Renfrew Wastewater System

2022 Annual Report

January 1, 2022 – December 31, 2022

Prepared By: Ontario Clean Water Agency
Agence Ontarienne Des Eaux

This report has been prepared to meet the requirements set out in the facility Environmental Compliance Certificate #4237-ACPJ6Y issued October 13, 2016.

Contents

1 Compliance Report Card

Compliance Event	# of Events	Details
Ministry of Environment Inspections	0	No Inspections during the reporting period
Ministry of Labour Inspections	0	No Inspections during the reporting period
Effluent Parameter Exceedances	0	No parameter was exceeded during the reporting period
Effluent Parameter Objective Exceedances	0	No effluent parameter exceeded during the reporting period
Non-Compliance	0	No Non-Compliance during the reporting period
Bypass/Overflows	2	See summary of Bypass/Overflows
Spills	0	No spills during the reporting period

2 System/Process Description

Wastewater enters the Water Pollution Control Plant (WPCP) via two influent channels, one equipped with a mechanical screen and equipped with a manual bar screen for maintenance and emergency bypass. The screening system is equipped with one screenings washer/compactor. Influent then enters two aerated grit tanks, utilizing automated blowers to provide aeration. Two grit slurry pumps, two grit cyclones, and one grit classifier/dewatering unit, process and remove inorganic material and process particulate material.

Biological treatment is provided using two (2) three-pass aeration tanks with fine bubble aeration systems and one anoxic intake zone. Flow is then directed to two (2), two-pass secondary clarifiers equipped with sludge and scum removal mechanisms. Phosphorus is removed and controlled in the effluent by the use of a settling agent called Ferric Chloride which is introduced at the beginning of the aeration process.

Disinfection of final effluent is achieved via ultraviolet (UV) light disinfection. The UV bulbs are cleaned via automated wipers.

Sludge digestion occurs via aerobic digestion. Digested sludge is dewatered via one centrifuge and back-up system dewatering press. An emulsion polymer is added to aid in dewatering. The dewatered cake is conveyed into a Town-owned dump truck and hauled to the local landfill. The Renfrew WPCP currently does not have any cake storage facilities on site, however; a bio solids study is underway to prevent cake disposal at the local landfill.

The facility is equipped with one (1) 750 kW standby diesel generator set and one (1) 4,770 L fuel tank to provide back-up power. The automatic transfer switch provides an easy transition from municipal power to back-up power.

An on-site tank and chopper pump are available for receiving imported septage.

3 Effluent Quality Assurance or Control Measures

The Town of Renfrew facilities are part of OCWA's operational Mississippi Cluster. The facilities are supported by several regional and corporate resources. Operational Services are delivered by local OCWA staff that live and work in the community.

OCWA operates facilities in compliance with applicable regulations. The facility has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents, with annual reviews.

OCWA has additional "Value Added" and operational support services that the Town of Renfrew benefits from including:

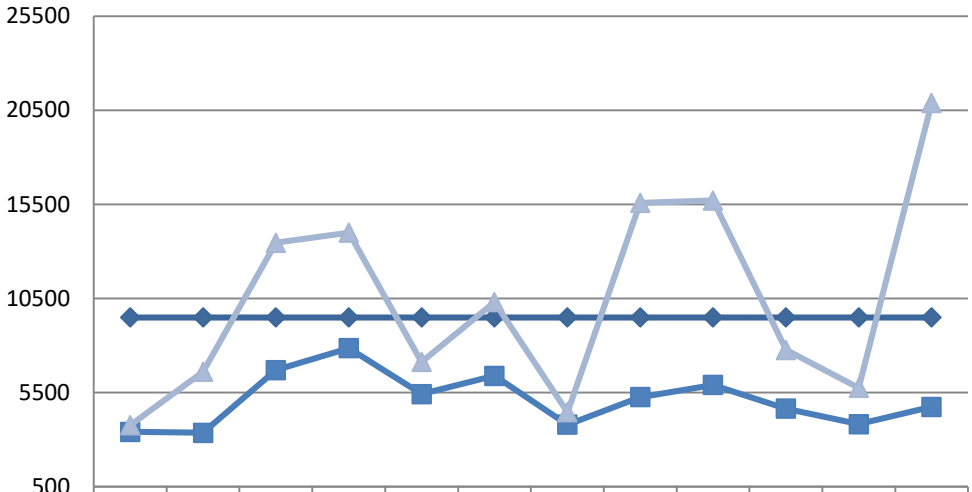
- Access to a network of operational compliance and support experts at the regional and corporate level, as well as affiliated programs that include the following:
- Quality & Environmental Management System, Occupational Health & Safety System and an internal compliance audit system.
- Process Data Management (PDM) facility operating information repository, which consolidates field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
- Work Management System (WMS) that tracks and reports maintenance activity, and creates predictive and preventative reports.
- Outpost 5 wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming and optimization of staff time.
- Client reporting which includes operational data, equipment inventory, financial statements, maintenance work orders, and capital status reports
- Site-Specific Contingency Plans and Standard Operating Procedures
- Use of accredited laboratories
- Additional support in response to unusual circumstances, and extra support in an emergency.
- Use of sampling schedules for external laboratory sampling

4 Treatment Flows

4.1 Raw Flow (m³/d)

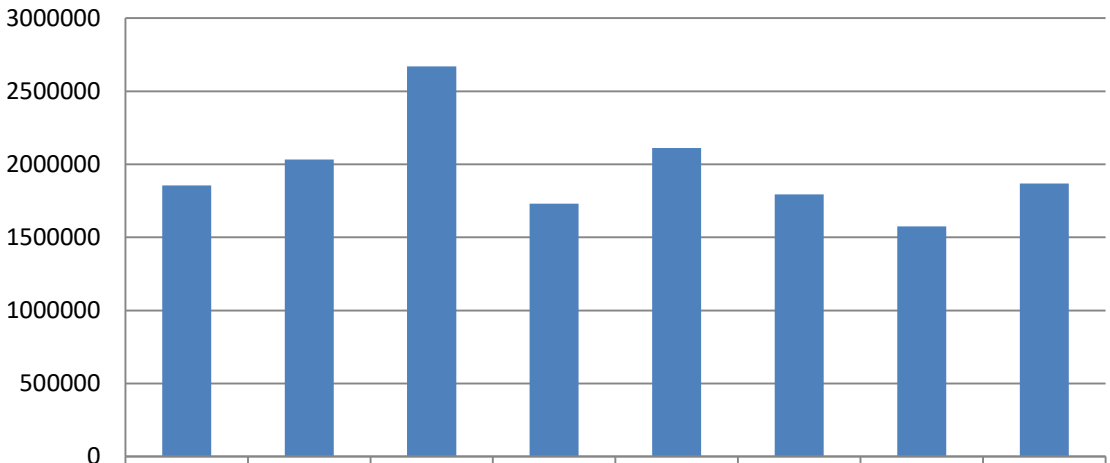
Compliance is based on an annual average flow. For 2022, the annual average flow was 5,118.41 m³/d, which is compliance with the 9,500 m³/d.

