



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

March 15th, 2023

Pierre Adrien

District Manager, Ministry of the Environment, Conservation and Parks

733 Exeter Road

London, ON N6E 1L3

Dear Mr. Adrien,

Re: Annual Wastewater Report
Talbotville Wastewater Treatment Plant

The Ontario Clean Water Agency is the Operating Authority for the Talbotville Wastewater Treatment Plant and Collection System on behalf of the Township of Southwold. The system is operated under Environmental Compliance Approval 4845-ARSJ4R. Please find attached the 2022 annual report for this facility.

Please feel free to contact me should you require any additional information regarding this report. I can be reached at 519-870-7841.

Sincerely,

Matthew Belding

Process and Compliance Technician

Ontario Clean Water Agency

Cc. Meghan Morgan, Water Inspector, Ministry of the Environment, Conservation and Parks
Lisa Higgs, CAO, Township of Southwold
Dale LeBritton, Regional Hub Manager, Ontario Clean Water Agency
Mark Harris, Senior Operations Manager, Ontario Clean Water Agency
Maegan Garber, Safety, Process and Compliance Manager, Ontario Clean Water Agency

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Section 1: Overview of System

The Talbotville Wastewater Treatment Plant was commissioned in February, 2018. The wastewater treatment plant is a Membrane Bioreactor treatment plant which is a combination of activated sludge biological treatment with MicroClear MBR membrane filtration technology. The process is as follows:

Raw Wastewater Collection

The wastewater is collected by gravity and directed to the equalization tanks onsite at the treatment plant. The equalization tanks are equipped with three submersible pumps (one duty and two stand by) with rated capacity of 41.67m³/h. The pumps are controlled by the Milltronics ultrasonic level control system, with a backup float system.

Preliminary Treatment System

Equalized wastewater is pumped through one mechanically-cleaned fine screen with 1mm screen size. The fine screen to remove any fibers or debris that might damage the membranes. The screenings are collected in burlap sacks and disposed of.

Secondary Treatment System

Biological Treatment

The screened wastewater then flows by gravity to the first aeration tank (TNK- 501) which is hydraulically connected to the second aeration tank (TNK- 502) for aerobic biological degradation of the influent constituents (organics and ammonia). The two aeration tanks operate in series and are equipped with fine bubble aeration.

Secondary Sedimentation

Mixed liquor is pumped (by P- 501/ 2/ 3) from the second aeration tank (TNK- 502) to the membrane tanks (TNK-601 and TNK-602). The membrane tanks serve as additional volume for aerobic biological treatment and house the membrane filters used for solid -liquid separation. The two membrane tanks operate in parallel and are equipped with two membrane modules. Treated effluent is drawn through the membranes by vacuum pumps, and pumped through ultraviolet (UV) lamps for final disinfection. The solid liquid separation process causes an accumulation of solids in the membrane tank, excess of mixed liquor which contains both solids and filtrate, is continuously pumped from the aeration tank to the membrane tanks (TNK-601 and TNK-602). The additional mixed liquor then overflows from the membrane tanks into the return activated sludge tank (TNK-611). From there the RAS is pumped back to the aeration (TNK- 501).

pH Adjustment System

Within the aeration tanks, the nitrification process converts ammonia to nitrate in order to meet the effluent ammonia limit. Through this process the alkalinity is consumed, where Caustic is pumped to

control the pH. Liquid alum is then dosed into the aeration tanks to precipitate phosphorus to meet the effluent phosphorus limit.

Disinfection

Treated effluent is drawn through the membranes by vacuum pumps, and pumped through ultraviolet (UV) lamps for final disinfection. There are four UV lights operating in parallel.

Sludge Management System

In order to retain an optimal concentration of mixed liquor suspended solids (10g/ L), a portion of the mixed liquor is intermittently wasted (P- 903) from the aeration tank (TNK- 502) to the sludge press (SP- 901) for dewatering. There excess supernatant from the dewatering process is collected in the discharge tank (TNK- 902) and pumped back (P- 901/2) to the first aeration tank (TNK- 501). It is currently not in use due to low flows.

Standby Power

The wastewater treatment plant has a 250kW standby diesel generator onsite.

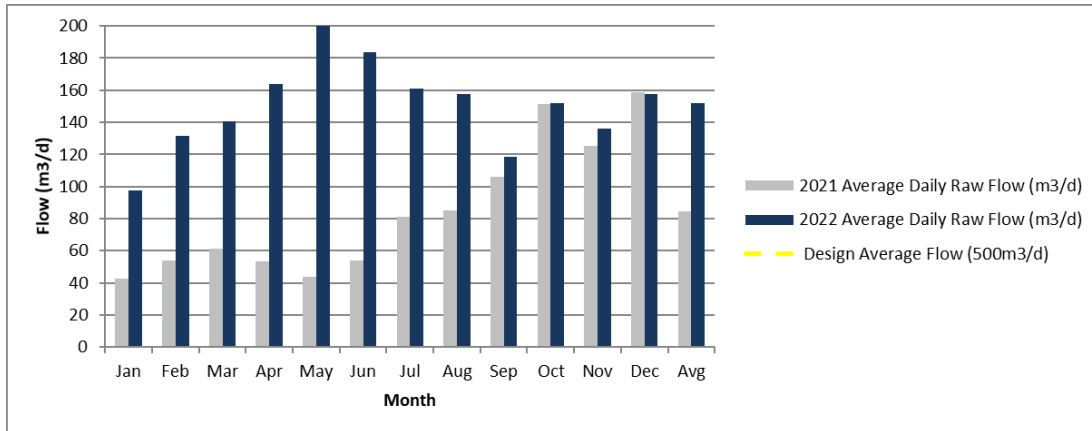
Section 2: Summary of Monitoring Data

The Talbotville Wastewater Treatment Plant is monitored as per the Environmental Compliance Approval requirements. Detailed monitoring data is supplied in Appendix A.

Raw Wastewater Monitoring

The average daily flow for raw wastewater entering the WWTP in 2022 was 152.1m³/d. This is an increase of 79.7% when compared to the average daily flow in 2021. The rated capacity identified in the ECA is 500m³/d. As depicted in Chart 1, the average daily flow is at 30.4 % of the rated capacity. The increase in flows is due to an increase in service connections (housing boom) and significant infiltration events that occurred during the reporting year. In 2021, ball valves and check valves at the headworks were upgraded and a flow control valve was installed to better control the flow of raw wastewater to the treatment plant. In 2022, OCWA has continued maintenance/cleaning activities on the drum and screening brushes to mitigate recirculation situations.

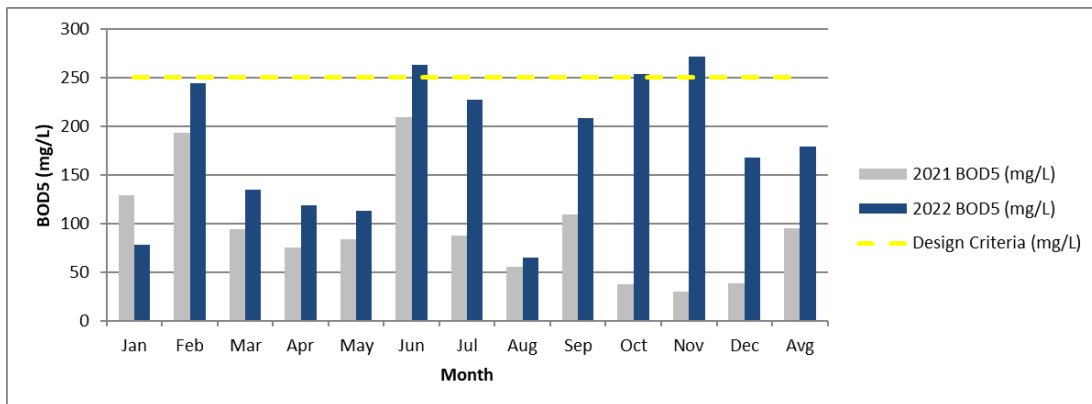
Chart 1. Average daily influent flows rated capacity.



