

Renfrew Wastewater System

2021 Annual Report

January 1, 2021 – December 31, 2021

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.

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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
Non-Compliance	0	No Non-Compliance during the reporting period
Bypass/Overflows	1	See summary of Bypass/Overflows
Community Complaints	0	No community complaints during the reporting period
Spills	0	No spills during the reporting period

System/Process Description

Wastewater enters the Water Pollution Control Plant (WPCP) through two influent channels, one equipped with a mechanical screen and one 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 transport 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. Polymers are added to aid in dewatering. The dewatered cake is conveyed into a Town-owned dump truck and hauled to the local landfill. There are no sludge storage facilities onsite at Renfrew WPCP.

The facility is equipped with back-up power.

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

Effluent Quality Assurance or Control Measures

The Town of Renfrew facilities are part of OCWA's operational Mississippi Cluster. The facilities are supported by regional and corporate resources. Operational Services are delivered by 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:

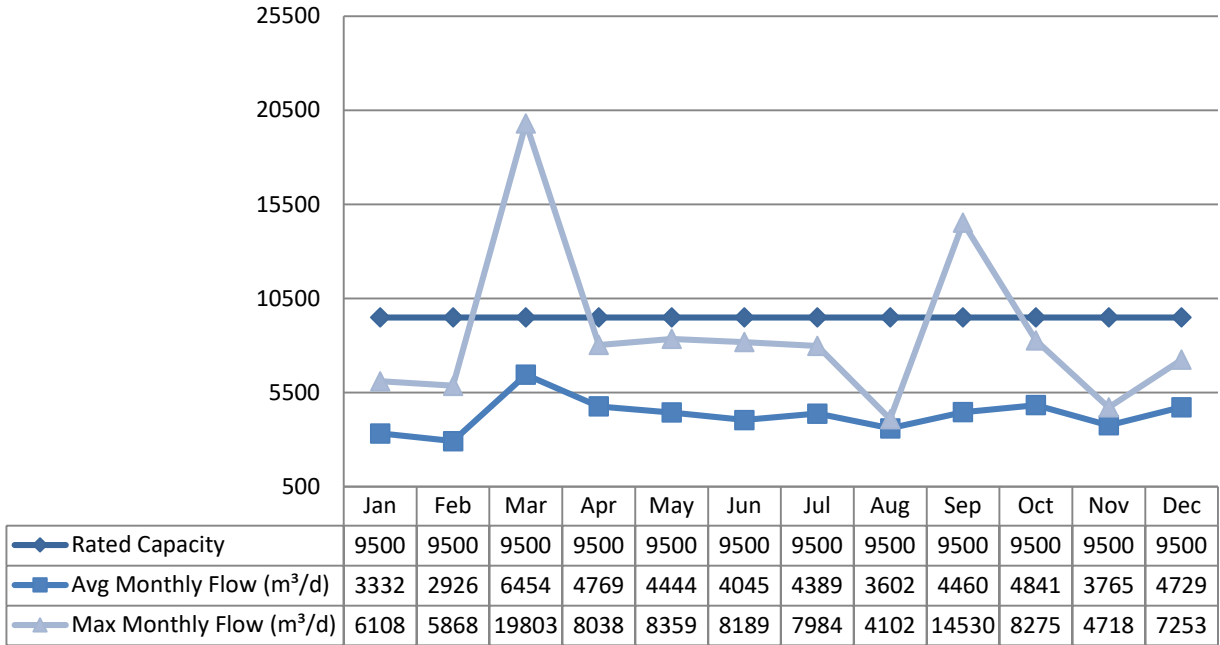
- Access to a network of operational compliance and support experts at the regional and corporate level, as well as affiliated programs that include the following:
- Quality & Environmental Management System, Occupational Health & Safety System and an internal compliance audit system.
- Process Data 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

Treatment Flows

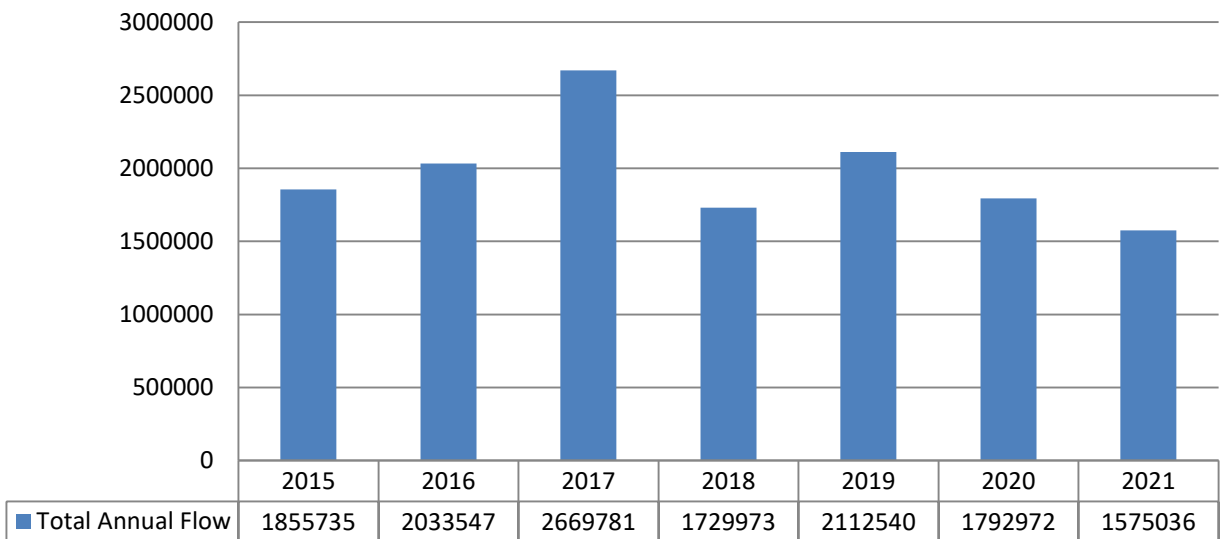
Raw Flow (m³/d)

Compliance is based on an annual average flow. For 2021, the annual average flow was 4313 m³/d, which is compliance with the 9500 m³/d.