Note: Elevated flows above the rated capacity are directly related to snow melt and wet weather events.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500	9500
Avg Monthly Flow (m³/d)	3418	3370	6696	7864	5423	6393	3800	5266	5910	4649	3827	4749
Max Monthly Flow (m³/d)	3764	6609	13463	14001	7136	10315	4466	15585	15713	7773	5757	20886

4.2 Annual Comparison (m³)



	2015	2016	2017	2018	2019	2020	2021	2022
Total Annual Flow	1855735	2033547	2669781	1729973	2112540	1792972	1575036	1868221

5 Raw Sewage Quality

Results of raw sewage concentrations are available in the Facility Performance Assessment Report in Appendix A. A monthly loading summary is available in Appendix B.

5.1 Annual Average Loading Objectives

Parameter	Annual Average (kg/d)	Objective (kg/d)	Status
BOD5	15.3	712	Met Objective
Total Suspended Solids	18.1	801	Met Objective
Total Phosphorus	0.357	22	Met Objective
Total Kjeldahl Nitrogen (TKN)	23.3	113	Met Objective

6 Effluent Quality

The limits are based on current requirements in the facilities Environmental Compliance Approval. Laboratory samples are submitted to an accredited laboratory for regulatory analysis.

The Federal Government also regulates certain sewage effluent parameter under the Federal Fisheries Act. The results are submitted to Environment Canada on a quarterly basis.

6.1 Effluent Exceedance Summary

6.1.1 Limit

Sample	Date	Parameter	Exceedance of	Limit	Value
No limit exceedances during the reporting period					

6.1.2 Objective

Sample	Date	Parameter	Objective	Value
No objective exceedances during the reporting period				

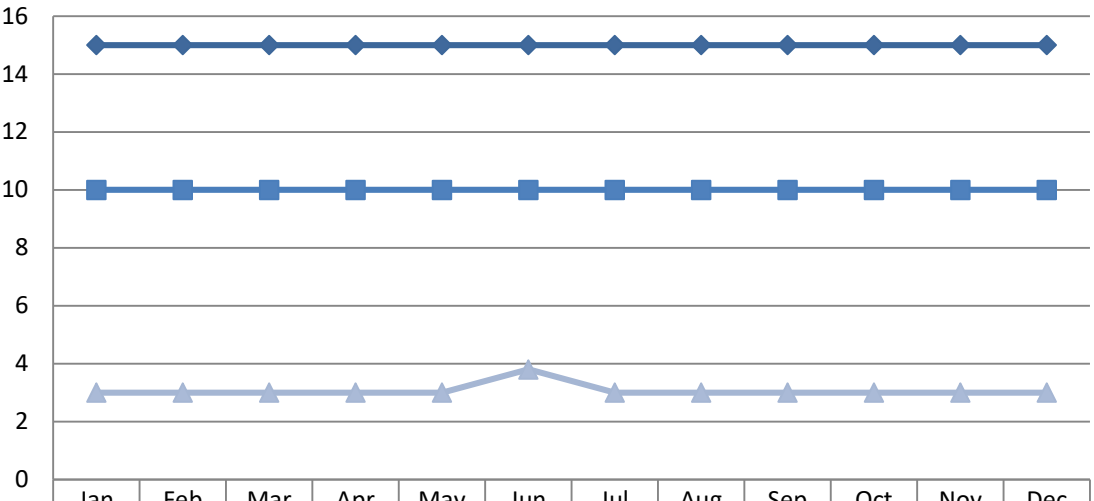
6.1.3 Other Effluent Issues

Sample	Legislation	Date	Details	Response
There were no other operational issues affecting effluent quality				

6.2 Effluent Parameter Summary

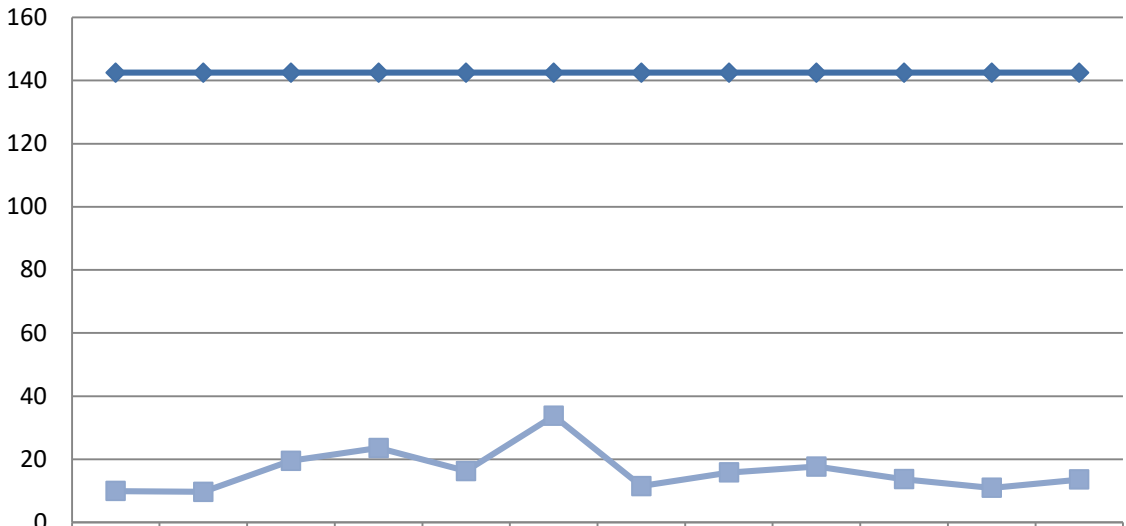
6.2.1 Carbonaceous Biological Oxygen Demand (CBOD5)

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	15	15	15	15	15	15	15	15	15	15	15	15
Objective	10	10	10	10	10	10	10	10	10	10	10	10
Average	3	3	3	3	3	3.8	3	3	3	3	3	3