The raw wastewater is monitored for BOD₅, total suspended solids, total phosphorus and total Kjeldahl nitrogen at a minimum on a monthly basis by composite sample. The plant was designed to treat based on raw water characteristics identified in the Operations Manual from the design engineers. Refer to Appendix A for more detailed monthly results and design parameters.

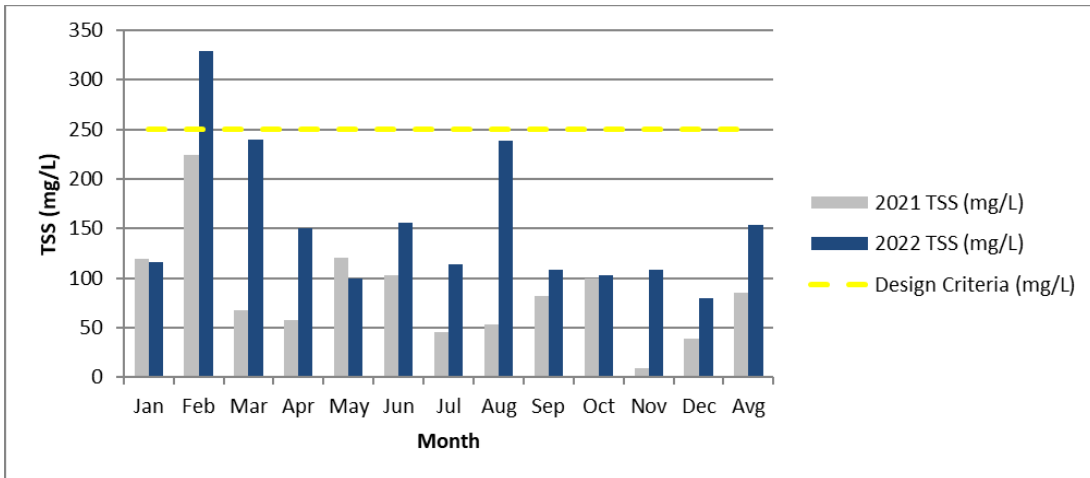
The annual average for raw sewage BOD₅ concentrations to the plant was 178.8mg/L. Refer to Chart 2 for the monthly results in 2022. The annual average for BOD₅ has increased by 87.6% when compared to the annual average in 2021. There were three results in 2022 that were above the design criteria. The average BOD₅ loading to the plant was 27.2kg/d for 2022.

Chart 2. Raw sewage monthly average concentration of BOD₅.



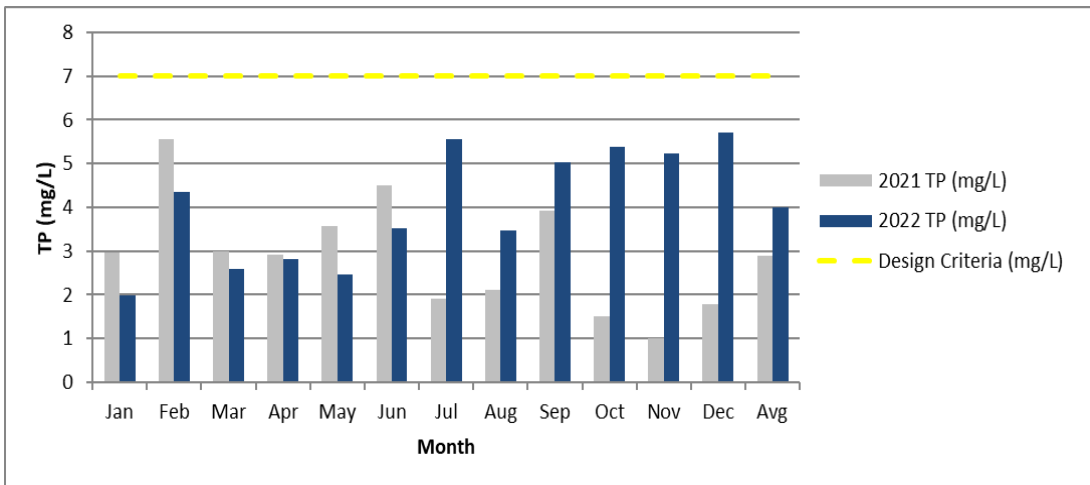
The annual average for raw sewage total suspended solids (TSS) concentrations to the plant was 153.5mg/L. Refer to Chart 3 for the monthly concentrations in 2022. The annual average for TSS has increased by 80.9% when compared to the annual average in 2021. There were one results above the design criteria in 2022. The average TSS loading to the plant was 23.3kg/d for 2022.

Chart 3. Raw sewage average monthly concentration of TSS.



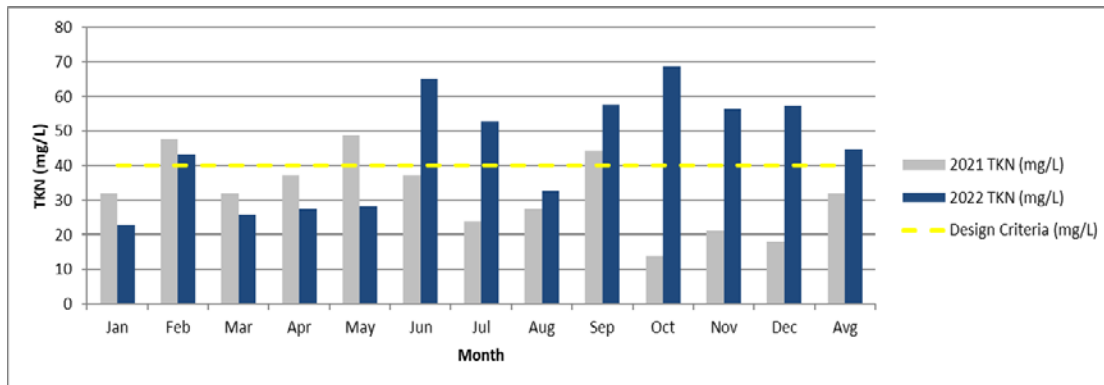
The annual average for raw sewage total phosphorus (TP) concentrations to the plant was 4.00mg/L. Refer to Chart 4 for the monthly concentrations in 2022. The annual average for TP has increased by 38.5% when compared to the annual average in 2021. There were no results above the design criteria in 2022. The average TP loading to the plant was 0.61kg/d for 2022.

Chart 4. Raw sewage average monthly concentration of TP.



The annual average for raw sewage total Kjeldahl nitrogen (TKN) concentrations to the plant was 44.9mg/L. Refer to Chart 5 for the monthly concentrations in 2022. The annual average for TKN has increased by 40.4% when compared to the annual average in 2021. There were seven months in 2022 where the TKN concentrations were above the design concentration. The average TKN concentration in 2022 exceeded the design criteria. The average TKN loading to the plant was 6.8kg/d for 2022.

Chart 5. Raw sewage average monthly concentration of TKN.



