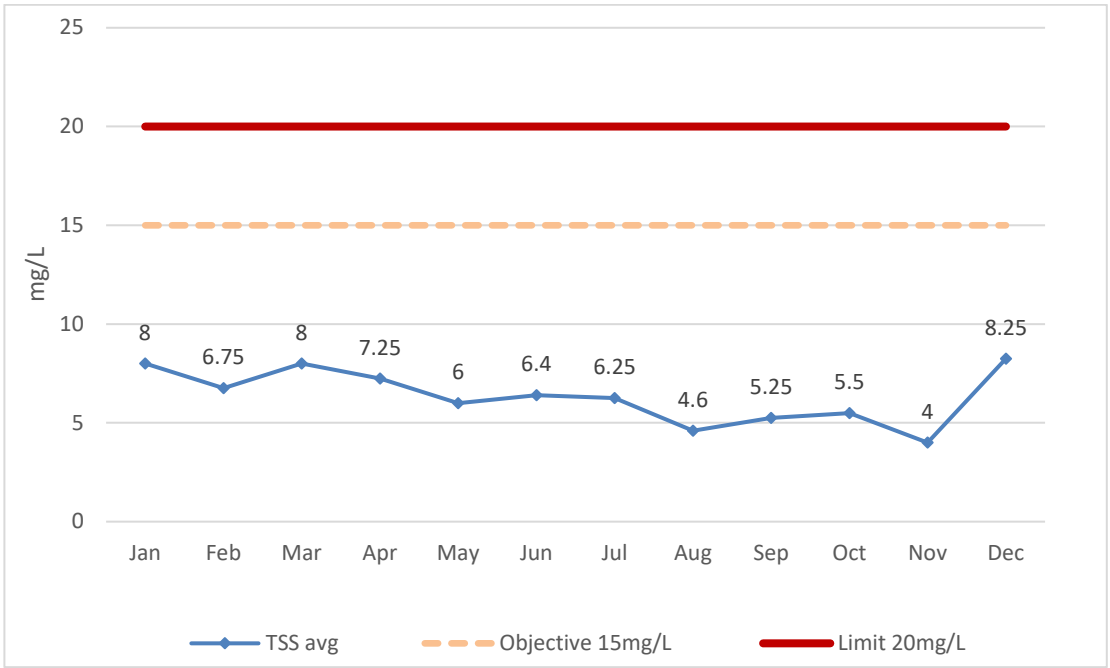
1.7 Table 5 – Monthly Average Influent/Effluent Concentrations and Loadings

Month	# of Days	Total Flow (m3)	Average Daily Flow (m3)		CBOD (BOD on Influent) (15 mg/L, 410 kg/d)		TSS (20 mg/L, 546 kg/d)		Total Amm (5 mg/L)	TKN		TP (1 mg/L)		E.coli (200 CFU/ 100 mL)	pH min/ max (6.0-9.5 on Effluent)	
2023					*Influent*	*Effluent*	*Influent*	*Effluent*	*Effluent*	*Influent*	*Effluent*	*Influent*	*Effluent*	*Effluent*	*(min)*	*(max)*
January	31	641,271	20,686	(mg/L)	117	5.0	116	8	1.35	24.75	2.43	2.4	0.375	17	7.08	7.58
				(kg/day)	2425	103	2405	165	27.9			50	7.8			
February	28	562,693	20,096	(mg/L)	137	4.5	119	6.75	0.39	24.38	2.13	2.6	0.38	16	7.04	7.24
				(kg/day)	2743	90	2396	136	7.8			52	7.5			
March	31	831,207	26,813	(mg/L)	140	3.8	169	8	0.46	20.02	1.17	2.4	0.32	16	7.12	7.5
				(kg/day)	3748	102	4531	215	12.3			64	8.7			
April	30	806,091	26,870	(mg/L)	107	4.5	149	7.25	0.15	21.35	1.68	2.4	0.29	23	7.16	7.34
				(kg/day)	2882	121	4010	195	4.0			65	7.8			
May	31	524,643	16,924	(mg/L)	223	3.5	225	6	0.13	29.18	1.18	3.5	0.48	12	6.86	7.4
				(kg/day)	3770	59	3799	102	2.1			59	8.1			
June	30	388,130	12,938	(mg/L)	224	4.0	250	6.4	0.20	37.40	1.86	3.9	0.60	38	6.5	7.09
				(kg/day)	2901	52	3237	83	2.6			51	7.8			
July	31	653,401	21,077	(mg/L)	100	3.0	95	6.25	0.63	24.18	1.89	8.5	0.42	18	6.8	7.39
				(kg/day)	2097	63	1992	132	13.2			179	8.9			
August	31	508,209	16,394	(mg/L)	135	3.4	140	4.6	0.11	26.58	0.77	2.8	0.43	2	7.15	7.49
				(kg/day)	2213	56	2295	75	1.8			45	7.0			
September	30	393,535	13,118	(mg/L)	177	4.0	134	5.25	0.15	33.28	0.46	3.3	0.51	1	6.78	7.5
				(kg/day)	2322	52	1758	69	2.0			43	6.7			
October	31	416,809	13,445	(mg/L)	333	3.3	348	5.5	0.30	36.10	1.45	4.2	0.57	9	6.88	7.6
				(kg/day)	4471	44	4679	74	4.0			56	7.6			
November	30	435,397	14,513	(mg/L)	375	2.4	587	4	0.46	30.56	1.65	3.6	0.47	8	6.89	7.87
				(kg/day)	5437	35	8522	58	6.7			53	6.8			
December	31	607,818	19,607	(mg/L)	235	3.5	264	8.25	1.53	27.125	2.61	3.6	0.44	8	6.8	7.48
				(kg/day)	4613	69	5181	162	29.9			71	8.6			