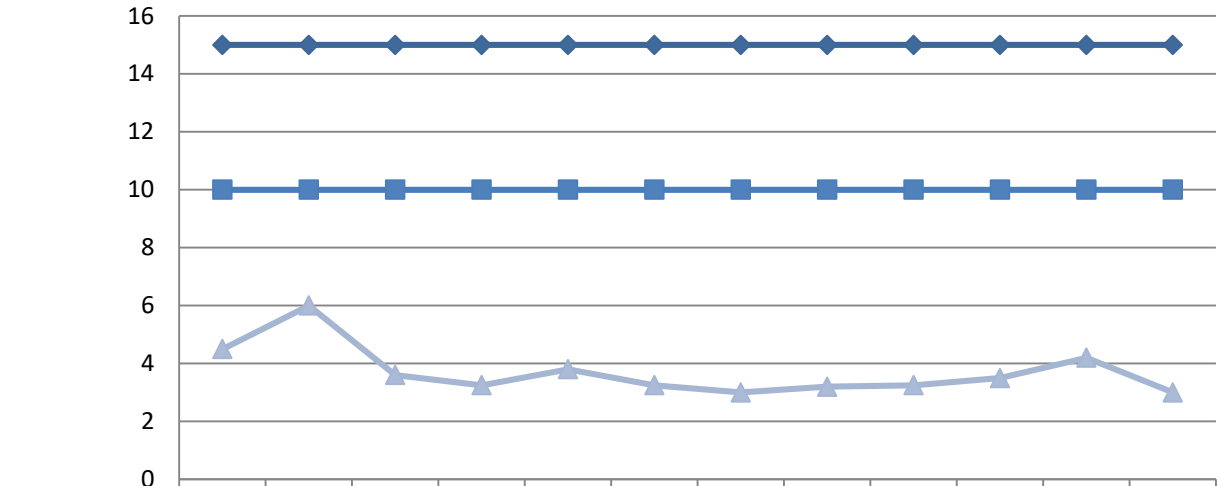
Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5
Average	9.9	9.7	19.5	23.6	16.2	33.8	11.5	15.8	17.7	13.7	11.0	13.6

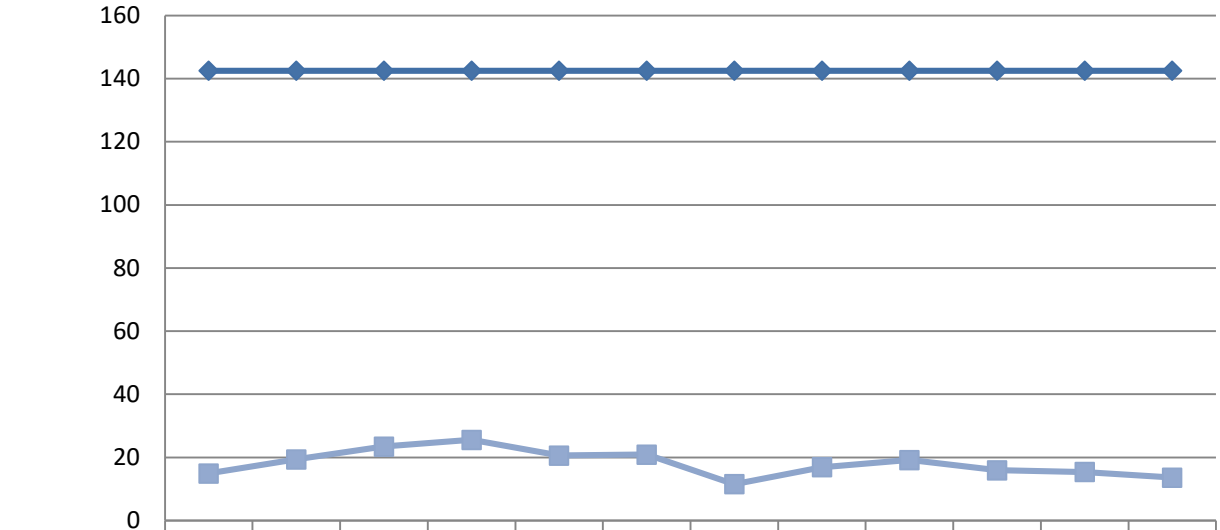
6.2.2 Total Suspended Solids

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	15	15	15	15	15	15	15	15	15	15	15	15
Objective	10	10	10	10	10	10	10	10	10	10	10	10
Average	5	6	4	3	4	3	3	3	3	4	4	3

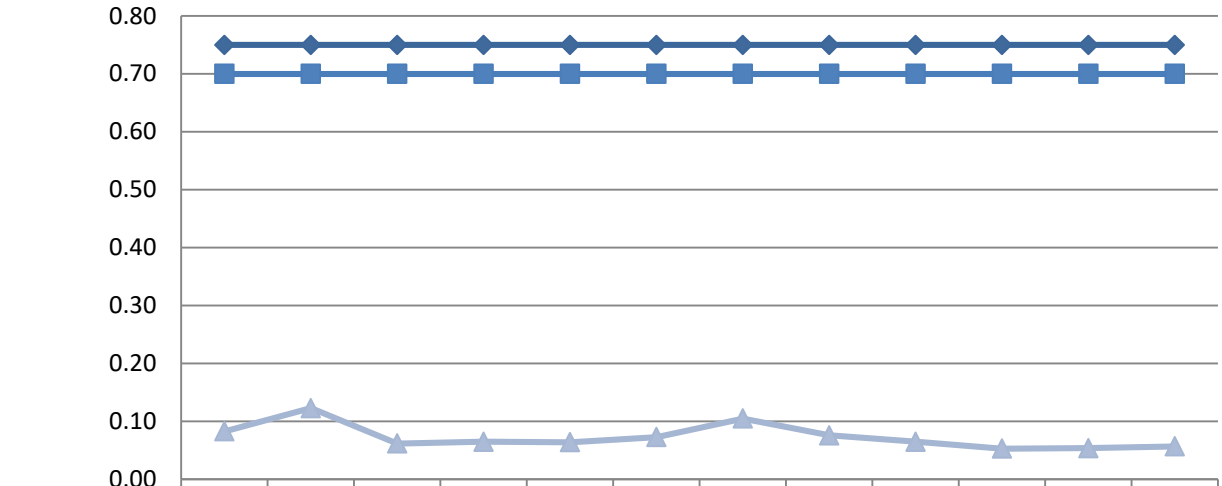
Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5	142.5
Average	14.9	19.4	23.4	25.5	20.6	20.9	11.5	16.9	19.2	15.9	15.4	13.6