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



Annual Comparison (m³)



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.

Annual Average Loading Objectives

Parameter	Annual Average (kg/d)	Objective (kg/d)	Status
BOD5	628	712	Met Objective
Total Suspended Solids	15	801	Met Objective
Total Phosphorus	0.302	22	Met Objective
Total Kjeldahl Nitrogen (TKN)	1.41	125	Met Objective

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.

Effluent Exceedance Summary

Limit

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

Objective

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

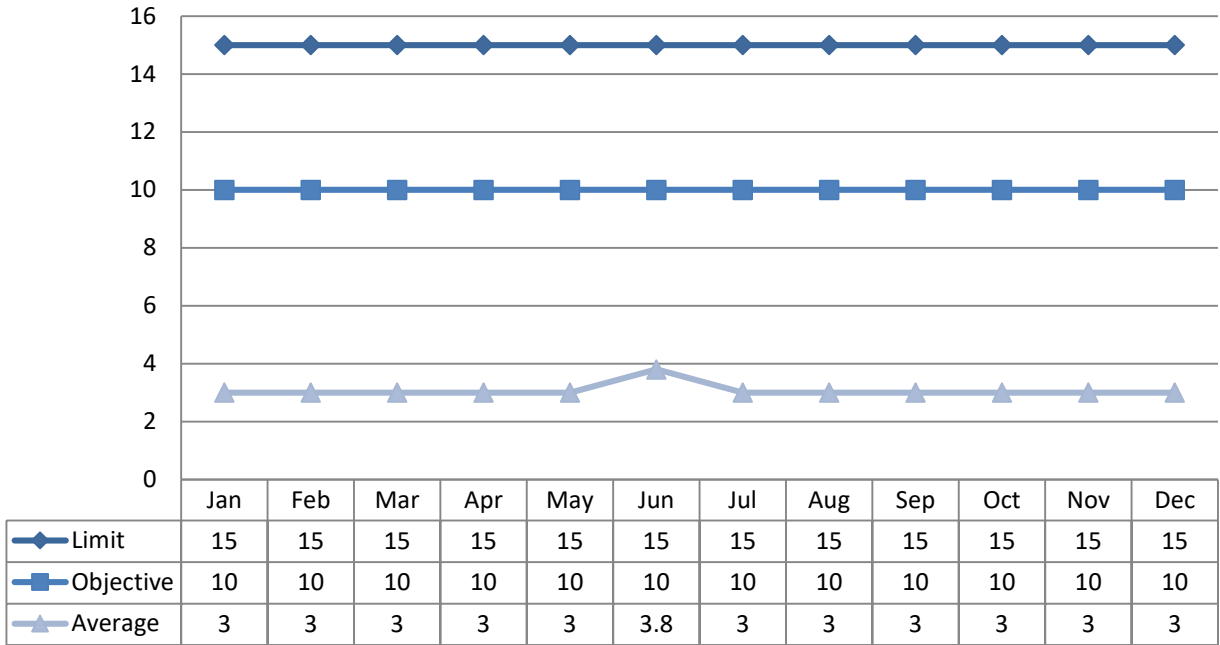
Other Effluent Issues

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

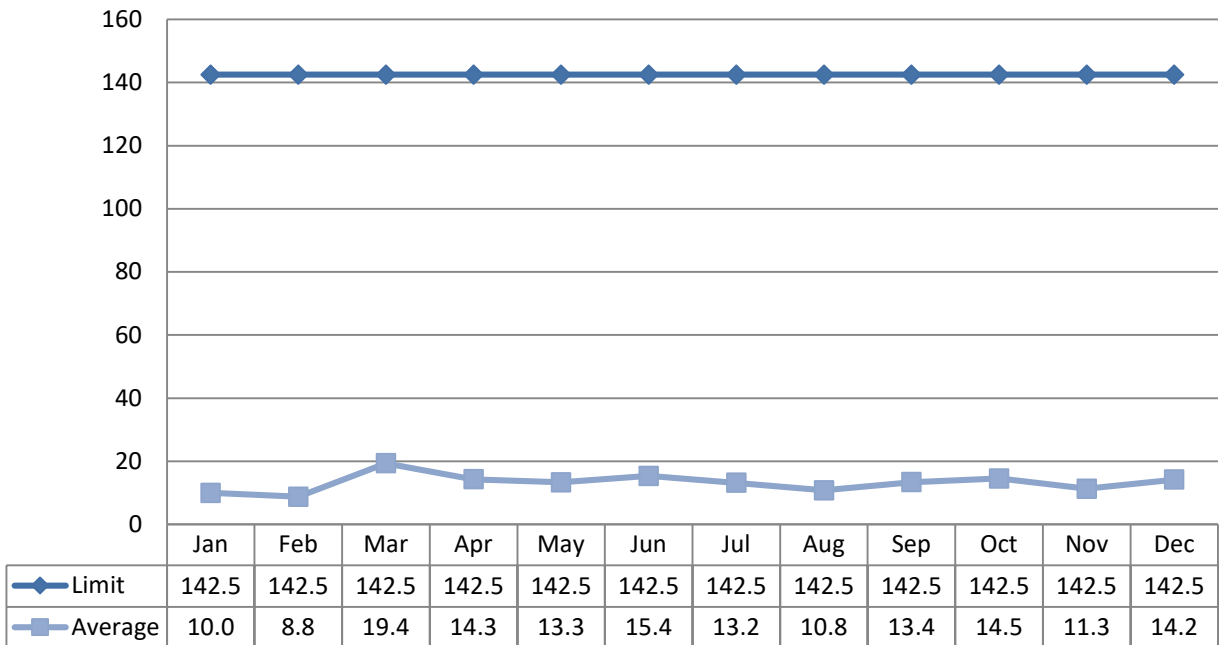
Effluent Parameter Summary

Carbonaceous Biological Oxygen Demand (CBOD5)