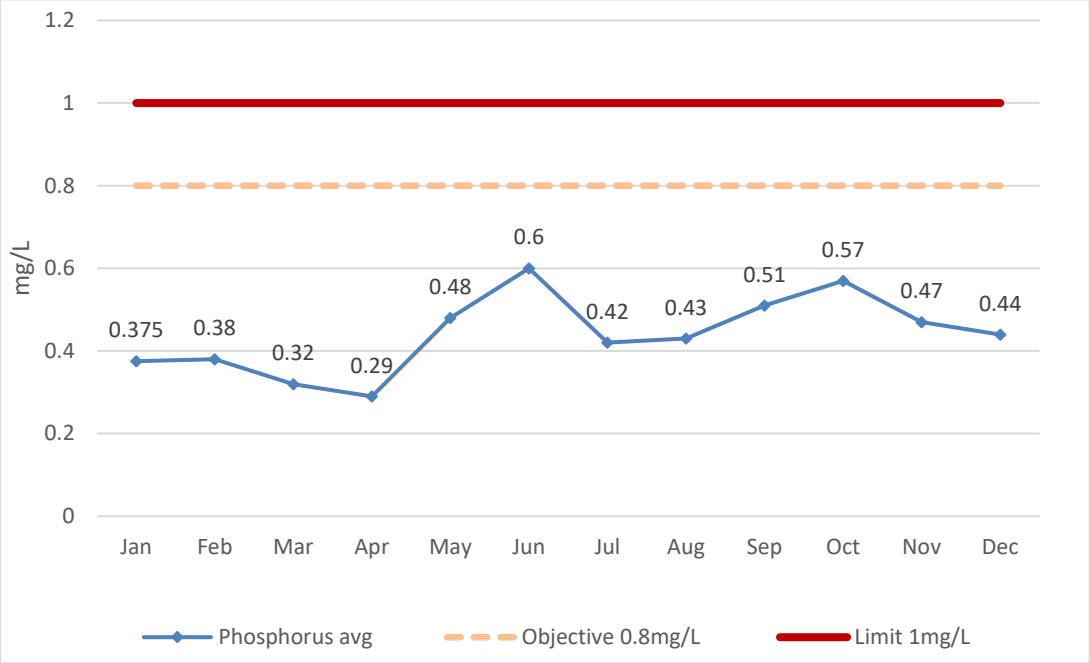
1.8 Chart 4 – Monthly Average Effluent CBOD (mg/L)



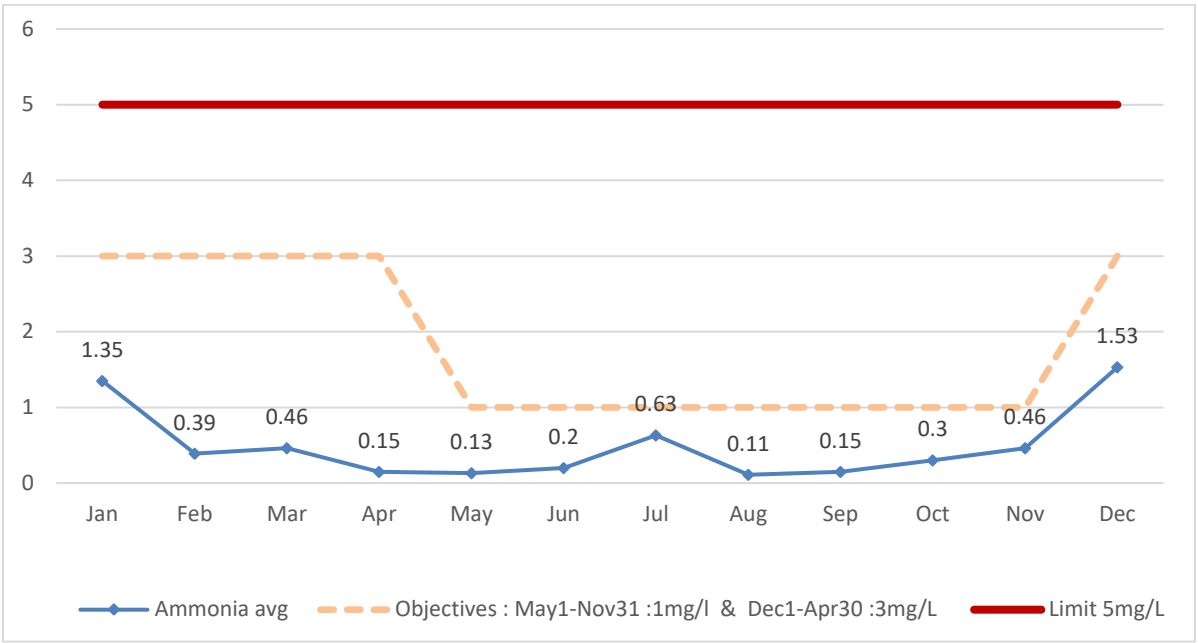
1.9 Chart 5 – Monthly Average Effluent Total Suspended Solids (mg/L)