Effluent Monitoring

Effluent is sampled on a weekly basis and tested for cBOD₅, total suspended solids, total phosphorus and total ammonia as a composite sample with a grab sample taken weekly and tested for E. coli, pH and temperature. Detailed results are found in Appendix A. Table 1 below shows the monthly average effluent result ranges and loadings. Section 3 describes the results in more detail.

Table 1. Monthly average effluent ranges for 2022.

Parameter	Effluent Monthly Average Limits	Monthly Average Effluent Result Ranges	Monthly Average Loadings Result Ranges (kg/d)
cBOD ₅ (mg/L)	10	2 – 4	0.19 – 0.54
TSS (mg/L)	10	2 – 7.5	0.26 – 1.21
TP (mg/L)	0.3	0.10 – 0.29	0.012 -0.056
TAN (mg/L)	1.5	0.10 – 1.07	0.012 – 0.146
TAN (mg/L) Freezing	4	0.10 – 0.97	0.012 – 0.153
E. coli (cfu/100mL)*	100	1 – 2.53	n/a
pH**	6 – 9.5	6.16 - 8.94	n/a
Temperature (°C)**	n/a	7.6 – 24.4	n/a

*expressed as geometric mean

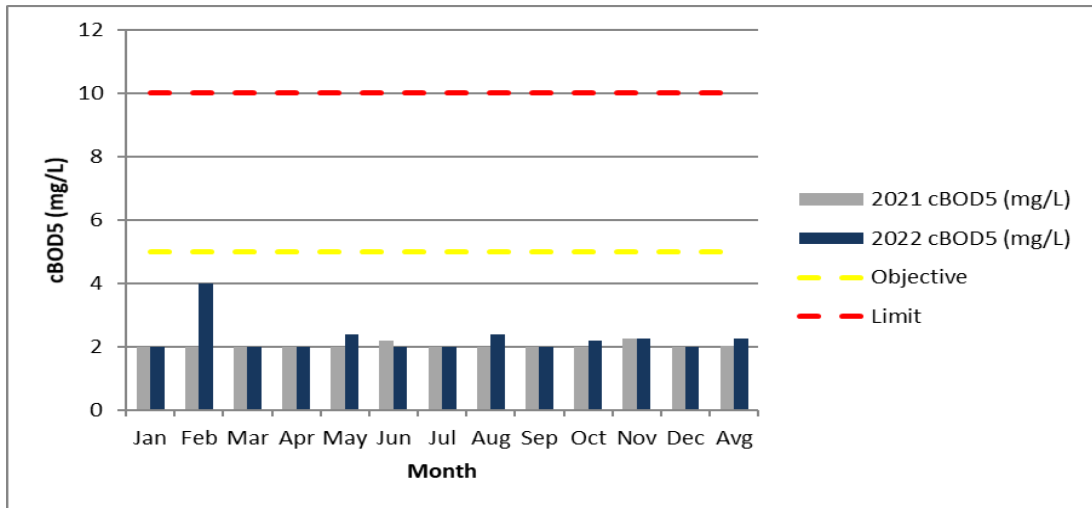
**minimum and maximum result (not monthly averages)

Note: TAN Freezing Limit is from December 1 to April 30

Section 3: Comparison of Effluent Quality and Quantity Compared to Limits and Objectives

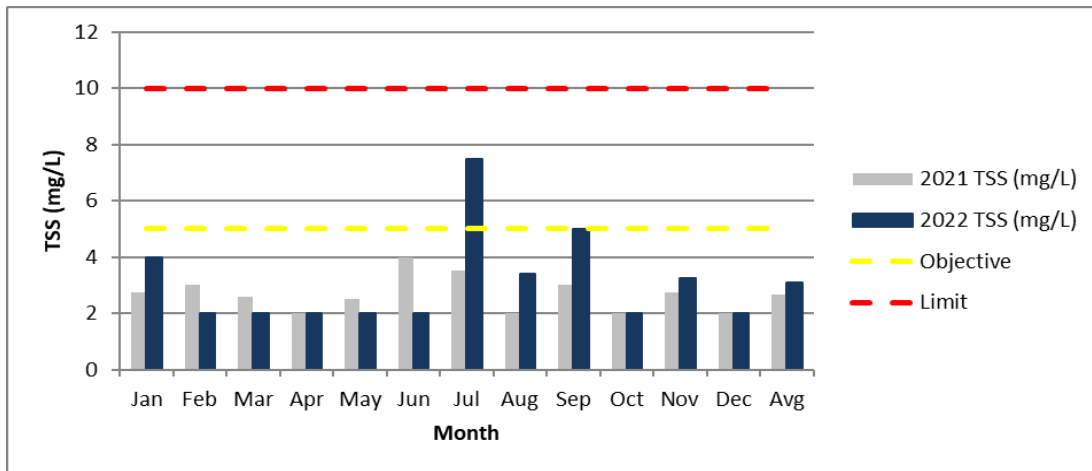
The annual average for effluent cBOD₅ in 2022 was 2.27mg/L. The annual average effluent cBOD₅ is up 11.5% when compared to 2021. The annual loading of cBOD₅ was 0.35kg/d. The cBOD₅ limit is 10mg/L. There were no objective or limit exceedances reported in 2022. Refer to Chart 6.

Chart 6. The effluent monthly average concentration of cBOD₅.



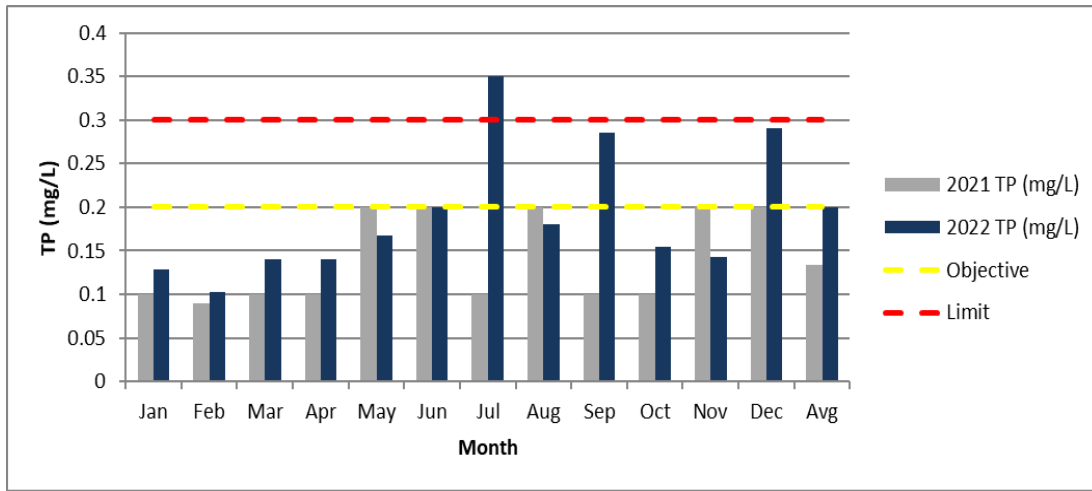
The annual average for effluent TSS in 2022 was 3.10mg/L. The annual average effluent TSS is up 15.7% when compared to 2021. The annual loading of TSS was 0.47kg/d. There was one objective exceedance in 2022. Refer to Chart 7.

Chart 7. The effluent monthly average concentration of TSS.