Concentration (mg/L)

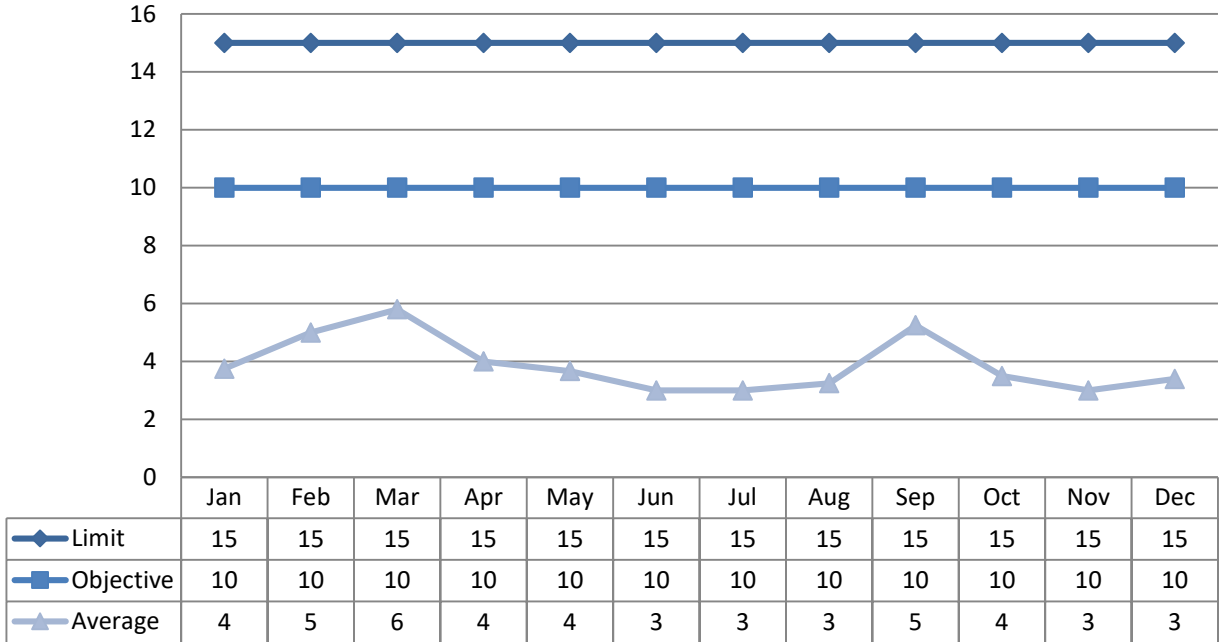


Loading (kg/d)

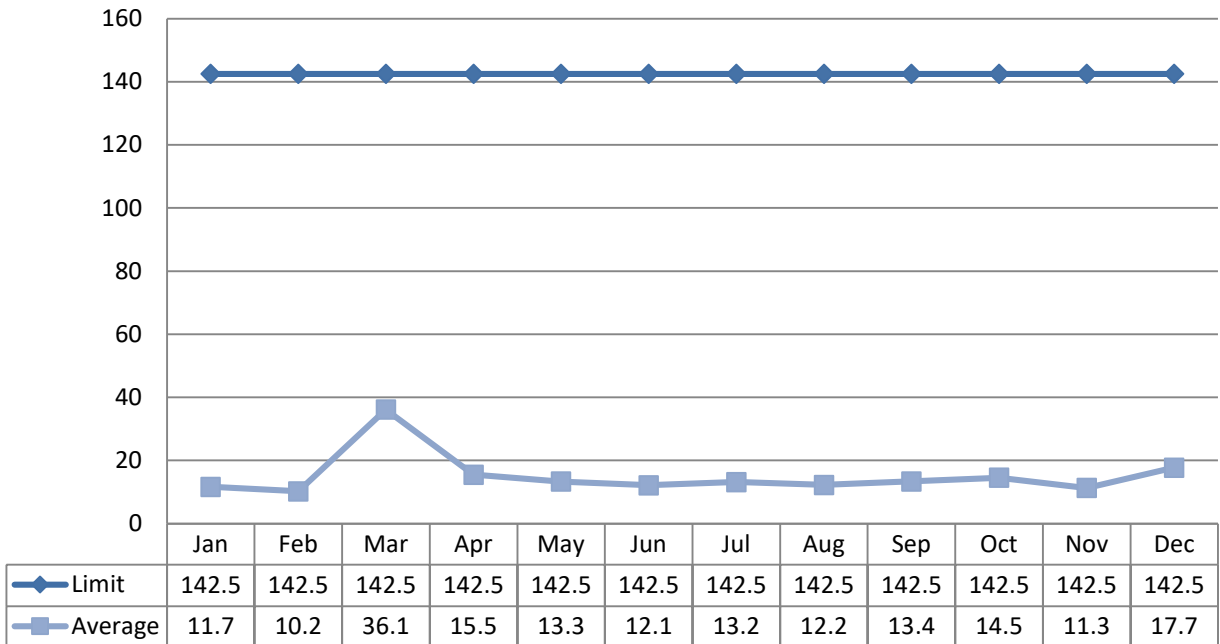


Total Suspended Solids

Concentration (mg/L)