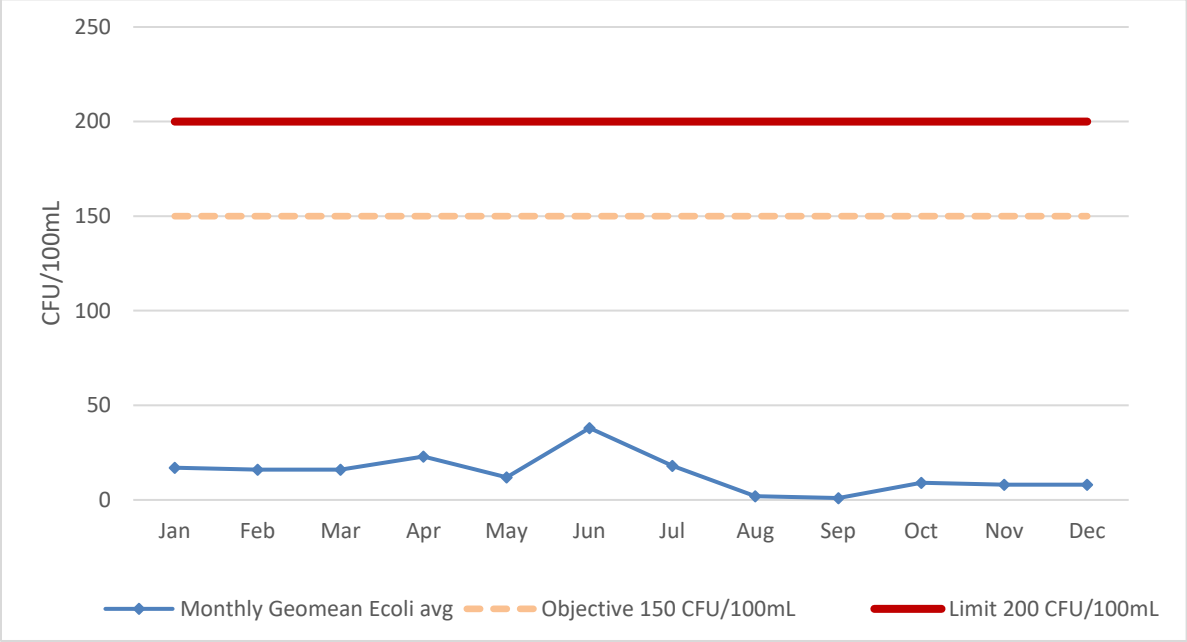
1.10 Chart 6 –Monthly Average Effluent Total Phosphorus (mg/L)



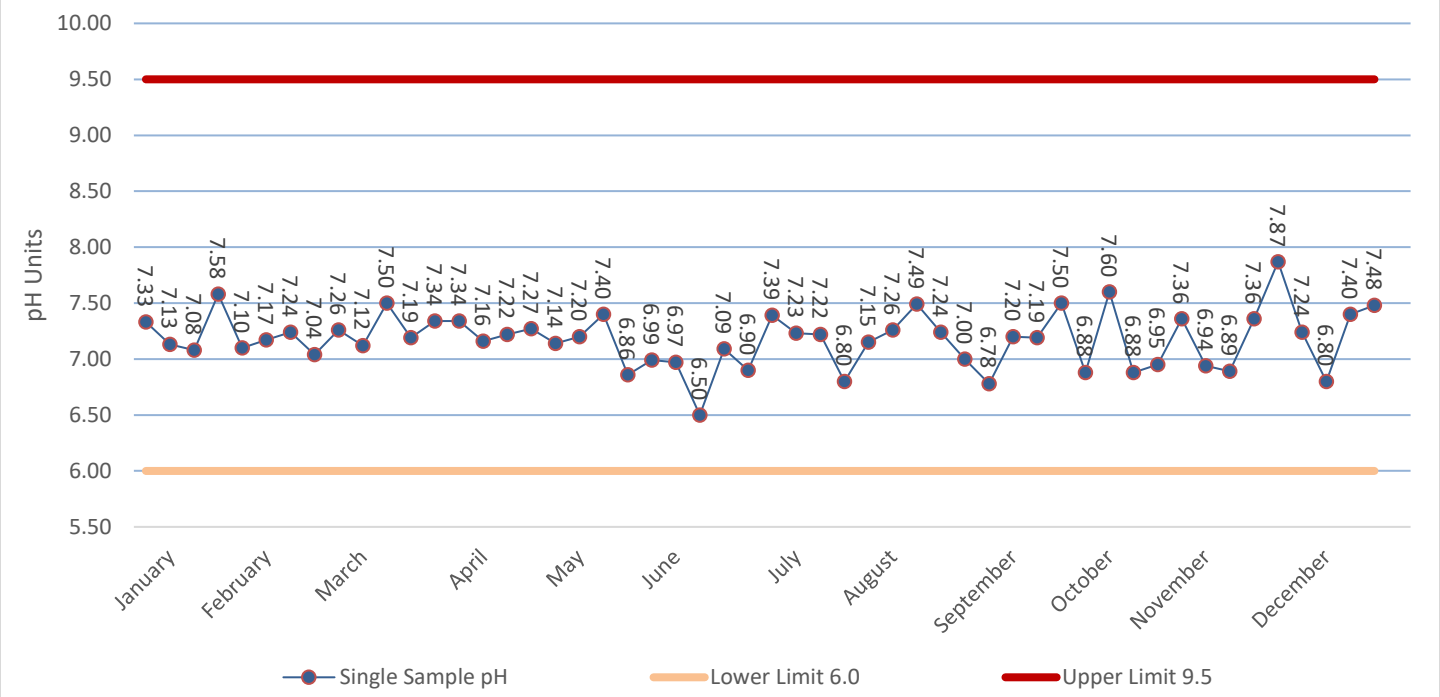
1.11 Chart 7 –Monthly Average Effluent Ammonia + Ammonium (mg/L)



1.12 Chart 8 – Monthly Geomean Effluent E. Coli. (CFU/100 mL)



1.13 Chart 9 – Weekly Effluent pH



2 Data Interpretation:

The following represents a comprehensive interpretation of all monitoring and certified analytical data obtained during the 2023 reporting period, comparing plant effluent quality and quantity to the criteria stipulated in the ECA.