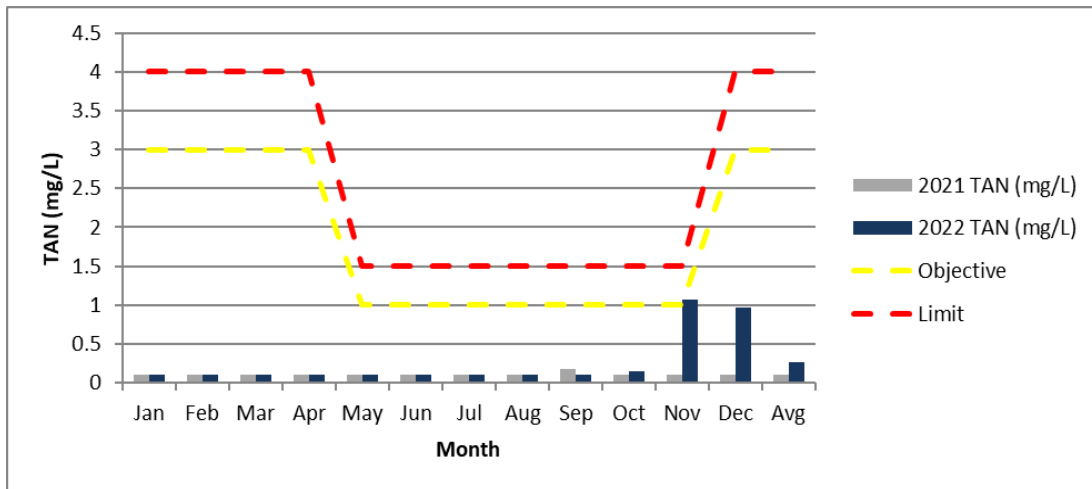
The annual average for effluent TP in 2022 was 0.19mg/L. The annual average effluent TP has increased 42.6% when compared to 2021. The annual loading of TP was 0.029kg/d. There was one limit exceedance that was reported in 2022 and two objective exceedances. Refer to Chart 8.

Chart 8. The effluent monthly average concentration of TP.



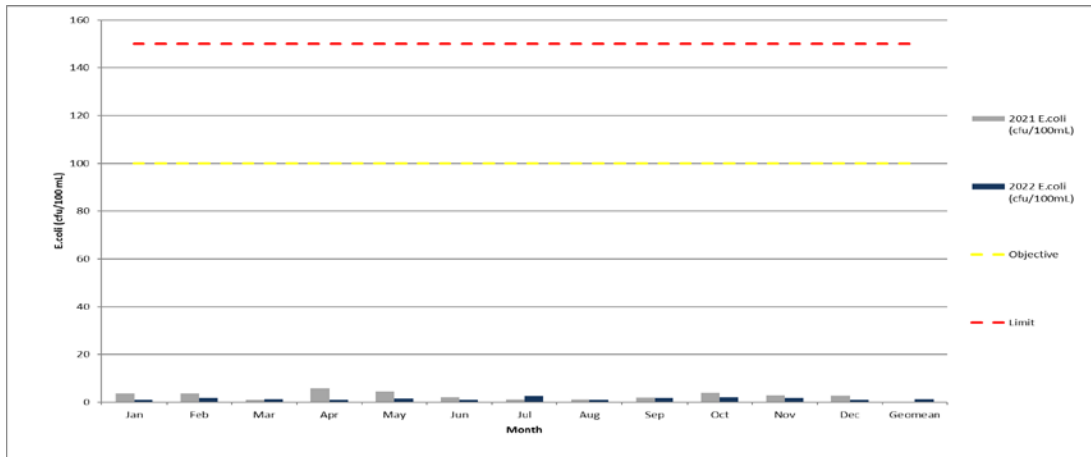
The annual average for effluent Total Ammonia Nitrogen (TAN) in 2022 was 0.31mg/L. This is an increase of 140.6% when compared to 2021. The annual loading of TAN was 0.032kg/d. The limits and objectives for TAN vary based on the freezing period, which is between December 1st and April 30th. There was one objective exceedance in 2022. Refer to Chart 9.

Chart 9. The effluent monthly average concentration of TAN.



The annual geometric mean for effluent E. coli in 2022 was 1.81cfu/100mL. The annual average effluent E. coli is down 48.9% when compared to 2021. The E.coli concentrations remain well below the objective and limit. There were no objective or limit exceedances in 2022. Refer to Chart 10 for the monthly geometric mean concentration of E.coli for 2022.

Chart 10. The effluent monthly geometric mean concentration of E. coli.



The Talbotville WWTP performed well in 2022 producing quality effluent. There was one effluent limit exceedance reported to the MECP in 2022 for total phosphorus. On August 10th, 2022 notification was provided for this non-compliance. This non-compliance was caused by mechanical issues with the backwash valve (AV-702) on Membrane Tank 2 (TNK-602) which lead to improper backwash operations and an increase in membrane fouling. Electrical and mechanical maintenance was completed on backwash valve AV-702.

There were eight objective exceedances reported in 2022, refer to Table 4 for a summary compared against the effluent results. In 2022, OCWA worked closely with Newterra to conduct maintenance and cleaning of the membranes in an effort to ensure the filters continue to operate efficiently. These efforts along with alum dosing adjustments have ensured that objective and limit concentrations are being met.

Table 4. Objective exceedances in 2022.

Date	Parameter	Concentration	Reason
July	pH	8.8	Flow
July	TSS	7.5	Flow
July	TP	0.35	Mechanical Failure
September	pH	6.16	Low Caustic Dosage
September	TP	0.28	Alum Dosage
November	pH	8.94	High Caustic Dosage
November	TAN	1.07	Low MLSS
December	pH	8.91	High Caustic Dosage
December	TP	0.29	Low Alum Dosage

Section 4: Operating Problems and Corrective Actions

The Talbotville WWTP produced quality effluent in 2022. OCWA continues to work with Newterra to optimize the treatment process and offer assistance in troubleshooting. In 2022 there has been an

increase in the amount of flushable wipes entering into the collection system. These wipes are causing issues by clogging up the system and increasing the frequency of maintenance of the preliminary screening brushes. There continues to be performance issues with the drum and screening brushes.

Membrane performance has reduced in 2022. Enhanced chemical recovery cleans were performed on the membranes with little membrane performance being recovered. Through this process it was discovered that Newterra undersized the backwash tank which means the backwash volume provided is insufficient to perform a proper cleaning, even if done one cartridge at a time. The poor membrane performance has resulted in a reduction of plant capacity and therefore, an increase in the volume required to be hauled off site for further processing. This hauling becomes necessary to manage flows and to mitigate the risk of by-pass or overflow.

OCWA and the Township of Southwold are exploring new membrane technologies to ensure that the treatment capacities can be met and to eliminate the need to haul sewage offsite. Funds have been set aside in the budget to switch one membrane train over to Zeeweed technology in the future. In the meantime, filter backwashes, membrane cleanings, and haulage are required at an increased frequency to maintain the plants performance.

Section 5: Maintenance Activities

Routine maintenance activities are completed through OCWA's Workplace Management System (WMS). Attached as Appendix C is the routine maintenance that was completed at the facility in 2022.

Emergency and preventative maintenance completed in 2022 was as follows:

- New brackets on AV-701 and AV-702.
- Replaced cassettes on membrane train #1
- RAS tank level transducer replaced
- New actuator for air valve AV-702
- UV Bulb and sleeve on UV4

Section 6: Effluent Quality Assurance

Effluent quality assurance is evaluated by monitoring parameters and changes throughout the plants processes. The operators monitor the basins by performing weekly tests on the mixed liquor. These tests include dissolved oxygen, pH, temperature, settling tests and Mixed Liquor Suspended Solids (MLSS). As well, monitoring of the chemical dosages. Data collected from these tests provide valuable information to the operators to make the appropriate adjustments in the treatment process and take corrective actions before the plant reaches its effluent limits.