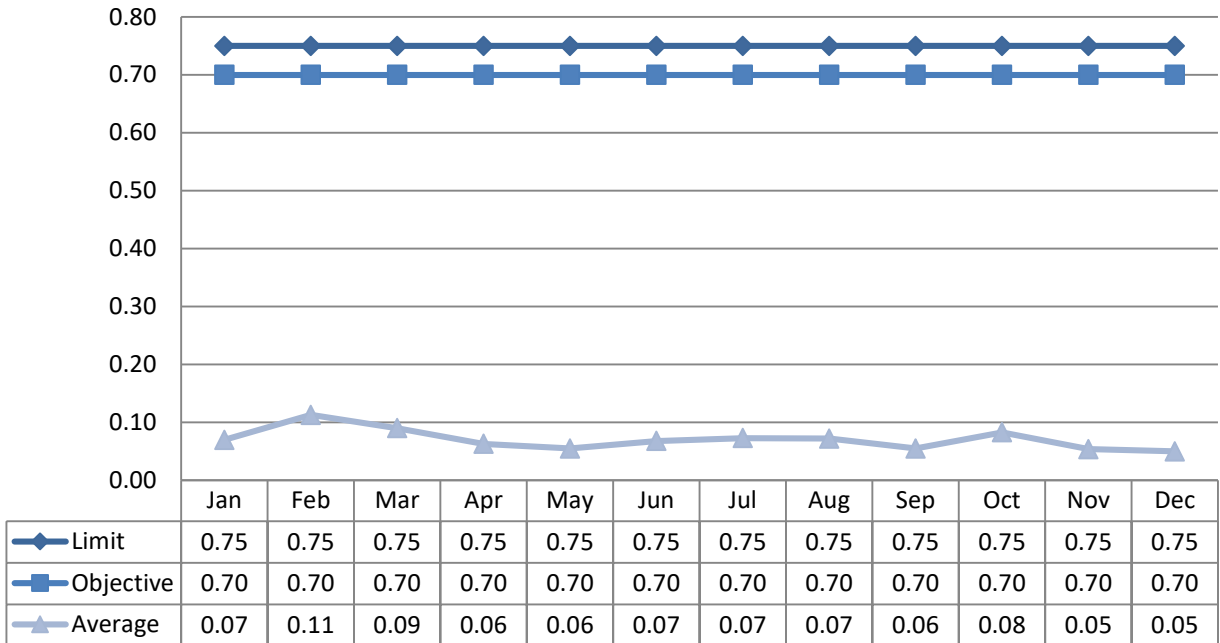


Loading (kg/d)

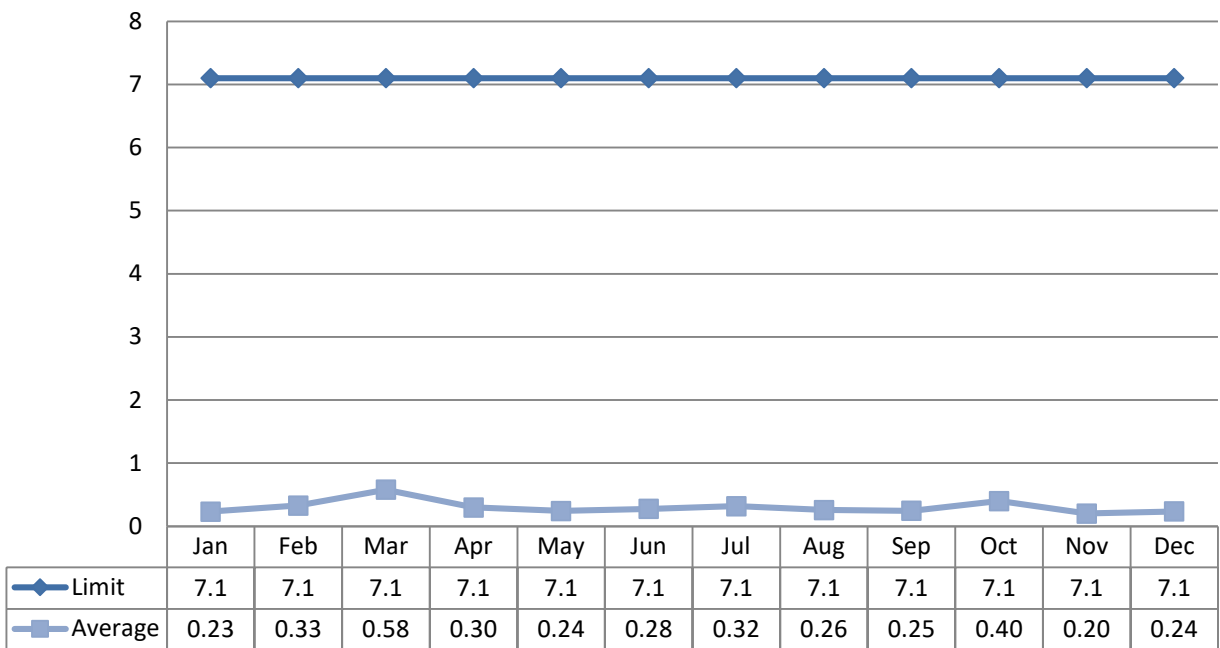


Total Phosphorus

Concentration (mg/L)