Peak Flow:

The peak day flow measured through the plant was 39,807 m^3/day in April 2023. This represents 73% of the ECA peak day rating of 54,600 m^3/day.

Average Daily Flow:

The average daily flow for the year measured through the plant in 2023 was 18,540 m^3/day. This represents 68% of the ECA average day rating of 27,300 m^3/day for any period greater than one (1) calendar year. A three-year average daily flow for 2021-18,078 m3/day, 2022-16,299 m3/day and 2023-18,540 m3/day is 17,639 m^3/day or 65% of plant capacity.

Overflow, Bypass and Spills:

16 miscellaneous spills occurred in 2023 as detailed in Table 6 - Summary of Effluent Quality Control and Environmental Operating Issues. There were no other diversions of sewage from any portion of the Water Pollution Control Plant. Diversions of sewage of this nature are prohibited.

Wet weather overflow events from the In-line Storage Facility (ISF) (ECA#3-1839-98-996) and Sewage Pumping Stations are detailed in Table 7 - Summary of Overflows, Bypasses and Environmental Releases.

Carbonaceous Biochemical Oxygen Demand (5 day):

The highest monthly average $CBOD_5$ in effluent was 5.0 mg/L in January of 2023 with an annual average of 3.74 mg/L. Effluent $CBOD_5$ loadings were highest in April of 2023 at 121 kg/d and averaged 70.52 kg/d over the reporting period. As per the ECA, the monthly average limit of 15 mg/L with monthly average loading limits of 410 kg/d were not exceeded at any time in 2023.

Total Suspended Solids:

The highest monthly average Total Suspended Solids in effluent was 8.25 mg/L in December of 2023 with an annual average of 6.35 mg/L. Effluent TSS Loadings were highest in March of 2023 at 215 kg/d and averaged 122 kg/d over the reporting period. As per the ECA, the monthly average limit of 20 mg/L with monthly average loading limits of 546 kg/d were not exceeded at any time in 2023.

Total Phosphorus:

The highest monthly average Total Phosphorus in effluent was 0.60 mg/L in June of 2023 with an annual average of 0.44 mg/L. Effluent Total Phosphorus Loadings were highest in July of 2023 at 8.9 kg/d and averaged 7.78 kg/d over the reporting period. As per the ECA, the monthly average limit of 1 mg/L with monthly average loading limits of 27 kg/d were not exceeded at any time in 2023.

(Ammonia + Ammonium) Nitrogen:

The highest monthly average (Ammonia + Ammonium) Nitrogen in effluent was 1.53 mg/L in December of 2023 with an annual average of 0.49 mg/L. Effluent (Ammonia + Ammonium) Nitrogen Loadings were highest in

December of 2023 at 29.9 kg/d and averaged 9.528 kg/d over the reporting period. As per the ECA, the monthly average limit of 5 mg/L with monthly average loading limits of 137 kg/d were not exceeded at any time in 2023.

Effluent pH:

The effluent pH ranged from 6.5 to 7.87 throughout 2023. As per the ECA, the range limit of 6.0 to 9.5 was maintained throughout the reporting period.

Disinfection:

The highest monthly geomean E. coli was 38 CFU/100 ml in June of 2023. As per the ECA, the monthly geomean limit of 200 CFU/100 ml was not exceeded at any time during the reporting period.

Complaints:

In 2023 there were a total of 3 odour complaints received from 3 different residents. Odour surveys were conducted at the Water Pollution Control Plant and surrounding areas throughout the year, most of which concluded no to minimum odours coming from the WPCP. Strong winds, planned or emergency maintenance, and cleaning of the Plant may create stronger than normal odours. Most odours that were detected during these surveys came from different sources, such as Solids Treatment Process, Agricultural, and Local Landfills. The City has completed several studies and is in the process of adding additional odour control systems to the plant.

3 Operational Summaries:

The following tables provide a summary of effluent quality assurance/control measures, major maintenance conducted at the plant, measures taken to mitigate environmental and operational problems, future plant alterations and upgrades, and monitoring equipment calibration/maintenance procedures.