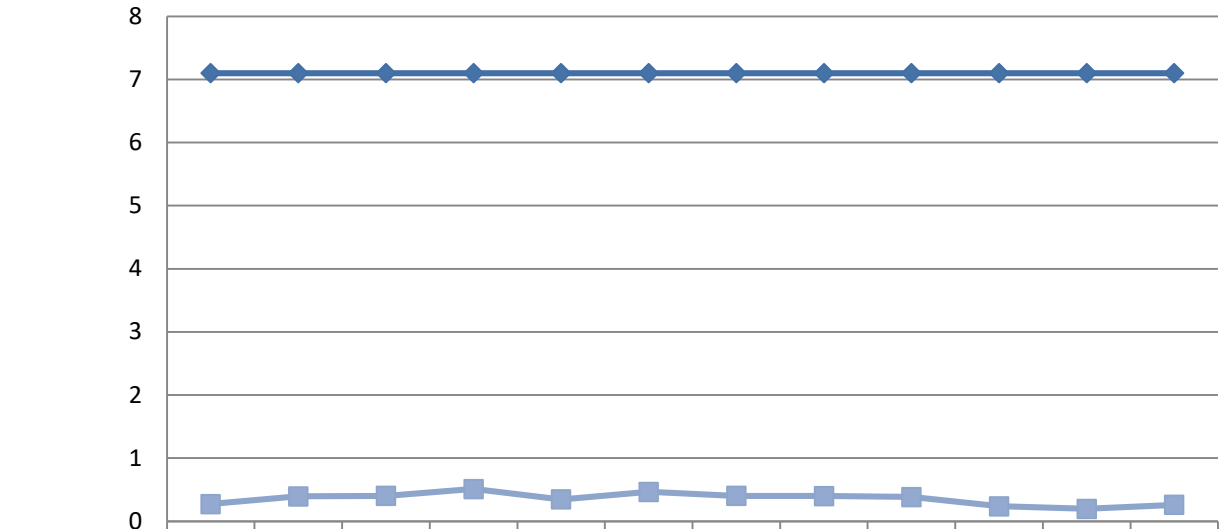
6.2.3 Total Phosphorus

Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Objective	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Average	0.08	0.12	0.06	0.07	0.06	0.07	0.11	0.08	0.07	0.05	0.05	0.06

Loading (kg/d)

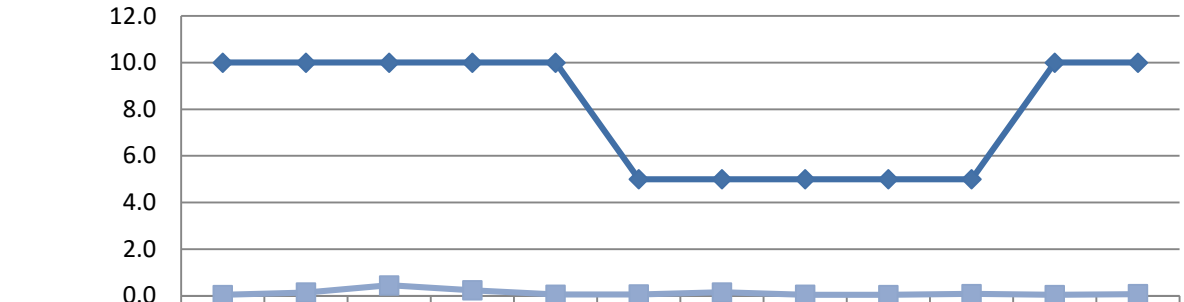


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
Average	0.27	0.40	0.40	0.51	0.35	0.47	0.40	0.40	0.38	0.24	0.20	0.26

6.2.4 Ammonia Nitrogen Series

There are no limits regarding ammonia concentration or loading. Compliance is based on acute lethality.

Total Ammonia Nitrogen Concentration (mg/L)



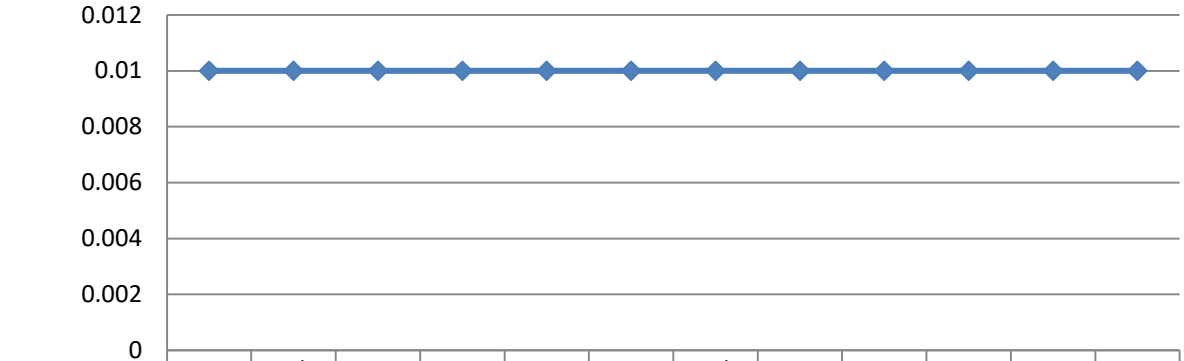
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Objective	10.0	10.0	10.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	10.0	10.0
Average	0.04	0.14	0.45	0.24	0.05	0.06	0.15	0.05	0.04	0.08	0.04	0.08

Acute Lethality

There were four (4) samples collected in 2022 and tested for acute lethality (Rainbow Trout and Daphnia Magna). Results are displayed as % mortality. Sampling has changed from annually to quarterly after the issue of the amended Environmental.