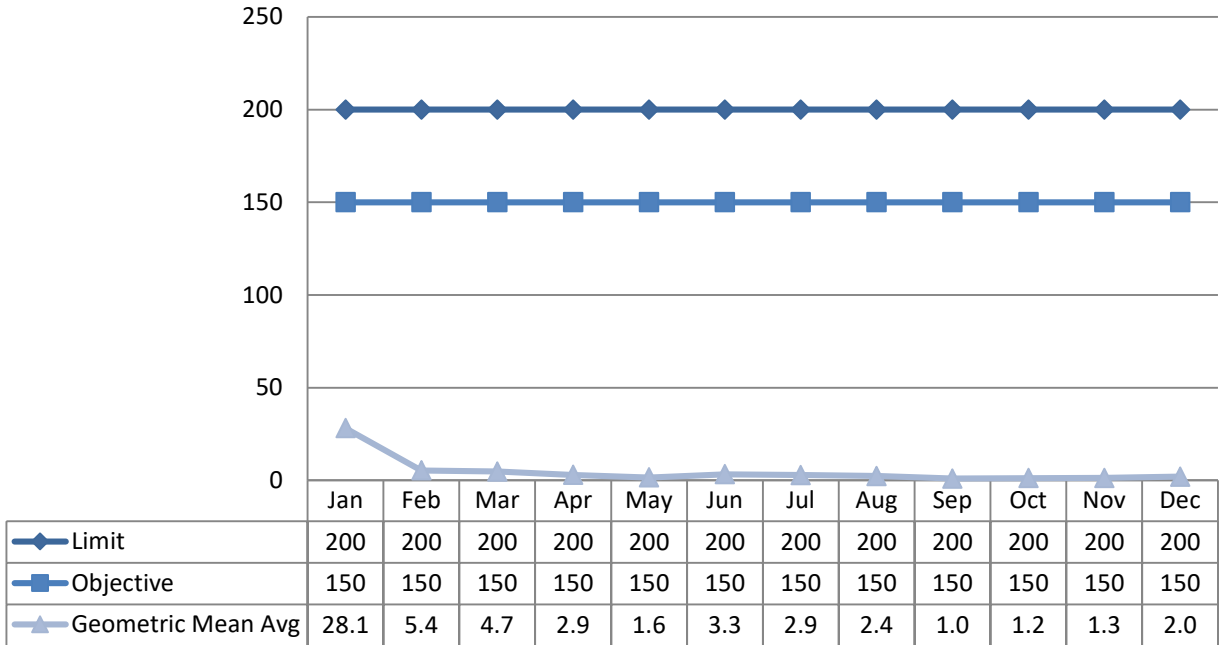


Loading (kg/d)

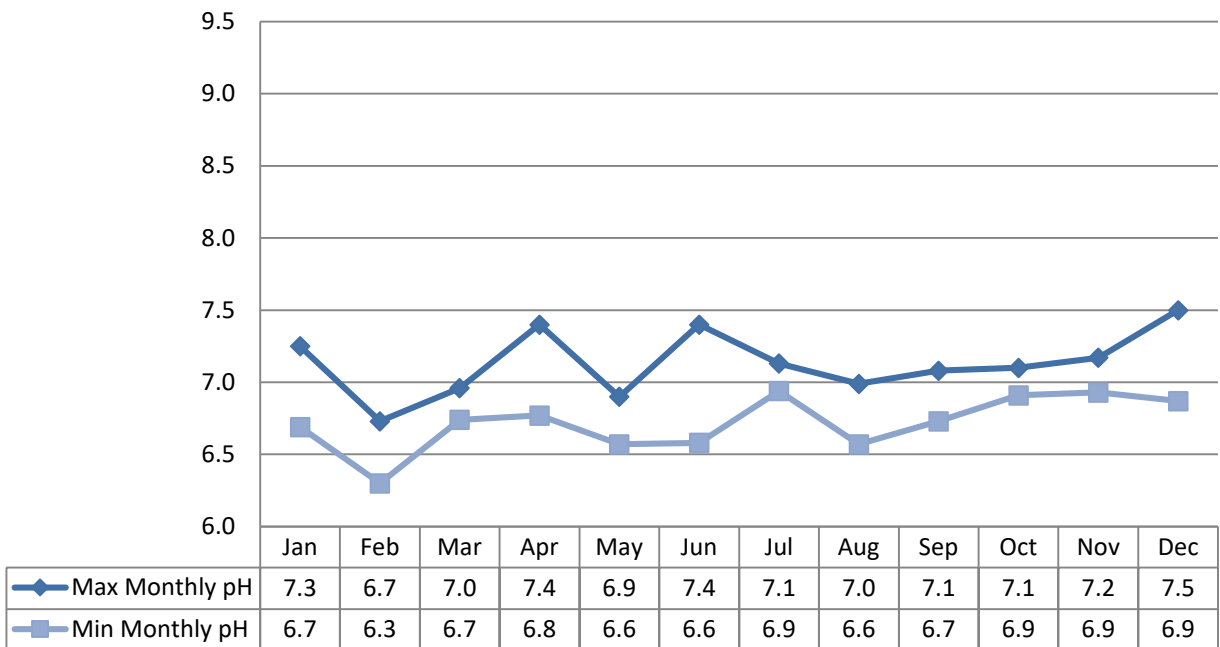


E-coli

Geometric Mean Average (cfu/100mL)



pH



Imported Wastewater Quality

There were no imported wastewaters accepted into the treatment plant.

Biosolids

Please note Section 10.4 (g) of Environmental Compliance Approval 4237-ACPJ6Y asks to include discussion on lagoon cells. The Renfrew 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.