3.1 Table 6 – Summary of Effluent Quality Control and Environmental Operating Issues

2023 Spill and Bypass at Water Pollution Control Plant and Pumping Stations

Date	Location	Type of Event	Reference #	Description/ Details	Response/ Corrective Action	Start of Event		End of Event		Duration	Volume (m3)	Reason:	TP (mg/L)	TSS (mg/L)	pH	TKN (mg/L)	BOD (mg/L)	CBOD (mg/L)	E. Coli (cfu/ 100 mL)	Rain (mm)	Loadings				
						Date	Time	Date	Time												TP (kg)	TSS (kg)	TKN (kg)	BOD (kg)	CBOD (kg)
04-Mar-23	Collection System	Spill	1-329Wy4	Surcharge from CSO	Follow SOP	04-Mar-23	14:00	06-Mar-23	8:31	42H/01 M	3025.3	Mechanical	2.31	78.00	7.56		96.90			-	7.0	236.0	0.0	293.2	0.0
05-Mar-23	WPCP	Spill	1-32943T	PF Causing Spill	Follow SOP	05-Mar-23	9:47	05-Mar-23	9:48	0H/1M	28.62	Power									0.0	0.0	0.0	0.0	0.0
17-Mar-23	Collection System	Spill	1-32YBMG	Surcharge from CSO	Follow SOP	17-Mar-23	10:24	18-Mar-23	9:22	22H/58 M	413.4	Mechanical	3.08	213		22.4		163	1,430,000		1.3	88.1	9.3	0.0	67.4
25-Mar-23	Collection System	Spill	1-33PL8T	Surcharge from CSO	Follow SOP	25-Mar-23	12:45	25-Mar-23	23:00	10H/15 M	738	Mechanical	1.61	113		17.4	73.3		NR	NA	1.2	83.4	12.8	54.1	0.0
31-Mar-23	Collection System	Spill	1-344TUX	Surcharge from CSO	Follow SOP	31-Mar-23	12:10	2-Apr-23	23:34	59H/35 M	4290	Mechanical	2.5	300		22.2	59.9		1,600,000	13	10.7	1287.0	95.2	257.0	0.0
01-Apr-23	WPCP	Spill	1-344WBV	PF Causing Spill	follow sop	1-Apr-23	12:39	1-Apr-23	12:42	3 m	1425	power									0.0	0.0	0.0	0.0	0.0
04-Apr-23	Collection System	Spill	1-34DOIU	wet weather overflow	Follow SOP	4-Apr-23	0:10	4-Apr-23	8:29	8hr/19m	299	weather	0.46	8.6		3.06	6.6		NR	27	0.1	2.6	0.9	2.0	0.0
04-Apr-23	Collection System	Spill	1-34LGNM	wet weather overflow	Follow SOP	4-Apr-23	0:10	8-Apr-23	5:49	100h/39 m	3623.4	weather	0.38	18.9		3.15	4.4		lab err	27	1.4	68.5	11.4	15.9	0.0
10-May-23	St. George P.S	spill	1-3GD3OO	mechanical	follow SOP	10-May-23	11:00	10-May-23	14:45	3H 45M	52.9	mechanical	7.26	91.7		77.5	122		NR	0	0.4	4.9	4.1	6.5	0.0
11-May-23	WPCP	Spill	1-3GFXNF	PF causing spill	follow SOP	11-May-23	10:35	11-May-23	10:36	1M	13.2	power									0.0	0.0	0.0	0.0	0.0
06-Aug-23	WPCP	Spill	1-3PMEDO	PF Causing Spill	Follow SOP	06-Aug-23	13:21	06-Aug-23	13:24	0H 3M	36	Power							<2		0.0	0.0	0.0	0.0	0.0
10-Aug-23	WPCP	Spill	1-3Q4BU7	Power Loss	Follow SOP	10-Aug-23	22:19	10-Aug-23	22:37	0H 18M	253.8	Power									0.0	0.0	0.0	0.0	0.0
02-Sep-23	WPCP	Spill	1-3SVCMY	PF Causing Spill	Follow SOP	02-Sep-23	7:48	02-Sep-23	7:46	0H 3M	24	Power									0.0	0.0	0.0	0.0	0.0
01-Dec-23	WPCP	Spill	1-4GUKLD	PF Causing Spill	Follow SOP	01-Dec-23	21:07	01-Dec-23	21:10	0H 3M	59	Power									0.0	0.0	0.0	0.0	0.0
01-Dec-23	WPCP	Spill	1-4GUKLD	PF Causing Spill	Follow SOP	1-Dec-23	22:35	1-Dec-23	22:38	0H 3M	60	Power									0.0	0.0	0.0	0.0	0.0
27-Dec-23	Collection System	Spill	1-4K3F93	Surcharge from CSO	Follow SOP	27-Dec-23	9:30	28-Dec-23	1:30	16H	576	Mechanical	1.42	57		17.4		35	1,840,000	17	0.8	32.8	10.0	0.0	20.2