Quarter	Rainbow Trout	Daphnia Magna
1st Quarter	0%	0%
2nd Quarter	0%	0%
3rd Quarter	0%	0%
4th Quarter	0%	0%

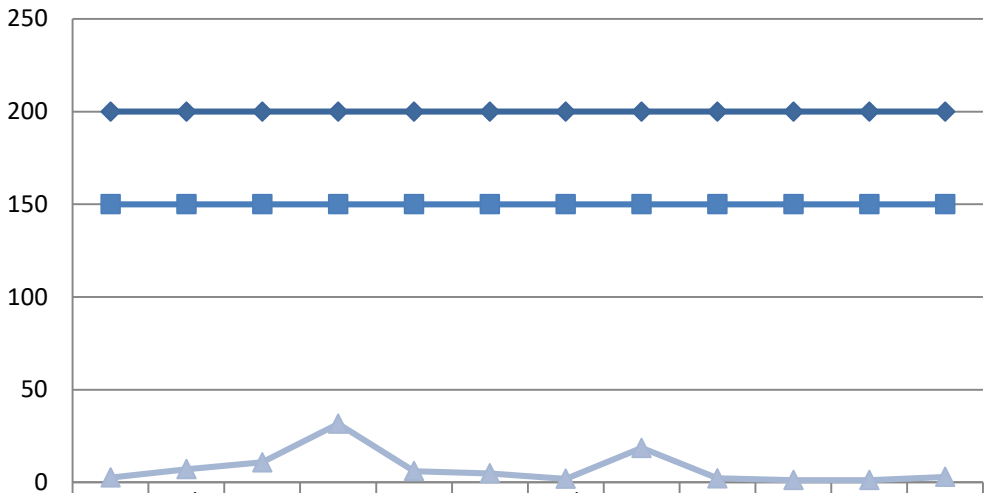
Un-Ionized Ammonia



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

6.2.5 E-coli

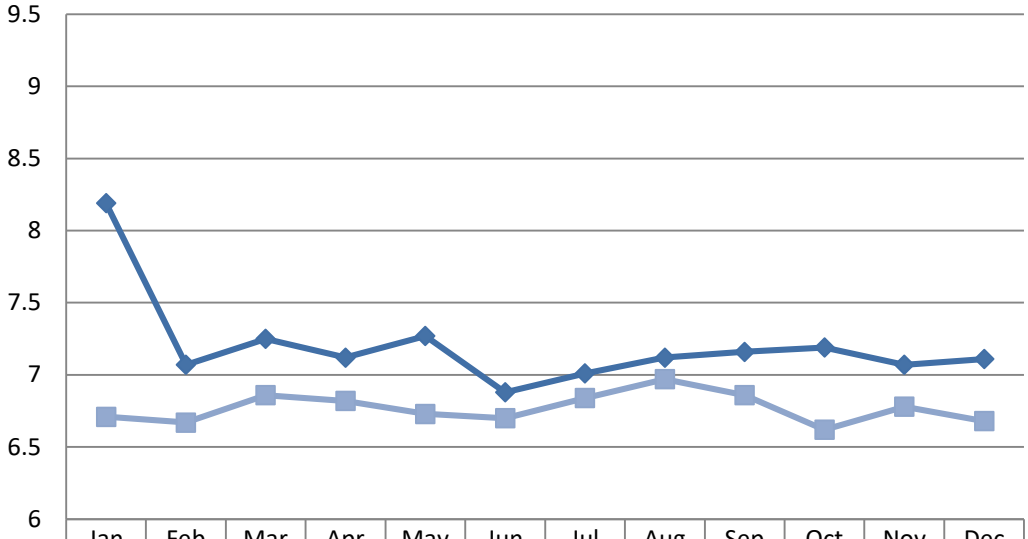
Geometric Mean Average (cfu/100mL)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	200	200	200	200	200	200	200	200	200	200	200	200
Objective	150	150	150	150	150	150	150	150	150	150	150	150
Geometric Mean Avg	2.6	7.1	10.8	31.6	6.0	4.8	1.9	18.6	2.2	1.2	1.2	3.0

pH

The minimum monthly pH objective was not exceeded in 2022. The monthly pH regulatory limit of 6.0-9.5 was not exceeded in 2022.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Monthly pH	8.19	7.07	7.25	7.12	7.27	6.88	7.01	7.12	7.16	7.19	7.07	7.11
Min Monthly pH	6.7	6.7	6.9	6.8	6.7	6.7	6.8	7.0	6.9	6.6	6.8	6.7

7 Imported Wastewater Quality

During this reporting period, no septage was conveyed to the process at the Renfrew WPCP.

8 Biosolids

Please note Section 10.4 (g) of Environmental Compliance Approval 4237-ACPJ6Y asks to include discussion on lagoon cells. The Renfew Wastewater Treatment facility does not utilize a lagoon process.

The Renfrew WPCP uses aerobic sludge digestion followed by sludge dewatering. Dewatering is completed using either centrifuge or Fournier press. The dewatered sludge was hauled off site to the local land fill. Renfrew WPCP received sludge from the Cobden sewage plant for two (2) weeks in 2022.

DATE	AMOUNT (m^3)
03/26/22	26.75
03/28/22	26.75
03/29/22	26.75
03/31/22	26.75
04/06/22	26.75
04/06/22	26.75
04/08/22	26.75
08/14/22	26.75
TOTAL	**214.0**

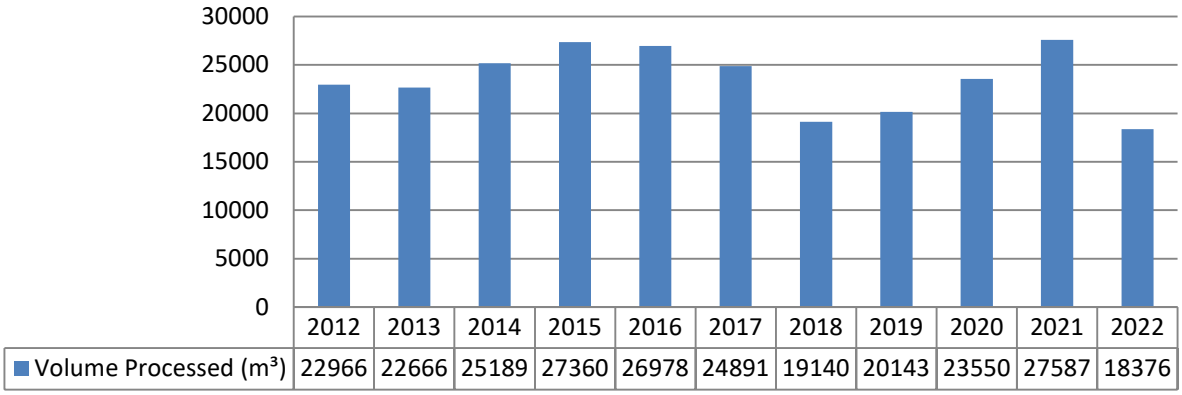
8.1 Centrifuge

Approximately 18,376 m^3 of liquid sludge was processed in 2022.

8.2 Fournier Press

The Fournier Press was not utilized in 2022.

8.3 Annual Comparison



8.4 Quality

The biosolids sampling results are summarized in Appendix C. All results met the established guidelines.

9 Summary of Complaints

Date	Location	Details	Corrective Action Taken
There were no complaints received during the reporting period.			