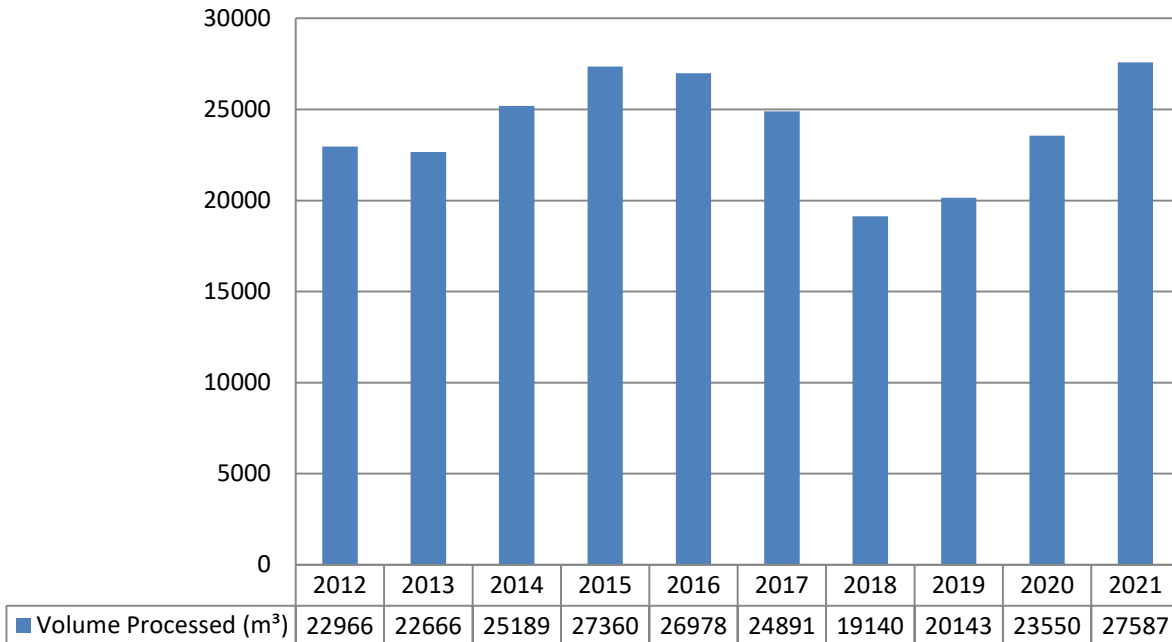
Centrifuge

Approximately 27,587 m³ of liquid sludge was processed in 2021.

Fournier Press

The Fournier Press was not utilized in 2021.

Annual Comparison



Quality

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

Summary of Complaints

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

Summary of Bypass/Overflows

Start Date	End Date	Details	Actions Taken	Volume (m ³)
July 20 2021	July 20 2021	Heavy rainfall hydraulically overloaded the facility	Samples taken	20.5

Summary of Spills/Abnormal Discharges

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

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.

Maintenance Highlights

WO #	Summary
2132148	Capital Exhaust Fan Motor
2176770	Capital Centrifuge rebuild kits
2178096	Capital UV wipers and sensors

WO #	Summary
2090875	Capital Repair poly metering pump shaft
2092253	Capital Polymer 1 system
2093309	Capital Exhaust Fan Head works
2093496	Capital Fan motor 5 hp ferric room
2130785	Capital Ferric pulsation dampener Bladder
2173334	Capital Polymer 1 motor bearings
2270832	Capital Lights/ballast
2271342	Capital Repair door lock
2364030	Capital WAS 1 VFD Failure
2405784	Capital WAS Pump 1 Motor Replacement
2175850	Capital Wall Hydrant repair
2176766	Capital Clarifier chain tensioners
2176775	Capital UV level sensors
2176779	Capital Odor control system Canister replacement
2177949	Capital Centrifuge gearbox failure
2223402	Capital Polymer System/Ras Pump/Centrifuge Run Alarm
2225662	Capital Compactor emergency repair
2267350	Capital Boiler service Bruce Mechanical
2270746	Capital Spill containment units
2270830	Capital Boiler Pressure Switch
2362005	Capital Centrifuge Back drive VFD Issues
2362282	Capital MUA and exhaust fan for electrical room
2406411	Capital pH electrode replacement
2503248	Capital Eaton 9000 VFD Repair
2504247	Capital Outdoor wall pack lighting rear building
2540905	Capital Compactor Full repair

Submitted Notice of Modifications to Sewage Works

There were no notices submitted for 2021.

Appendix A

Facility Assessment Report

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon
From: 01/01/2021 to 31/12/2021

Report extracted 03/07/2022 10:11

Facility: [5863] RENFREW WASTEWATER TREATMENT FACILITY

Works: [12000603]