3.2 Table 7 – Summary of Overflows, Bypasses and Environmental Releases

2023 Overflows at Water Pollution Control Plant and Pumping Stations

Date	Location	Type of Event	Reference #	Description/ Details	Response/ Corrective Action	Start of Event		End of Event		Duration	Volume (m3)	Reason:	TP (mg/L)	TSS (mg/L)	pH	TKN (mg/L)	BOD (mg/L)	CBOD (mg/L)	E. Coli (cfu/ 100 mL)	Toxicity (%)	Rain (mm)	Loadings				
						Date	Time	Date	Time													TP (kg)	TSS (kg)	TKN (kg)	BOD (kg)	CBOD (kg)
09-Feb-23	CSO Facility	Overflow	230209-000013	Wet-Weather Overflow	Follow SOP	09-Feb-23	9:58	09-Feb-23	21:35	11H / 37M	12858	Weather	2.12	50.6			39.8		NR	0%	25	27.3	650.6	0.0	511.7	0.0
09-Feb-23	Woodworth P.S	Overflow	230209-000014	Wet-Weather Overflow	Follow SOP	09-Feb-23	10:11	09-Feb-23	11:06	0H / 51M	1.9	Weather	1.61	135.00	7.76	13.00	59.80				25	0.0	0.3	0.0	0.1	0.0
04-Mar-23	CSO Facility	Overflow	230304-000011	Wet-Weather Overflow	Follow SOP	04-Mar-23	14:22	04-Mar-23	22:47	8H/25M	5040	Weather	1.65	55.6			56.1		1,600,000	0%	1	8.3	280.2	0.0	282.7	0.0
05-Mar-23	CSO Facility	Overflow	230305-000005	Wet-Weather Overflow	Follow SOP	05-Mar-23	19:02	05-Mar-23	21:42	1H/39M	278	Weather	1.85	42.3			56.5		880,000	0%	1	0.5	11.8	0.0	15.7	0.0
17-Mar-23	CSO Facility	Overflow	230317-000010	Wet-Weather Overflow	Follow SOP	17-Mar-23	10:18	17-Mar-23	21:27	11H/09 M	5240	Weather	2.09	68.8				40.5	1		15	11.0	360.5	0.0	0.0	212.2
25-Mar-23	CSO Facility	Overflow	230326-000000	Wet-Weather Overflow	Follow SOP	25-Mar-23	12:00	25-Mar-23	20:24	08H/24 M	3884	Weather	1.52	45.6		16	45.3					5.9	177.1	62.1	175.9	0.0
31-Mar-23	Woodworth P.S	Overflow	230331-000001	wet weather overflow	follow sop	31-Mar-23	12:01	01-Apr-23	8:36	2 hr/59 m	2030.3	Weather	1.59	242		12.5	77.3		2,700,000		25	3.2	491.3	25.4	156.9	0.0
31-Mar-23	CSO Facility	Overflow	230331-000002	wet weather overflow	follow sop	31-Mar-23	12:18	2-Apr-23	23:15	58hr/57 m	82602	Weather	1.23	46.4		13.1	48.8				25	101.6	3,832.7	1,082.1	4,031.0	0.0
01-Apr-23	St. George P.S	Overflow	230401-000001	wet weather overflow	follow sop	1-Apr-23	1:24	1-Apr-23	3:38	2hr/14m	16	weather	1.05	155		5.85	46.9		310,000		25	0.0	2.5	0.1	0.8	0.0
04-Apr-23	Woodworth P.S	Overflow	230404-000001	wet weather overflow	Follow SOP	4-Apr-23	2:42	4-Apr-23	8:12	5h/30m	55.3	weather	0.452	25.6		2.86	12.1		87,000		27	0.0	1.4	0.2	0.7	0.0
04-Apr-23	CSO Facility	Overflow	230404-000000	wet weather overflow	follow SOP	4-Apr-23	0:27	8-Apr-23	9:33	78h/19 m	87775	Weather	0.978	13.6		11.7	29.5				48	85.8	1,193.7	1,027.0	2,589.4	0.0
05-Apr-23	Woodworth P.S	Overflow	230405-000016	wet weather overflow	Follow SOP	5-Apr-23	16:59	5-Apr-23	21:29	4H 26M	1358.7	weather	0.72	112.00		5.85	31.70		460000		20	1.0	152.2	7.9	43.1	0.0
02-Jul-23	CSO Facility	Overflow	230702-000001	wet weather overflow	follow sop	02-Jul-23	11:51	02-Jul-23	13:49	1H 58M	2051	weather	1.74	172		16.2	56.2				104	3.6	352.8	33.2	115.3	0.0
03-Jul-23	CSO Facility	Overflow	230703-000004	wet weather overflow	follow sop	03-Jul-23	7:51	03-Jul-23	23:47	15H 22M	27718	weather	1.19	68.9		13.2	55.3				104	33.0	1,909.8	365.9	1,532.8	0.0
03-Jul-23	Woodworth P.S	Overflow	230703-000006	wet weather overflow	follow sop	03-Jul-23	7:36	03-Jul-23	10:27	2H 29M	717.8	Weather	1.41	111.00		10.7	52.60		>200000		104	1.0	79.7	7.7	37.8	0.0
03-Jul-23	St. George P.S	Overflow	230703-000005	wet weather overflow	follow sop	03-Jul-23	7:33	03-Jul-23	9:30	1H 57M	2.2	weather	0.992	148		9.67	48.1		>200000		104	0.0	0.3	0.0	0.1	0.0
03-Jul-23	Wolfe P.S	Overflow	230703-000007	wet weather overflow	follow sop	03-Jul-23	7:36	03-Jul-23	9:26	1H 50M	605	Weather	0.591	45.9		4.77	20.7		NR		104	0.4	27.8	2.9	12.5	0.0
06-Jul-23	CSO Facility	Overflow	230706-000009	wet weather overflow	Follow SOP	06-Jul-23	20:43	6-Jul-23	21:38	0H 38M	140	Weather	0.937	16.5		10.3	15.1				24	0.1	2.3	1.4	2.1	0.0
13-Jul-23	CSO Facility	Overflow	230713-000007	wet weather overflow	Follow SOP	13-Jul-23	3:10	13-Jul-23	5:20	0 H 31M	70	Weather	0.774	16.9		7.32	7.4				23	0.1	1.2	0.5	0.5	0.0
29-Jul-23	CSO Facility	Overflow	230729-000003	wet weather overflow	Follow SOP	29-Jul-23	9:10	29-Jul-23	20:17	10H 10M	19737	Weather	1.32	112		11.4	30.6				55	26.1	2,210.5	225.0	604.0	0.0
29-Jul-23	St. George P.S	Overflow	230729-000004	wet weather overflow	Follow SOP	29-Jul-23	10:08	29-Jul-23	10:22	0H 14M	0.07	Weather	1.81	75.2		13	52.7		5,400,000		55	0.0	0.0	0.0	0.0	0.0
15-Aug-23	CSO Facility	Overflow	230815-000015	wet weather overflow	Follow SOP	15-Aug-23	16:36	15-Aug-23	16:59	0H 7M	21	Weather	1.37	74.10		15.2	57.20				23	0.0	1.6	0.3	1.2	0.0
27-Dec-23	CSO Facility	Overflow	231227-000013	wet weather overflow	Follow SOP	27-Dec-23	11:55	27-Dec-23	21:33	8H 46M	5027	Weather	1.84	72		16.80	57				17	9.2	361.9	84.5	286.5	0.0