10 Summary of Bypass/Overflows

Start Date	End Date	Details	Actions Taken	Volume (m^3)
August 7 2022	August 7 2022	Heavy rainfall hydraulically overloaded the facility	Samples taken	20.6
September 18 2022	September 18 2022	Equipment Failure-Disinfection Bypass	Reboot UV system	Estimated 1000 - 1200

11 Summary of Spills/Abnormal Discharges

Date Start	Date End	Details	Corrective Action
There were no spills or abnormal discharges during the reporting period.			

12 Maintenance

OCWA uses a risk-based preventative maintenance framework that ensures assets are maintained to manufacturer's and/or industry standards. Maintenance is completed using various tools and operational supports. The Ottawa Valley Hub has specialized certified staff such as Millwrights, Electricians and Instrumentation Specialists to name a few.

OCWA uses a Workplace Maintenance System (WMS). WMS is a maintenance tracking system that can generate work orders as well as give summaries of completed and scheduled work. During the year, the operating authority at the facility generates scheduled work orders on a weekly, monthly and annual basis. The service work is recorded in the work order history. This ensures routine and preventive maintenance is carried out. Emergency and capital repair maintenance is completed and added to the system.

Capital projects are listed and provided to the Town of Renfrew in the form of a "Capital Forecast". This list is developed by facility staff and provides recommendations for facility components requiring upgrading or improvement.

12.1 Maintenance Highlights

WO #	Summary
2638121	Miscellaneous Capital Items
2962651	Capital Drager Gas Bottle for Bump Test
3013468	Capital WAS VFD Failure
3014865	Capital Grit System Sequencing
3018264	Capital Compactor Replacement
3062625	Capital UV Alarm Fault Diagnosis
3109161	Capital Clarifier Gear Box Winter Covers
3145677	Capital Portable Hach pH Probe Replacement
3145688	Capital Odour Control Water Strainer Replacement
2638858	Capital Blower Isolating Butterfly Valve Replacement
2639280	Capital Vestibule Door Alarm Malfunction and Repair
2639282	Capital UV Wiper Push Rods Replacement
2639284	Capital Door Handle/Lock Mechanisms Failure
2676537	Capital Headwork's Exhaust Fan Replacement
2679338	Capital 1/2" Cordless Impact Wrench for Inventory
2679340	Capital Gasket Cutter and Punch Set for Inventory
2679341	Capital Optical DO Sensor Replacement
2680618	Capital Replace All Exterior Door Handles
2680648	Capital Digester #3 Decant Valve Replacement
2680649	Capital Digester Decant Valve #2 Replacement
2721398	Capital Veolia Compactor Inspection
2721430	Capital Replacement Bathroom Toilet
2722154	Capital UPS Batteries Replacement
2722789	Capital UV Bulbs for Inventory
2723725	Capital WAS Valve Handle Nut Attachment Replacement
2726279	Capital Emergency Delivery of Sludge From Cobden
2727015	Capital Concrete Surface Repair Option Evaluation
2818180	Capital Door Handle Replacement
2820237	Capital Maintenance on Boilers, Circulation Pumps, Hot Water Tanks
2822092	Capital Pump Gallery Sump Pump Failure
2824958	Capital Glycol System Overhaul
2873760	Capital Glycol to fill system
2874625	Capital Digester Telescopic Valve Seal Replacement
2917047	Capital Digester Tank 3 Maintenance/Cleaning
2962663	Capital Centrifuge Bearing Replacement
2965698	Capital Repair to Digester Telescopic Valve Seal
2965702	Capital Replace Seal on Gearbox of Centrifuge Auger
2965992	Capital Blower Oil Seal Replacement
2969048	Capital Brass Valve Screw Block
3012896	Capital Grit Auger Packing and Broken Tap Removal
3012899	Capital WAS Pump Motor Failure

12.2 Notice of Modifications to Sewage Works

There were no modifications, proposed alterations, extensions or replacements that would affect Schedule B of the Certificate of Approval.

13 Calibrations

The flow monitoring equipment was calibrated May 25th 2022.

Appendix A

Appendix A - Facility Assessment Report

Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Performance Assessment Report Standard ECA

From 1/1/2022 to 12/31/2022

5678 MISSISSIPPI MILLS WASTEWATER TREATMENT FACILITY 110000873

	1 / 2022	2/ 2022	3/ 2022	4/ 2022	5/ 2022	6/ 2022	7/ 2022	8/ 2022	9/ 2022	10/ 2022	11/ 2022	12/ 2022	<--Total-->	<--Avg-->	<--Max-->	<-Criteria->
Flows																
Raw Flow: Total - Raw Sewage m³/d	56,981.66	96,005.20	261,641.91	211,760.35	91,995.37	106,207.90	69,682.05	86,591.46	84,072.98	83,899.58	64,529.12	100,074.90	1,313,442.48			0.00
Raw Flow: Avg - Raw Sewage m³/d	1,838.12	3,428.76	8,440.06	7,058.68	2,967.59	3,540.26	2,247.81	2,793.27	2,802.43	2,706.44	2,150.97	3,228.22		3,598.47		
Raw Flow: Max - Raw Sewage m³/d	2,277.10	4,464.34	15,713.43	13,439.25	4,040.27	6,000.00	3,951.14	6,282.73	3,927.92	3,872.41	3,282.31	15,490.14			15,713.43	0.00
Raw Flow: Count - Raw Sewage m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Eff. Flow: Total - Final Effluent m³/d	65,055.49	78,518.86	143,312.57	192,026.02	80,422.64	82,836.77	64,248.32	72,932.69	75,037.35	67,285.87	62,138.33	93,565.86	1,077,380.77			0.00
Eff. Flow: Avg - Final Effluent m³/d	2,168.52	2,804.25	4,622.99	6,400.87	2,594.28	2,761.23	2,072.53	2,352.67	2,501.25	2,170.51	2,071.28	3,018.25		0.00		
Eff. Flow: Max - Final Effluent m³/d	2,895.37	3,879.97	10,825.35	10,207.63	3,582.00	4,842.87	3,574.60	3,932.42	3,912.32	2,433.91	2,626.29	15,519.65			15,519.65	0.00
Eff Flow: Count - Final Effluent m³/d	30.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	364.00			0.00
Biochemical Oxygen Demand: BOD5																
Raw: # of samples of BOD5 - Raw Sewage mg/L	4.00	4.00	8.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	55.00			0.00
Carbonaceous Biochemical Oxygen Demand: CBOD																
Raw: # of samples of cBOD5 - Raw Sewage mg/L	4.00	4.00	8.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	55.00			0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Raw Sewage mg/L	432.50	798.25	59.50	107.00	156.50	136.40	226.25	144.00	320.25	180.00	222.60	251.25		252.88	798.25	0.00
Raw: # of samples of TSS - Raw Sewage mg/L	4.00	4.00	8.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	55.00			0.00
Total Phosphorus: TP																
Raw: Avg TP - Raw Sewage mg/L	6.82	13.48	1.75	3.05	4.07	3.93	5.60	3.65	5.87	5.58	5.60	6.54		5.49	13.48	0.00
Raw: # of samples of TP - Raw Sewage mg/L	4.00	4.00	8.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	55.00			0.00
Nitrogen Series																
Raw: Avg TKN - Raw Sewage mg/L	44.78	63.80	13.26	22.15	28.80	30.18	34.73	27.76	52.93	45.38	46.90	45.85		38.04	63.80	0.00
Raw: # of samples of TKN - Raw Sewage mg/L	4.00	4.00	8.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	55.00			0.00
Disinfection																
Eff: GMD E. Coli - Final Effluent cfu/100mL	1.00	1.86	6.53	2.76	1.78	1.00	1.00	1.00	1.50	1.57	1.00	1.68				200.00
Eff: # of samples of E. Coli - Final Effluent cfu/100mL	4.00	4.00	12.00	8.00	4.00	5.00	4.00	5.00	4.00	4.00	5.00	4.00	63.00			0.00