	01/2021	02/2021	03/2021	04/2021	05/2021	06/2021	07/2021	08/2021	09/2021	10/2021	11/2021	12/2021	<-Total-->	<-Avg-->	<-Max-->	<-Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage Influent (m³)	100157.00	72137.00	196389.00	145656.00	135072.00	118304.00	133826.00	103183.00	128825.00	145897.00	114320.00	149810.00	1543576.00			
Raw Flow: Avg - Raw Sewage Influent (m³/d)	3230.87	2576.32	6335.13	4855.20	4357.16	3943.47	4316.97	3439.43	4294.17	4706.35	3810.67	4832.58		4224.86		
Raw Flow: Max - Raw Sewage Influent (m³/d)	4506.00	3591.00	19964.00	8265.00	8532.00	8368.00	7841.00	4011.00	14234.00	8012.00	4695.00	7203.00			19964.00	
Eff. Flow: Total - Final Effluent (m³)	103296.00	81914.00	200089.00	143077.00	137758.00	121361.00	136074.00	108049.00	133807.00	150080.00	112947.00	146584.00	1575036.00			
Eff. Flow: Avg - Final Effluent (m³/d)	3332.13	2925.50	6454.48	4769.23	4443.81	4045.37	4389.48	3601.63	4460.23	4841.29	3764.90	4728.52		4313.05		
Eff. Flow: Max - Final Effluent (m³/d)	6108.00	5868.00	19803.00	8038.00	8359.00	8189.00	7984.00	4102.00	14530.00	8275.00	4718.00	7253.00			19803.00	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Raw: Avg cBOD5 - Raw Sewage Influent (mg/L)	99.750	94.000	58.200	55.750	50.250	72.800	47.750	66.000	79.750	48.250	57.000	35.750		63.771	99.750	
Raw: # of samples of cBOD5 - Raw Sewage Influent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Eff: Avg cBOD5 - Final Effluent (mg/L)	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.800	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.067	< 3.800	15.0
Eff: # of samples of cBOD5 - Final Effluent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Loading: cBOD5 - Final Effluent (kg/d)	< 9.996	< 8.777	< 19.363	< 14.308	< 13.331	< 15.372	< 13.168	< 10.805	< 13.381	< 14.524	< 11.295	< 14.186	< 13.209	< 13.209	< 19.363	
Percent Removal: cBOD5 - Raw Sewage Influent (mg/L)	96.992	96.809	94.845	94.619	94.030	94.780	93.717	95.455	96.238	93.782	94.737	91.608			96.992	
Biochemical Oxygen Demand: BOD5:																
Raw: Avg BOD5 - Raw Sewage Influent (mg/L)	109.500	114.000	79.200	79.250	58.250	82.800	66.750	74.200	77.750	56.250	69.600	47.500		76.254	114.000	
Raw: # of samples of BOD5 - Raw Sewage Influent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Eff: Avg BOD5 - Final Effluent (mg/L)	< 3.000	< 3.750	< 3.000	< 3.000	< 4.250	< 4.400	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.000	< 3.283	< 3.283	< 4.400	
Loading: BOD5 - Final Effluent (kg/d)	< 9.996	< 10.971	< 19.363	< 14.308	< 18.886	< 17.800	< 13.168	< 10.805	< 13.381	< 14.524	< 11.295	< 14.186	< 14.057	< 14.057	< 19.363	
Percent Removal: BOD5 - Raw Sewage Influent (mg/L)	97.260	96.711	96.212	96.215	92.704	94.686	95.506	95.957	96.141	94.667	95.690	93.684			97.260	
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage Influent (mg/L)	108.750	121.250	96.000	105.250	51.000	88.600	49.750	48.800	41.000	45.250	54.200	67.250		73.092	121.250	
Raw: # of samples of TSS - Raw Sewage Influent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Eff: Avg TSS - Final Effluent (mg/L)	< 3.500	< 3.500	< 5.600	< 3.250	< 3.000	< 3.000	< 3.000	< 3.400	< 3.000	< 3.000	< 3.000	< 3.750	< 3.417	< 3.417	< 5.600	15.0
Eff: # of samples of TSS - Final Effluent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Loading: TSS - Final Effluent (kg/d)	< 11.662	< 10.239	< 36.145	< 15.500	< 13.331	< 12.136	< 13.168	< 12.246	< 13.381	< 14.524	< 11.295	< 17.732	< 15.113	< 15.113	< 36.145	
Percent Removal: TSS - Raw Sewage Influent (mg/L)	96.782	97.113	94.167	96.912	94.118	96.614	93.970	93.033	92.683	93.370	94.465	94.424			97.113	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage Influent (mg/L)	3.927	4.483	3.156	2.353	1.975	2.184	2.268	2.550	2.198	1.777	2.276	1.315		2.538	4.483	
Raw: # of samples of TP - Raw Sewage Influent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Eff: Avg TP - Final Effluent (mg/L)	0.070	0.113	0.090	0.063	0.055	0.068	0.073	0.072	0.055	0.083	0.054	0.050	0.070	0.070	0.113	0.75
Eff: # of samples of TP - Final Effluent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Loading: TP - Final Effluent (kg/d)	0.233	0.329	0.581	0.298	0.244	0.275	0.318	0.259	0.245	0.399	0.203	0.236	0.302	0.302	0.581	
Percent Removal: TP - Raw Sewage Influent (mg/L)	98.218	97.490	97.148	97.343	97.215	96.886	96.803	97.176	97.497	95.359	97.627	96.198			98.218	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage Influent (mg/L)	32.800	44.825	25.860	21.775	21.600	24.220	23.000	26.700	23.575	23.375	24.660	13.900		25.524	44.825	
Raw: # of samples of TKN - Raw Sewage Influent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Eff: Avg TAN - Final Effluent (mg/L)	0.870	2.670	0.438	0.158	0.060	0.160	0.065	0.082	0.060	0.070	0.058	0.055	0.395	0.395	2.670	
Eff: # of samples of TAN - Final Effluent (mg/L)	4	4	5	4	4	5	4	5	4	4	5	4	52			
Loading: TAN - Final Effluent (kg/d)	2.899	7.811	2.827	0.751	0.267	0.647	0.285	0.295	0.268	0.339	0.218	0.260	1.406	1.406	7.811	
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)	28.133	5.384	4.735	2.933	1.565	3.328	2.893	2.352	1.000	1.189	1.320	2.000		4.736	28.133	
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)	4	4	5	4	4	5	4	5	4	4	5	4	52			

Appendix B

Raw Sewage Loading Summary

**Ontario Clean Water Agency
Time Series Info Report**

From: 01/01/2021 to 31/12/2021

Facility Org Number: 5863
Facility Works Number: 12000603
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