3.3 Table 8 – Summary of Major Maintenance Items/ Project

2023 Completed Major Maintenance
Install new Belt on Belt Press
Installed new gates in Plant 3 Finals
Replace drive shafts and sprockets in plant 3 Finals
Installed automated valves for plants #2 and #3 to control sludge return/wasting

3.4 Table 9 – Summary of Future Upgrade Planning

Future Major Maintenance Upgrades
Multiple scum trough replacements throughout all plants
Connect automated actuators and valves for plants #2 and #3 to control sludge return/wasting on SCADA
New aerated Sludge storage system
UV system upgrade

3.5 Table 10 - Summary of Monitoring Equipment Calibrations

SCG FLOWMETRIX

Instrument Verification
Certificate of Completion

CLIENT CITY OF ST. THOMAS

LOCATION ST. THOMAS WWPCP

Summary - Equipment List											
#	LOCATION	DESCRIPTION	MANUFACTURER	MODEL	SERIAL NUMBER	FIT #	TECH	CSE	VERIFICATION INFO.		
									DATE	FREQ.	DUE
EQUIPMENT LIST - PASS											
1	St. Thomas WWPCP	Primary Raw Sludge #2 Flow Meter	Krohne	IFC 100W	10634441	DG-Q16	PM	-	3-Oct-23	Annual	Oct-24
2	St. Thomas WWPCP	Effluent Flow Plants 2&3S	Milltronics	OCMIII	041102102PB	FIT-211	PM	-	4-Oct-23	Annual	Oct-24
3	St. Thomas WWPCP	Effluent Flow Plants 4&3N	Milltronics	OCMIII	041102103PB	FIT-212	PM	-	4-Oct-23	Annual	Oct-24
4	St. Thomas WWPCP	Plant #2 Flow Meter	Endress+Hauser	Prosonic 91W	C4061B02000	N/A	PM	-	3-Oct-23	Annual	Oct-24
5	St. Thomas WWPCP	Plant #3 Flow Meter	Endress+Hauser	Prosonic 91W	C4061C02000	N/A	PM	-	3-Oct-23	Annual	Oct-24
6	St. Thomas WWPCP	Plant #4 Flow Meter	Endress+Hauser	Prosonic 93W	C407CE02000	N/A	PM	-	3-Oct-23	Annual	Oct-24
7	St. Thomas WWPCP	Primary Raw Sludge #1 Flow Meter	Krohne	IFC 100W	A19317875	DG-Q7	PM	-	3-Oct-23	Annual	Oct-24
8	St. Thomas WWPCP	Plant #4 East Flow DP Meter	Vega	VEGADIF 85	43627448	FIT-1-3	PM	-	4-Oct-23	Annual	Oct-24
9	St. Thomas WWPCP	Plant #4 West Flow DP Meter	Vega	VEGADIF 85	43627447	FIT-1-4	PM	-	4-Oct-23	Annual	Oct-24
10	St. Thomas WWPCP	Plant #3 Flow DP Meter	Vega	VEGADIF 85	43627445	FIT-1-1	PM	-	4-Oct-23	Annual	Oct-24
11	St. Thomas WWPCP	Plant #2 Flow DP Meter	Vega	VEGADIF 85	43627446	FIT-1-2	PM	-	4-Oct-23	Annual	Oct-24
12	St. Thomas WWPCP	Centrate Wet Well Flow	Rosemount	8750	14886682	LI 193	PM	-	3-Oct-23	Annual	Oct-24
13	St. Thomas WWPCP Gallery #2	RAS/WAS Flow #2	Greyline	DFM-IV Doppler	17729	N/A	PM	-	5-Oct-23	Annual	Oct-24
14	St. Thomas WWPCP Gallery #2	RAS/WAS Flow #1	Greyline	DFM-IV Doppler	17730	N/A	PM	-	5-Oct-23	Annual	Oct-24
15	St. Thomas WWPCP - CSO Site	CSO - Overflow Meter	Vega	VEGAMET 625	40053229	N/A	PM	-	4-Oct-23	Annual	Oct-24
16	St. Thomas WWPCP - Lystek Bld.	Reactor Discharge Flow	Endress+Hauser	Promag 400	M80BB116000	FT-40-608	PM	-	3-Oct-23	Annual	Oct-24
17	St. Thomas WWPCP - Lystek Bld.	Truck Loading Flow	Endress+Hauser	Promag 400	M80B2C16000	FT-06-204	PM	-	3-Oct-23	Annual	Oct-24
18	St. Thomas WWPCP - Lystek Bld.	Untility Water Flow	Endress+Hauser	Promag 400	M80BB216000	FT-40-101	PM	-	3-Oct-23	Annual	Oct-24
19	St. Thomas WWPCP - Lystek Bld.	Untility Water Flow	Endress+Hauser	Promag 10D	MA0B5319000	FQT-30-201	PM	-	3-Oct-23	Annual	Oct-24
20	St. Thomas WWPCP - Lystek Bld.	Potable Water Flow	Endress+Hauser	Promag 400	MA097516000	FIT-41-100	PM	-	3-Oct-23	Annual	Oct-24
21	St. Thomas WWPCP - Lystek Bld.	Dry Sludge Flow	Siemens	Mag 5000	N1J5020133	N/A	PM	-	3-Oct-23	Annual	Oct-24
22	St. Thomas WWPCP - Lystek Bld.	Dewatering Biosolids Flow	Endress+Hauser	Promag 55S	MA0B5319000	FT-31-603	PM	-	3-Oct-23	Annual	Oct-24