Section 7: Calibration and Maintenance on Effluent Monitoring Equipment

As per section 9.6 of ECA #4845-ARSJ4R, the flowmeter was verified on February 17th, 2022. In-house meters for pH are calibrated by OCWA operators as per manufacturer's instructions.

Section 8: Sludge Handling and Generated

Mixed liquors can be wasted from the second aeration tank to the sludge press for dewatering. Excess water from the dewatering process can be collected in the discharge tank and pumped back to the first aeration tank. This portion of the plant has not yet been commissioned due to the low flows.

In 2022, there was 620m³ of sludge removed by Sanitary Sewer and brought to the Dingman Drive Pumping Station in the City of London. It is anticipated that in 2023 that the total sludge produced will be greater than 2022 volumes due to an increase in service connections to the sanitary system. It is estimated that approximately 650m³ of sludge will be produced. This is determined based on MLSS concentrations within the aeration tank. This estimated volume is also dependent on the influent flows and total suspended solids concentrations. Annual sludge monitoring results are found in Appendix D.

Section 9: Complaints

There were no community complaints received for the Talbotville WWTP in 2022.

Section 10: By-pass, Spill or Abnormal Discharge Events

There were no bypasses or spills at the Talbotville WWTP in 2022.

Section 11: Notice of Modifications to Sewage Works:

There were no major modifications made to the sewage works in 2022 that would require notice to the ministry.

APPENDIX A

		Objective	Limits	January-22		February-22		March-22		April-22		May-22		June-22		July-22		August-22		September-22		October-22		November-22		December-22		Summary	
				Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)	Results	Loading (kg/d)
Raw Flow (m3/d)	Avg	500	500	97.37		131.49		140.62		163.53		225.76		183.67		161.1		157.66		118.76		152.09		136.27		157.3		152.12	
	Max	1000		149		367.2		242.1		249		410.6		308.6		432.4		285.1		244.8		429.1		198		256.7		432.4	
	Min			59.4		63.8		99.8		118.5		78.4		120.4		73.2		82.7		71.3		94.2		97		106.2		59.4	
	Sum			3018.55		3681.85		4359.35		4906		6772.84		5510.2		4994.15		4887.55		3562.7		4714.9		4088.05		4876.4		5532.54	
Raw BOD5 (mg/L)	Avg	250		78	7.59	244	32.08	135	18.98	119	19.46	113	25.51	263	48.31	227	36.57	65	10.25	208	24.70	254	38.63	272	37.07	168	26.43	178.833	27.204
Raw TSS (mg/L)	Avg	250		116	11.29	329	43.26	240	33.75	150	24.53	100	22.58	156	28.65	114	18.37	238	37.52	108	12.83	103	15.67	108	14.72	80	12.58	153.5	23.350
Raw TP (mg/L)	Avg	7		1.99	0.19	4.34	0.57	2.58	0.36	2.81	0.46	2.46	0.56	3.52	0.65	5.57	0.90	3.47	0.55	5.02	0.60	5.37	0.82	5.22	0.71	5.7	0.90	4.004	0.609
Raw TKN (mg/L)	Avg	40		23	2.24	43.3	5.69	25.8	3.63	27.5	4.50	28.1	6.34	65.2	11.98	52.8	8.51	32.8	5.17	57.5	6.83	68.7	10.45	56.3	7.67	57.4	9.03	44.867	6.825
Effluent Flow (m3/d)	Avg			96.49		134.11		136.74		150.59		125.95		132.47		109.16		131.95		106.23		115.97		110.43		129.72		123.2	
	Max			157.2		359.9		183.8		248.2		261.8		272.4		246.8		245.3		187.8		196.3		128.7		153.7		359.9	
	Min			62.6		56		56		77.3		54.6		92		45		56.9		0		56.2		81.2		115.7		0	
	Sum			2991.05		3755.1		4239.05		4517.8		3778.48		3974.2		3383.94		4090.5		3186.9		3595.2		3312.8		4021.2		44846.22	
Effluent cBOD5 (mg/L)	Avg	5	10	< 2	0.19	< 4	0.54	< 2	0.27	< 2	0.30	< 2.4	0.30	< 2	0.26	< 2	0.22	< 2.4	0.32	< 2	0.21	< 2.2	0.26	< 2.25	0.25	< 2	0.26	2.269	0.35
	Max	5		< 2	0.19	< 10	1.34	< 2	0.27	< 2	0.30	< 4	0.50	< 2	0.26	< 2	0.22	< 4	0.53	< 2	0.21	< 3	0.35	< 3	0.33	< 2	0.26	10	1.52
	Min			< 2	0.19	< 2	0.27	< 2	0.27	< 2	0.30	< 2	0.25	< 2	0.26	< 2	0.22	< 2	0.26	< 2	0.21	< 2	0.23	< 2	0.22	< 2	0.26	2	0.30
Effluent TSS (mg/L)	Avg	5	10	< 4	0.39	< 2	0.27	< 2	0.27	< 2	0.30	< 2	0.25	< 2	0.26	< 7.5	0.82	< 3.4	0.45	< 5	0.53	< 2	0.23	< 3.25	0.36	< 2	0.26	3.077	0.47
	Max	5		< 7	0.68	< 2	0.27	< 2	0.27	< 2	0.30	< 2	0.25	< 2	0.26	< 10	1.09	< 7	0.92	< 14	1.49	< 2	0.23	< 4	0.44	< 2	0.26	14	2.13
	Min			< 2	0.19	< 2	0.27	< 2	0.27	< 2	0.30	< 2	0.25	< 2	0.26	< 2	0.22	< 2	0.26	< 2	0.21	< 2	0.23	< 2	0.22	< 2	0.26	2	0.30
Effluent TP (mg/L)	Avg	0.2	0.3	0.128	0.01	0.103	0.01	0.14	0.02	0.145	0.02	0.168	0.02	0.258	0.03	0.355	0.04	0.18	0.02	0.285	0.03	0.154	0.02	0.143	0.02	0.285	0.04	0.192	0.03
	Max	0.2		0.16	0.02	0.12	0.02	0.18	0.02	0.18	0.03	0.19	0.02	0.31	0.04	0.49	0.05	0.36	0.05	0.46	0.05	0.19	0.02	0.19	0.02	0.41	0.05	0.49	0.07
	Min			0.08	0.01	0.08	0.01	0.12	0.02	0.11	0.02	0.15	0.02	0.17	0.02	0.14	0.02	0.11	0.01	0.2	0.02	0.13	0.02	0.11	0.01	0.08	0.01	0.08	0.01
Effluent TAN (mg/L)	Avg	1.0(3.0)	1.5(4.0)	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.14	0.02	1.075	0.12	1.775	0.23	0.308	0.05
	Max	1.0(3.0)		< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.2	0.02	2.4	0.27	4.2	0.54	4.2	0.64
	Min			< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	< 0.1	0.01	0.1	0.01	0.4	0.05	0.1	0.02
Effluent E. coli (cfu/100mL)	Geomean	100	150	1		1.732		1.316		1		1.552		1		2.53		1		1.778		2.091		1.732		1		1.808	
	Max			1		9		3		0		3		1		41		1		5		8		9		1		41	
	Min			0		0		0		0		0		0		0		0		0		0		0		0		0	
Effluent pH	Avg			7.777		7.984		7.836		7.952		7.751		7.04		7.68		7.532		6.766		7.137		7.397		7.581		7.548	
	Max	8.5	9.5	8.12		8.38		8.16		8.13		8.19		7.47		8.8		8.03		7.88		7.81		8.94		8.91		8.94	
	Min	6.5	6.0	7.43		7.1		7.35		7.77		6.95		6.73		6.66		7.01		6.16		6.62		6.23		6.53		6.16	
Effluent Temp. (oC)	Avg			18.478		18.218		17.591		15.69		18.32		19.967		22.033		21.3		21.7		20.444		19.3		15.81		18.987	
	Max			21.3		22.9		22.2		18.3		21.3		21.6		24.4		22.2		22.6		21.2		22.1		22.1		24.4	
	Min			14.9		12.5		14.5		13.5		15.2		18.8		20.9		20.1		19.4		19.5		10.6		7.6		7.6	
Effluent Unionized Ammonia (mg/L)	Avg			0.002		0.00		0.00		0.00		0.00		0.00		0.002		0.001		0.000		0.00		0.001		0.00		0.002	
	Max			0.005		0.01		0.01		0.00		0.01		0.00		0.026		0.005		0.004		0.00		0.029		0.03		0.03	
	Min			0.001		0.00		0.00		0.00		0.00		0.00		0.000		0.000		0.000		0.00		0.000		0.00		0.00	