	01/2021	02/2021	03/2021	04/2021	05/2021	06/2021	07/2021	08/2021	09/2021	10/2021	11/2021	12/2021	Total	Avg	Max	Min
Raw Sewage Influent / Loadings BOD - kg/d																
Count IH	4	4	5	4	4	5	4	5	4	4	5	4	52			
Max IH	470.35	545.815	467.874	485.095	323.312	414.084	517.201	292.446	356.475	412.36	316.22	300.504			545.815	
Mean IH	372.694	331.318	353.891	374.957	274.491	340.386	358.65	202.269	268.354	276.666	258.006	217.709		301.387		
Min IH	293.5	197.202	213.184	279.62	217.17	264.384	239.745	9.68	155.772	167.28	178.296	187.488				9.68
Total IH	1490.775	1325.271	1769.455	1499.829	1097.962	1701.932	1434.599	1011.343	1073.417	1106.664	1290.03	870.834	15672.11			
Raw Sewage Influent / Loadings Suspended Solids - kg/d																
Count IH	4	4	5	4	4	5	4	5	4	4	5	4	52			
Max IH	522.39	946.5	749.68	525.044	294.784	586.17	379.891	186.102	190.388	392.08	286.88	593.1			946.5	
Mean IH	371.771	364.955	476.577	493.361	248.389	363.037	261.361	139.206	147.771	229.548	199.404	298.293		299.095		
Min IH	190.775	149.16	149.895	442.8	202.814	181.272	172.29	5.28	117.756	157.44	139.536	177.072				5.28
Total IH	1487.085	1459.82	2382.885	1973.442	993.556	1815.186	1045.443	696.029	591.084	918.192	997.022	1193.172	15552.92			
Raw Sewage Influent / Loadings TKN - kg/d																
Count IH	4	4	5	4	4	5	4	5	4	4	5	4	52			
Max IH	134.561	216.433	140.668	121.344	129.494	109.46	188.184	107.863	93.492	160.212	97.359	94.105			216.433	
Mean IH	111.427	130.741	112.309	100.98	106.04	95.932	129.451	77.04	81.593	115.121	92.172	62.574		100.749		
Min IH	92.159	97.64	92.269	82.984	88.543	82.579	96.334	2.794	52.357	86.456	88.418	8.854				2.794
Total IH	445.708	522.962	561.543	403.919	424.16	479.658	517.806	385.198	326.373	460.486	460.859	250.294	5238.966			
Raw Sewage Influent / Loadings Total Phosphorus - kg/d																
Count IH	4	4	5	4	4	5	4	5	4	4	5	4	52			
Max IH	16.687	25.966	17.448	12.441	11.476	12.423	16.248	10.835	10.457	11.695	9.779	8.781			25.966	
Mean IH	13.362	13.159	13.95	11.009	9.866	9.007	12.289	7.356	7.516	8.599	8.481	6.029		10.025		
Min IH	10.566	5.659	10.892	8.708	8.083	7.442	7.81	0.263	3.159	5.018	6.942	0.26				0.26
Total IH	53.446	52.635	69.749	44.037	39.465	45.035	49.156	36.779	30.065	34.396	42.407	24.117	521.267			

Appendix C

Biosolids Quality

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

Facility: RENFREW WASTEWATER TREATMENT FACILITY
 Works: 5863
 Period: 01/01/2021 to 12/01/2021

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: 01/01/2021 12/01/2021

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		13,100.000	8,350.000	300.000	25.500	0.100	0.100	739.000	12.800	52.400
Feb		11,600.000	5,700.000	267.000	7.040	1.700	0.100	684.000	4.370	59.500
Mar		12,000.000	7,300.000	281.000	241.000	7.200	0.200	770.000	124.100	45.400
Apr		14,900.000	7,800.000	401.000	6.170	43.300	0.200	832.000	24.735	81.000
May		15,000.000	8,300.000	265.000	20.900	0.100	0.200	608.000	10.500	64.800
Jun		12,400.000	6,400.000	350.000	16.200	0.100	0.100	771.000	8.150	51.100
Jul		12,400.000	6,660.000	309.000	34.500	0.100	0.100	538.000	17.300	45.900
Aug		14,800.000	8,400.000	326.000	1.230	36.200	0.100	491.000	18.715	47.100
Sep		10,000.000	5,350.000	238.000	3.450	42.900	0.100	415.000	23.175	43.400

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

Facility: RENREW WASTEWATER TREATMENT FACILITY
 Works: 5863
 Period: 01/01/2021 to 12/01/2021

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

Parameter Short Name	Time Series	09/07/2021	10/04/2021	11/01/2021	12/07/2021	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	8.421	170
Cd (mg/L)	Lab Published	0.030	0.030	0.030	0.030	0.030	2.526	34
Co (mg/L)	Lab Published	0.030	0.090	0.050	0.060	0.057	4.800	340
Cr (mg/L)	Lab Published	0.780	0.860	0.960	0.630	0.807	67.958	2800
Cu (mg/L)	Lab Published	4.100	4.740	5.530	3.570	4.485	377.684	1700
Hg (mg/L)	Lab Published	0.004	0.005	0.005	0.002	0.004	0.337	11
Mo (mg/L)	Lab Published	0.070	0.090	0.120	0.060	0.085	7.158	94
Ni (mg/L)	Lab Published	0.250	0.280	0.350	0.230	0.277	23.326	420
Pb (mg/L)	Lab Published	0.200	0.200	0.300	0.200	0.225	18.947	1100
Se (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100	8.421	34
Zn (mg/L)	Lab Published	3.810	4.720	5.130	3.170	4.208	354.358	4200
E. Coli: Dry Wt (cfu/g)	Lab Published						E.Coli average is the GMD	
TS (mg/L)	Lab Published	10,000.000	12,900.000	15,000.000	9,600.000	11,875.000		
VS (mg/L)	Lab Published	5,350.000	6,600.000	7,800.000	5,500.000	6,312.500		
TP (mg/L)	Lab Published	238.000	321.000	360.000	227.000	286.500		
NO2-N (mg/L)	Lab Published	0.100	0.100	0.100	0.100	0.100		
TKN (mg/L)	Lab Published	415.000	453.000	613.000	463.000	486.000		
K (mg/L)	Lab Published	43.400	41.400	50.700	38.700	43.550		
NH3p_NH4p_N (mg/L)	Lab Published	3.450	2.680	3.940	4.580	3.662		
NO3-N (mg/L)	Lab Published	42.900	33.100	16.900	48.100	35.250		