3.6 Deviations to sampling schedule

Original Sample Date	New Sample date	Reason for Sample Date Changes
06-Apr-23	05-Apr-23	Lab closed April 7 for good Friday.
28-Sep-23	27-Sep-23	Purolator closing on Friday, Sept 29 for National Day for Truth and Reconciliation Day. Samples would not arrive until Oct 2, 2023.

3.7 Table 11 - 2024 Sampling schedule

2024 Monitoring Program for Sampling					
Week #	Day of Week	Date	Type	Raw Parameters Tested	Final Parameters Tested
1	Tuesday	02-Jan-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
2	Tuesday	09-Jan-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
3	Tuesday	16-Jan-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
4	Tuesday	23-Jan-22	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
5	Tuesday	30-Jan-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
6	Tuesday	06-Feb-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
7	Tuesday	13-Feb-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
8	Tuesday	20-Feb-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
9	Tuesday	27-Feb-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
10	Tuesday	05-Mar-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
11	Tuesday	12-Mar-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
12	Tuesday	19-Mar-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
13	Tuesday	26-Mar-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
14	Tuesday	02-Apr-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
15	Tuesday	09-Apr-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
16	Tuesday	16-Apr-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
17	Tuesday	23-Apr-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
18	Tuesday	30-Apr-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
19	Tuesday	07-May-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
20	Tuesday	14-May-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
21	Tuesday	21-May-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
22	Tuesday	28-May-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
23	Tuesday	04-Jun-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
24	Tuesday	11-Jun-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
25	Tuesday	18-Jun-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
26	Tuesday	25-Jun-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
27	Tuesday	02-Jul-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
28	Tuesday	09-Jul-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
29	Tuesday	16-Jul-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
30	Tuesday	23-Jul-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
31	Tuesday	30-Jul-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
32	Tuesday	06-Aug-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
33	Tuesday	13-Aug-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
34	Tuesday	20-Aug-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
35	Tuesday	27-Aug-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
36	Tuesday	03-Sep-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
37	Tuesday	10-Sep-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
38	Tuesday	17-Sep-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
39	Tuesday	24-Sep-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
40	Tuesday	01-Oct-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
41	Tuesday	08-Oct-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
42	Tuesday	15-Oct-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
43	Tuesday	22-Oct-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
44	Tuesday	29-Oct-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
45	Tuesday	05-Nov-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
46	Tuesday	12-Nov-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
47	Tuesday	19-Nov-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
48	Tuesday	26-Nov-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
49	Tuesday	03-Dec-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
50	Tuesday	10-Dec-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
51	Tuesday	17-Dec-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
52	Monday	23-Dec-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH
53	Monday	30-Dec-24	Weekly	BOD5, TSS, TP, TKN, TAN	TP, CBOD, TAN, TSS, TKN, Nitrates, E.Coli, pH

4 Sludge Management:

4.1 Sludge Production:

This activated sludge plant, transfers sludge to a raw sludge storage tank. The tank is 40' diameter; 25' deep (including the 5' cone bottom) with a capacity of 712 cubic meters. Raw sludge is processed through a belt press achieving approximately 3% solids using a polymer. It is anticipated that sludge volumes in 2024 will be comparable to 2023.

4.2 Sludge Disposal:

A new solids treatment process called Lystek has been in production since April 2018, reducing organics to landfill. This process produces a Canadian certified fertilizer material which is land applied in order to contribute to a sustainable nutrient cycle.

In 2023 there was no sludge transported from the WPCP, all sludge was treated through the Lystek process and land applied. In 2023, a yearly total of 10,046 m3 of raw sludge was processed into a Canadian Food Inspection Agency (CFIA) approved fertilizer and hauled either to an on-farm storage, or directly to field sites and applied to 867 acres (ac).

To date, the City of St. Thomas has produced 52,832 m3 of fertilizer from biosolids.

5 Overflow/By-pass Prevention:

5.1 2023 Summary:

In 2023, multiple projects were conducted to help eliminate bypass and overflow events; including separation of combined sewers and a subsidy program that provided over $54,000 to disconnect downspouts and install back water valves and sump pump systems. More in-depth details can be found in the '*City of St. Thomas Sewage Collection System – 2023 Annual Performance Report'*.

5.2 2024 Projections:

Between 2024 and 2025, multiple Combined Sewer Separation projects are planned and detailed in the '*City of St. Thomas Sewage Collection System – 2023 Annual Performance Report'*. The 2024 basement flooding grant program has been budgeted to allow for subsidization of foundation drain disconnects and back water valve installations to the amount of $70,000.

The City of St. Thomas has been granted $3,000,000 through the Investing in Canada Infrastructure Program (ICIP) to optimize plant flows during wet-weather and reduce overflows. This project is at the 95% design stage and is awaiting Environmental Approvals from the MECP.