Appendix B

Appendix B - Raw Sewage Loading Summary

Ontario Clean Water Agency
Time Series Info Report

From: 01/01/2022 to 31/12/2022

Facility Org Number: 5863
Facility Works Number: 120000603
Facility Name: RENFREW WASTEWATER TREATMENT FACILITY
Facility Owner: Municipality: The Corporation of the Town of Renfrew
Facility Classification: Class 3 Wastewater Treatment
Receiver: Bonnechere River
Service Population:
Total Design Capacity: 9500.0 m3/day

	01/2022	02/2022	03/2022	04/2022	05/2022	06/2022	07/2022	08/2022	09/2022	10/2022	11/2022	12/2022	Total	Avg	Max	Min
Raw Sewage Influent / Loadings BOD - kg/d																
Count IH	4	4	5	4	5	4	4	5	4	4	5	4	52			
Max IH	423.738	518.33	499.12	756.054	474.564	465.612	366.399	919.515	342.72	378.161	324.583	295.68			919.515	
Mean IH	288.983	389.447	305.372	419.499	321.525	356.343	264.885	426.883	232.53	244.935	241.018	244.405		312.271		
Min IH	206.832	243.288	210.569	255.56	216.832	90.096	182.937	101.973	106.66	113.184	194.168	214.85				90.096
Total IH	1155.931	1557.786	1526.859	1677.996	1607.627	1425.372	1059.541	2134.413	930.12	979.74	1205.088	977.62	16238.09			
Raw Sewage Influent / Loadings Suspended Solids - kg/d																
Count IH	4	4	5	4	5	4	4	5	4	4	5	4	52			
Max IH	799.155	708.4	825.75	1288.092	423.864	599.616	360.208	2213.07	365.568	454.496	230.082	422.4			2213.07	
Mean IH	347.194	302.411	437.211	672.333	359.746	440.435	209.052	876.836	318.192	198.025	179.081	274.039		390.598		
Min IH	173.472	164.268	213.86	255.56	256.256	210.224	57.392	150.276	222.754	101.976	141.892	178.296				57.392
Total IH	1388.775	1209.643	2186.054	2689.33	1798.728	1761.74	836.208	4384.178	1272.768	792.1	895.404	1096.156	20311.08			
Raw Sewage Influent / Loadings TKN - kg/d																
Count IH	4	4	5	4	5	4	4	5	4	4	5	4	52			
Max IH	139.016	156.17	129.472	326.223	171.779	191.544	90.742	275.855	151.939	151.363	109.737	114.73			326.223	
Mean IH	113.929	108.253	112.584	172.437	113.263	139.185	83.733	108.361	101.166	106.971	94.703	105.964		112.906		
Min IH	95.41	90.347	94.56	107.335	90.675	88.594	79.201	12.056	74.662	73.57	52.013	99.456				12.056
Total IH	455.715	433.011	562.92	689.746	566.316	556.741	334.931	541.805	404.665	427.885	473.514	423.857	5871.107			
Raw Sewage Influent / Loadings Total Phosphorus - kg/d																
Count IH	4	4	5	4	5	4	4	5	4	4	5	4	52			
Max IH	21.559	19.642	16.331	35.983	13.435	18.449	8.086	45.664	10.053	17.49	10.133	10.184			45.664	
Mean IH	11.627	10.391	10.384	17.595	11.174	13.565	7.283	17.427	7.979	9.496	7.387	8.16		11.082		
Min IH	5.971	5.655	5.861	8.689	8.87	3.829	6.349	4.949	6.08	3.678	3.901	6.589				3.678
Total IH	46.51	41.565	51.921	70.378	55.868	54.261	29.133	87.133	31.914	37.986	36.936	32.641	576.247			

Appendix C

Appendix C - Biosolids Quality

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Solids and Nutrients

Facility: RENFREW WASTEWATER TREATMENT FACILITY
Works: 5863
Period: 01/01/2022 to 12/01/2022

Facility Works Number:
Facility Name: *RENFREW WASTEWATER TREATMENT FACILITY*
Facility Owner: *Municipality: The Corporation of the Town of Renfrew*
Facility Classification: *Class 3 Wastewater Treatment*
Receiver: *Bonnechere River*
Service Population:
Total Design Capacity: *9500.0 m3/day*
Period Being Reported: 01/01/2022 12/01/2022