APPENDIX B



Sample Schedule 2022

1536 Talbotville WWTP

Issued: 2021-12-06
 Rev.#: 0
 Pages: 1 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

January 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3 STAT	4 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	5	6	7 IH Reduced	8
9	10 IH Full Effluent Samples (Pre & Post UV)	11	12	13	14 IH Reduced	15
16	17 IH Full Effluent Samples (Pre & Post UV)	18	19	20	21 IH Reduced	22
23	24 IH Full Effluent Samples (Pre & Post UV)	25	26	27	28 IH Reduced	29
30	31 IH Full Effluent Samples (Pre & Post UV)					

- IH (In House) Full:** Raw 24hr Composite (pH)
 Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
 Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
 Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
 Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022

1536 Talbotville WWTP

Issued: 2021-12-06
 Rev.#: 0
 Pages: 2 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

February 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4 IH Reduced	5
6	7 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	8	9	10	11 IH Reduced	12
13	14 IH Full Effluent Samples (Pre & Post UV)	15	16	17	18 IH Reduced	19
20	21 STAT	22 IH Full Effluent Samples (Pre & Post UV)	23	24	25 IH Reduced	26
27	28 IH Full Effluent Samples (Pre & Post UV)					

- IH (In House) Full:** Raw 24hr Composite (pH)
 Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
 Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
 Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
 Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022 1536 Talbotville WWTP

Issued: 2021-12-06
Rev.#: 0
Pages: 3 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

March 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4 IH Reduced	5
6	7 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	8	9	10	11 IH Reduced	12
13	14 IH Full Effluent Samples (Pre & Post UV)	15	16	17	18 IH Reduced	19
20	21 IH Full Effluent Samples (Pre & Post UV)	22	23	24	25 IH Reduced	26
27	28 IH Full Effluent Samples (Pre & Post UV)	29	30	31		

- IH (In House) Full:** Raw 24hr Composite (pH)
Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022 1536 Talbotville WWTP

Issued: 2021-12-06
Rev.#: 0
Pages: 4 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

April 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1 IH Reduced	2
3	4 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	5	6	7	8 IH Reduced	9
10	11 IH Full Effluent Samples (Pre & Post UV)	12	13	14 IH Reduced	15 STAT	16
17	18 STAT	19 IH Full Effluent Samples (Pre & Post UV)	20	21	22 IH Reduced	23
24	25 IH Full Effluent Samples (Pre & Post UV)	26	27	28	29 IH Reduced	30

- IH (In House) Full:** Raw 24hr Composite (pH)
Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022

1536 Talbotville WWTP

Issued: 2021-12-06
 Rev.#: 0
 Pages: 5 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

May 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1	2 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	3	4	5	6 IH Reduced	7
8	9 IH Full Effluent Samples (Pre & Post UV)	10	11	12	13 IH Reduced	14
15	16 IH Full Effluent Samples (Pre & Post UV)	17	18	19	20 IH Reduced	21
22	23 STAT	24 IH Full Effluent Samples (Pre & Post UV)	25	26	27 IH Reduced	28
29	30 IH Full Effluent Samples (Pre & Post UV)	31				

- IH (In House) Full:** Raw 24hr Composite (pH)
 Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
 Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
 Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
 Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

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2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022

1536 Talbotville WWTP

Issued: 2021-12-06
 Rev.#: 0
 Pages: 6 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

June 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3 IH Reduced	4
5	6 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	7	8	9	10 IH Reduced	11
12	13 IH Full Effluent Samples (Pre & Post UV)	14	15	16	17 IH Reduced	18
19	20 IH Full Effluent Samples (Pre & Post UV)	21	22	23	24 IH Reduced	25
26	27 IH Full Effluent Samples (Pre & Post UV)	28	29	30		

- IH (In House) Full:** Raw 24hr Composite (pH)
 Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
 Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
 Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
 Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022

1536 Talbotville WWTP

Issued: 2021-12-06
 Rev.#: 0
 Pages: 7 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

July 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1 STAT	2
3	4 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	5	6	7	8 IH Reduced	9
10	11 IH Full Effluent Samples (Pre & Post UV)	12	13	14	15 IH Reduced	16
17	18 IH Full Effluent Samples (Pre & Post UV)	19	20	21	22 IH Reduced	23
24	25 IH Full Effluent Samples (Pre & Post UV)	26	27	28	29 IH Reduced	30
31						

- IH (In House) Full:** Raw 24hr Composite (pH)
 Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
 Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
 Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
 Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022 1536 Talbotville WWTP

Issued: 2021-12-06
Rev.#: 0
Pages: 8 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

August 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 STAT	2 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	3	4	5 IH Reduced	6
7	8 IH Full Effluent Samples (Pre & Post UV)	9	10	11	12 IH Reduced	13
14	15 IH Full Effluent Samples (Pre & Post UV)	16	17	18	19 IH Reduced	20
21	22 IH Full Effluent Samples (Pre & Post UV)	23	24	25	26 IH Reduced	27
28	29 IH Full Effluent Samples (Pre & Post UV)	30	31			

- IH (In House) Full:** Raw 24hr Composite (pH)
Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022 1536 Talbotville WWTP

Issued: 2021-12-06
Rev.#: 0
Pages: 9 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

September 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2 IH Reduced	3
4	5 STAT	6 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	7	8	9 IH Reduced	10
11	12 IH Full Effluent Samples (Pre & Post UV)	13	14	15	16 IH Reduced	17
18	19 IH Full Effluent Samples (Pre & Post UV)	20	21	22	23 IH Reduced	24
25	26 IH Full Effluent Samples (Pre & Post UV)	27	28	29	30 IH Reduced	

- IH (In House) Full:** Raw 24hr Composite (pH)
Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022 1536 Talbotville WWTP

Issued: 2021-12-06
Rev.#: 0
Pages: 10 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

October 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	4	5	6	7 IH Reduced	8
9	10 STAT	11 IH Full Effluent Samples (Pre & Post UV)	12	13	14 IH Reduced	15
16	17 IH Full Effluent Samples (Pre & Post UV)	18	19	20	21 IH Reduced	22
23	24 IH Full Effluent Samples (Pre & Post UV)	25	26	27	28 IH Reduced	29
30	31 IH Full Effluent Samples (Pre & Post UV)					