Note: all parameters in this report will be derived from the Bslq Station

Month	Total Sludge Hauled (m3)	Avg. Total Solids (mg/L)	Avg. Volatile Solids (mg/L)	Avg. Total Phosphorus (mg/L)	Ammonia (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	TKN (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Site	**RENFREW WASTEWATER TREATMENT FACILITY**									
Station	**Bslq Station only**									
Parameter Short Name	**HauledVol**	**TS**	**VS**	**TP**	**NH3p_NH4p_N**	**NO3-N**	**NO2-N**	**TKN**	**calculation in report - no T/S**	**K**
T/s	**IH Month.Total**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**	**Lab Published Month Mean**		**Lab Published Month Mean**
Jan		11,500.000	7,000.000	182.000	7.610	29.200	0.100	414.000	18.405	46.400
Feb		11,600.000	7,900.000	232.000	4.110	4.100	0.100	627.000	4.105	42.400
Mar		10,800.000	5,800.000	237.000	625.000	49.800	1.000	700.000	337.400	45.700
Apr		16,400.000	10,000.000	315.000	9.460	0.500	0.500	902.000	4.980	82.000
May		15,500.000	9,400.000	324.000	6.260	30.500	1.000	755.000	18.380	83.900
Jun		15,300.000	8,600.000	366.000	8.000	0.100	0.100	698.000	4.050	67.400
Jul		14,700.000	8,800.000	401.000	641.000	51.300	1.000	673.000	346.150	56.800
Aug		14,400.000	7,600.000	407.000	2.390	4.700	1.000	797.000	3.545	47.400
Sep		12,800.000	6,700.000	318.000	4.500	13.800	0.100	548.000	9.150	45.700

Oct		13,300.000	6,360.000	365.000	4.140	4.600	1.000	595.000	4.370	49.000
Nov		6,780.000	6,740.000	371.000	6.240	1.000	1.000	598.000	3.620	46.500
Dec		10,400.000	6,200.000	266.000	308.000	18.200	0.100	576.000	163.100	36.100
Average		12,790.000	7,591.667	315.333	135.559	17.317	0.583	656.917	76.438	54.108
Total	0.000	153,480.000	91,100.000	3,784.000	1,626.710	207.800	7.000	7,883.000	917.255	649.300

Ontario Clean Water Agency
Biosolids Quality Report - Liquid
Digestor Type: AEROBIC
Metals and Criteria

Facility: RENFREW WASTEWATER TREATMENT FACILITY
Works: 5863
Period: 01/01/2022 to 12/01/2022

Note: all parameters in this report will be derived from the Bslq Station

Month	Arsenic (mg/L)	Cadmium (mg/L)	Cobalt (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Lead (mg/L)	Selenium (mg/L)	Zinc (mg/L)
Site	RENFREW WASTEWATER TREATMENT FACILITY										
Station	Bslq Station only										
Parameter Short Name	As	Cd	Co	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
T/s	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean
Jan	0.100	0.030	0.030	0.590	3.620	0.002	0.060	0.240	0.100	0.100	2.900
Feb	0.100	0.030	0.060	0.490	3.150	0.002	0.060	0.190	0.100	0.100	2.350
Mar	0.100	0.030	0.030	0.450	3.430	0.002	0.050	0.170	0.200	0.100	2.520
Apr	0.100	0.030	0.070	0.650	4.900	0.002	0.060	0.270	0.200	0.100	4.360
May	0.100	0.030	0.030	0.680	5.430	0.003	0.070	0.300	0.200	0.100	4.570
Jun	0.100	0.030	0.060	0.810	5.150	0.008	0.060	0.310	0.300	0.100	4.730
Jul	0.100	0.030	0.060	0.970	5.260	0.005	0.080	0.350	0.300	0.100	4.960
Aug	0.100	0.030	0.110	1.030	5.550	0.006	0.090	0.360	0.300	0.100	5.550
Sep	0.100	0.030	0.050	0.750	4.430	0.004	0.080	0.290	0.300	0.100	5.170
Oct	0.100	0.030	0.090	0.810	4.610	0.006	0.090	0.350	0.300	0.100	5.500
Nov	0.100	0.030	0.070	0.780	4.610	0.004	0.080	0.330	0.200	0.100	4.450
Dec	0.100	0.030	0.050	0.560	3.200	0.002	0.060	0.250	0.200	0.100	3.160
Average	0.100	0.030	0.059	0.714	4.445	0.004	0.070	0.284	0.225	0.100	4.185
Max. Permissible Metal Concentrations (mg/kg of Solids)	170.000	34.000	340.000	2,800.000	1,700.000	11.000	94.000	420.000	1,100.000	34.000	4,200.000
Metal Concentrations in Sludge (mg/kg)	7.819	2.346	4.626	55.838	347.537	0.300	5.473	22.218	17.592	7.819	327.209

Ontario Clean Water Agency
Biosolids Quality Report - Liquid - Based on Last 4 Samples
Digestor Type: AEROBIC

Facility: RENFREW WASTEWATER TREATMENT FACILITY
Works: 5863
Period: 01/01/2022 to 12/01/2022

Note: all parameters in this report will be derived from the Bslq Station

Parameter Short Name	Time Series	09/06/2022	10/11/2022	11/02/2022	12/06/2022	Average	Metal Concentrations in Sludge (mg/kg):	Max. Permissible Metal Concentrations (mg/kg of Solids):
As (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100	9.242	170
Cd (mg/L)	Lab Published	0.030	0.030	0.030	0.030	0.030	2.773	34
Co (mg/L)	Lab Published	0.050	0.090	0.070	0.050	0.065	6.007	340
Cr (mg/L)	Lab Published	0.750	0.810	0.780	0.560	0.725	67.006	2800
Cu (mg/L)	Lab Published	4.430	4.610	4.610	3.200	4.213	389.372	1700
Hg (mg/L)	Lab Published	0.004	0.006	0.004	0.002	0.004	0.370	11
Mo (mg/L)	Lab Published	0.080	0.090	0.080	0.060	0.078	7.209	94
Ni (mg/L)	Lab Published	0.290	0.350	0.330	0.250	0.305	28.189	420
Pb (mg/L)	Lab Published	0.300	0.300	0.200	0.200	0.250	23.105	1100
Se (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100	9.242	34
Zn (mg/L)	Lab Published	5.170	5.500	4.450	3.160	4.570	422.366	4200
E. Coli: Dry Wt (cfu/g)	Lab Published						E.Coli average is the GMD	
TS (mg/L)	Lab Published	12,800.000	13,300.000	6,780.000	10,400.000	10,820.000		
VS (mg/L)	Lab Published	6,700.000	6,360.000	6,740.000	6,200.000	6,500.000		
TP (mg/L)	Lab Published	318.000	365.000	371.000	266.000	330.000		
NO2-N (mg/L)	Lab Published	0.100	1.000	1.000	0.100	0.550		
TKN (mg/L)	Lab Published	548.000	595.000	598.000	576.000	579.250		
K (mg/L)	Lab Published	45.700	49.000	46.500	36.100	44.325		
NH3p_NH4p_N (mg/L)	Lab Published	4.500	4.140	6.240	308.000	80.720		
NO3-N (mg/L)	Lab Published	13.800	4.600	1.000	18.200	9.400		