- IH (In House) Full:** Raw 24hr Composite (pH)
Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022

1536 Talbotville WWTP

Issued: 2021-12-06
 Rev.#: 0
 Pages: 11 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

November 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1	2	3	4 IH Reduced	5
6	7 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	8	9	10 IH Reduced	11 STAT	12
13	14 IH Full Effluent Samples (Pre & Post UV)	15	16	17	18 IH Reduced	19
20	21 IH Full Effluent Samples (Pre & Post UV)	22	23	24	25 IH Reduced	26
27	28 IH Full Effluent Samples (Pre & Post UV)	29	30			

- IH (In House) Full:** Raw 24hr Composite (pH)
 Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
 Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
 Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
 Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber



Sample Schedule 2022 1536 Talbotville WWTP

Issued: 2021-12-06
Rev.#: 0
Pages: 12 of 12

Reviewed by: QEMS Representative

Approved by: Operations Management

December 2022

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2 IH Reduced	3
4	5 IH Full Monthly Raw & Effluent Samples (Pre & Post UV)	6	7	8	9 IH Reduced	10
11	12 IH Full Effluent Samples (Pre & Post UV)	13	14	15	16 IH Reduced	17
18	19 IH Full Effluent Samples (Pre & Post UV)	20	21	22	23 IH Reduced	24
25	26 STAT	27 STAT	28 IH Full Effluent Samples (Pre & Post UV)	29	30 IH Reduced	31

- IH (In House) Full:** Raw 24hr Composite (pH)
Aeration (Filterability, MLSS, MLVSS, DO, pH, Temp.)
Effluent 24hr Composite (pH, TP, NH3+NH4, SS); Grab (DO, Temp., pH)
- IH (In House) Reduced:** Aeration (Filterability, DO, pH, Temp.)
Effluent (DO, pH, Temp., TP, NH3+NH4)
- Raw Samples:** 24hr Monthly Composite (BOD5, TSS, TP, TKN)
- Effluent Samples:** 24hr Weekly Composite (CBOD5, TSS, TP, NH3+NH4, TKN, NO3, NO2, Temp, pH)
Grab (E. coli), Pre-UV Grab (E.coli)
- Sludge Sample:** Annual grab (TSS, TP, TAN, Nitrate, Metal Scan-see ECA)

Notes: Initial on date when sample was taken. Add any additional sampling completed for the facility. At the end of the month hand in to the PCT with folder.

Revision History

Date	Revision #	Reason for Revision	Revision By
2021-12-06	0	Create Schedule	Maegan Garber

APPENDIX C

Workorder Summary Report

 Report Start Date: Jan 1, 2022 12:00 AM
 Report End Date: Dec 31, 2022 11:59 PM
 Location: 1536,1536-WWTV
 Work Order Type: CAP,CORR,PM
 Work Order Class:

				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
2616635			Talbotville WWTP	PM	Inspection	1	YEARS	Daily Operations and Maintenance (1y) - 1536	COMP	1/1/22 12:00 AM	1/5/23 07:50 AM	1/5/23 07:50 AM	Alarm Acknowledgement -A delayed alarm came out for High Tank Level 711 after 16:00. This issue was resolved earlier in the day, so not sure why this alarm was delayed. Stopped in to acknowledge alarm on my way home. Everything was normal at the plant and the alarm was not even active on the HMI. rounds and checks - rounds and checks - rounds and checks - drove yesterdays samples to lab - completed rounds and checks - HMI rounds and flow readings - rounds and checks - - Sludge removal, burlap bag change, flush control valve, flow readings Rounds and Labs - Complete dfacility rounds, readings, and labs. Completed faciLity rounds and readings -Facility rounds and readings resolving system issues -had to wait for system to come back to normal after train 2 drained itself site check up -

Workorder Summary Report

Report Start Date: Jan 1, 2022 12:00 AM
 Report End Date: Dec 31, 2022 11:59 PM
 Location: 1536,1536-WWTV
 Work Order Type: CAP,CORR,PM
 Work Order Class:

				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
													worked after hours. Was held up at another site. See logbook - Onsite to troubleshoot backwash issue on MBR1 - Onsite to respond to B-600 low pressure alarm - Dropped off equipment for membrane cleaning next week - rounds and readings - lab rounds - rounds and checks - - - - - - - - -

Workorder Summary Report

 Report Start Date: Jan 1, 2022 12:00 AM
 Report End Date: Dec 31, 2022 11:59 PM
 Location: 1536,1536-WWTV
 Work Order Type: CAP,CORR,PM
 Work Order Class:

				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
													drove samples in after hours - - - worked on WISKI entries - monthly paperwork - - - - - - - - OT work and driving samples to lab -Stayed late to backwash and troubleshoot high MBR vac pressures and drove samples to lab after. SOM approved. troubleshooting high VAC pressures and NewTerra meeting - reset PLC - -
2852585	0000063271	TANK PROCESS Aeration T-501	Talbotville WWTP	PM	Refurbish/ Replace/Repair	1	YEARS	Aeration Tank Inspection (1y) 1536	COMP	6/1/22 12:00 AM	1/5/23 02:18 PM	1/5/23 02:18 PM	Aeration Tank Inspection - Completed cleaning and inspection

Workorder Summary Report

 Report Start Date: Jan 1, 2022 12:00 AM
 Report End Date: Dec 31, 2022 11:59 PM
 Location: 1536,1536-WWTV
 Work Order Type: CAP,CORR,PM
 Work Order Class:

				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
2900420	0000063366	ANALYZER HYDROSULPHIDE GT7901	Talbotville WWTP	PM	Refurbish/ Replace/Repair	6	MONTHS	Gas Analyzers Insp (6m) 1536	COMP	7/1/22 12:00 AM	1/5/23 02:23 PM	1/5/23 02:23 PM	Gas Analyzers Insp (6m) 1536 - Hetek onsite dec 28th for inspection
3045514			Talbotville WWTP	PM	Inspection	3	MONTHS	BLOWERS inspection/service (3m/ 1y) 1536	COMP	10/1/22 12:00 AM	1/31/23 04:03 PM	1/31/23 04:03 PM	BLOWERS inspection/service - completed blower inspections
3045517			Talbotville WWTP	PM	Refurbish/ Replace/Repair	3	MONTHS	Pump Diaphragm Inspection/ Service (3m) 1536	BUSCOMP	10/1/22 12:00 AM	1/5/23 02:45 PM	1/5/23 02:45 PM	Pump Diaphragm Inspection/Service (3m) 1536 - Completed pump inspection, checked all fittings
3045529			Talbotville WWTP	PM	Inspection	6	MONTHS	Heaters Inspection/Service (6m) - 1536	COMP	10/1/22 12:00 AM	1/5/23 02:25 PM	1/5/23 02:25 PM	Heaters Inspection/Service (6m) - 1536 - completed inspection
3045537			Talbotville WWTP	PM	Calibration	1	YEARS	METER FLOW CALBRATION (1y) 1536	COMP	10/1/22 12:00 AM	1/5/23 02:30 PM	1/5/23 02:30 PM	METER FLOW CALBRATION (1y) 1536 - Completed in feb 2022
3046638	0000063287	SENSOR LDS-501 Tank Level Sensor	Talbotville WWTP	PM	Inspection	1	YEARS	Meter Level Insp/Service (1y) - 1536	BUSCOMP	10/1/22 12:00 AM	1/5/23 02:33 PM	1/5/23 02:33 PM	Meter Level Insp/Service (1y) - 1536 - Completed inspection
3050725			Talbotville WWTP	PM	Compliance	1	MONTHS	1536 Weekly samples for Talbotville STP	COMP	10/1/22 12:00 AM	12/14/22 08:47 PM	12/14/22 08:47 PM	
3091755			Talbotville WWTP	PM	Health and Safety	1	YEARS	Lifting Device Insp Route (1y) - 1536	COMP	11/1/22 12:00 AM	12/22/22 08:17 AM	12/22/22 08:17 AM	
3095261			Talbotville WWTP	PM	Compliance	1	MONTHS	1536 Weekly samples for Talbotville STP	COMP	11/1/22 12:00 AM	12/14/22 08:48 PM	12/14/22 08:48 PM	-
3131431	0000063247	GENERATOR TALBOTVILLE DIESEL	Talbotville WWTP	PM	Refurbish/ Replace/Repair	1	MONTHS	Generator Diesel Testing (1m) 1536	COMP	12/1/22 12:00 AM	12/29/22 07:49 AM	12/29/22 07:49 AM	Generator Diesel Testing - Completed generator run test
3131441	0000063338	SAFETY EYE WASH/ SHOWER	Talbotville WWTP	PM	Health and Safety	1	MONTHS	SAFETY EYEWASH SHOWER INSPECTION (1m) 1536	COMP	12/1/22 12:00 AM	12/15/22 03:13 PM	12/15/22 03:13 PM	SAFETY EYEWASH SHOWER INSPECTION - Completed inspection
3131445	0000063342	ANALYZER PH 502	Talbotville WWTP	PM	Inspection	1	MONTHS	ANALYZER PH INSPECTION/ CALIBRATION (1m) 1536	COMP	12/1/22 12:00 AM	12/30/22 03:42 PM	12/30/22 03:42 PM	ANALYZER PH INSPECTION/ CALIBRATION - Ph still not in production
3131461			Talbotville WWTP	PM	Inspection	1	MONTHS	Building and Grounds Maintenance (1m) 1536	COMP	12/1/22 12:00 AM	12/30/22 03:44 PM	12/30/22 03:44 PM	Building and Grounds Maintenance (1m) 1536 - Completed WO

Workorder Summary Report

 Report Start Date: Jan 1, 2022 12:00 AM
 Report End Date: Dec 31, 2022 11:59 PM
 Location: 1536,1536-WWTV
 Work Order Type: CAP,CORR,PM
 Work Order Class:

				WorkOrder		PM Schedule		Workorder Details					
WO #	Asset ID	Asset Description	Location Description	Type	Class	FEQ	Units	Work Order Description	Status	Schedule Start	Actual Start	Actual Finsh	WorkLog Detail
3131583			Talbotville WWTP	PM	Refurbish/Replace/Repair	1	MONTHS	Carbon Filter Cleaning Inspection (1m / 1y) 1536	COMP	12/1/22 12:00 AM	12/15/22 08:42 AM	12/15/22 08:42 AM	
3132281	0000063374	BLOWER B-201-Carbon Drum	Talbotville WWTP	PM	Refurbish/Replace/Repair	1	YEARS	Blower Control Drum Insp/Service (1y) 1536	COMP	12/1/22 12:00 AM	1/5/23 02:38 PM	1/5/23 02:38 PM	
3132294	0000063373	BLOWER B-311-Carbon Drum	Talbotville WWTP	PM	Refurbish/Replace/Repair	1	YEARS	Blower Odour Control Drum Insp/Service (1y) 1536	COMP	12/1/22 12:00 AM	1/5/23 02:40 PM	1/5/23 02:40 PM	Blower Odour Control Drum Insp/Service (1y) 1536 - Continental onsite se 7th
3132307			Talbotville WWTP	PM	Refurbish/Replace/Repair	1	MONTHS	Filter Membrane (1m) Inspection 1536	COMP	12/1/22 12:00 AM	12/29/22 07:51 AM	12/29/22 07:51 AM	
3132309	0000063376	SCREEN BAR SCR-201	Talbotville WWTP	PM	Refurbish/Replace/Repair	1	MONTHS	Screen Bar Insp/Service (1m / 1y) - 1536	COMP	12/1/22 12:00 AM	12/9/22 07:44 AM	12/9/22 07:44 AM	- changed all four brushes and cleaned unit
3135828			Talbotville WWTP	PM	Compliance	1	MONTHS	1536 Weekly samples for Talbotville STP	BUSCOMP	12/1/22 12:00 AM	1/5/23 07:53 AM	1/5/23 07:53 AM	-
3138244			Talbotville WWTP	PM	Inspection	3	MONTHS	Supervisor Spot Checks NS Cluster Consulting (3m) 1536	BUSCOMP	12/1/22 12:00 AM	12/19/22 01:32 PM	12/19/22 01:32 PM	No issues noted - No issues noted
3138769			Talbotville WWTP	PM	Inspection	1	MONTHS	Critical Alarm Testing (1m) 1536	COMP	12/1/22 12:00 AM	12/30/22 03:45 PM	12/30/22 03:45 PM	Critical Alarm Testing (1m) 1536 - Completed WO
3148033	0000063390	ANALYZER DO /PH-Talbotville 1536	Talbotville WWTP	PM	Inspection	1	MONTHS	Analyzer DO Portable Insp. (1m) - 1536	COMP	12/19/22 12:00 AM	12/30/22 03:46 PM	12/30/22 03:46 PM	

APPENDIX D



SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - K0L 2H0
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 120003913

Project : PO#017018

11-August-2022

OCWA-Elgin Hub (Talbotville WWTP)

Attn : Cindy Sigurdson

Date Rec. : 25 July 2022

LR Report: CA30476-JUL22

9210 Graham Road
West Lorne, ON
N0L 2P0, Canada

Copy: #1

Phone: 519-768-9925
Fax:pdf

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Bslq Bslq-Sludge Holding Tank
Sample Date & Time					25-Jul-22 14:34
Sampled By					Jen Smorowski
Temperature Upon Receipt [at Lakefield Lab °C]	--	---	---	---	7.0
Total Solids [mg/L]	27-Jul-22	18:50	29-Jul-22	10:39	16700
Ammonia+Ammonium (N) [as N mg/L]	27-Jul-22	20:46	29-Jul-22	11:36	2.3
Nitrite (as N) [mg/L]	28-Jul-22	11:49	02-Aug-22	15:16	0.3
Nitrate (as N) [mg/L]	28-Jul-22	11:49	02-Aug-22	15:16	35
Nitrate + Nitrite (as N) [mg/L]	28-Jul-22	11:49	02-Aug-22	15:16	35
Arsenic [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	0.1
Cadmium [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	< 0.005
Cobalt [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	0.17
Chromium [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	0.60
Copper [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	4.9
Mercury [mg/L]	29-Jul-22	16:22	10-Aug-22	17:21	0.003
Potassium [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	84
Molybdenum [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	0.08
Nickel [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	0.54
Phosphorus (Total) [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	274
Lead [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	0.2
Selenium [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	< 0.1
Zinc [mg/L]	29-Jul-22	16:22	02-Aug-22	17:01	7
Temperature Upon Receipt [at London Lab °C]	---	---	---	---	23.1

Note: Metals and mercury were analyzed on the as-received sample.



SGS Canada Inc.

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Project : PO#017018
LR Report : CA30476-JUL22

Carrie Greenlaw
Carrie Greenlaw
Project Specialist,
Environment, Health & Safety