Rockland Wastewater System

Waterworks # 110001159

Annual Report

Prepared For: City of Clarence Rockland

Reporting Period of January 1st – December 31st 2023

Issued: March 12th, 2024

Revision: 0

Operating Authority:

OCWA

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

This report has been prepared to meet the requirements set out in:

Document	Document #	Issue Date	Issue Number
Facility ECA	8309-BPKNTM	July 26, 2020	1
ECA for Municipal Sewage Collection System	175-W601	October 20, 2023	1

Table of Contents

1 Revision History

Date	Rev#	Revisions	Revised By
2024-03-12	0	Report Issued	PCT

2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	Inspection Date: - None
Ministry of Labour Inspections	Inspection Date: - None
Non-Compliance	# of Events : 6 • Details reference in report
Community Complaints	# of Events : 1 • Details reference in report
Spills	# of Spills of Sewage - None # of Spills (Other) - None
Overflows	# of Events - None
Bypass	# of Events - None

3 Process Description

3.1 Primary Treatment

This Wastewater Treatment Plant begins with an inlet building consisting of two inlet chambers receiving influent from Sewage Pumping Station #1. It is diverted to either of the three pre-treatment units capable of fine screening as well as grit and grease separation. There is an equalization tank that flow can be sent to via overflow weirs in times of high flow. All raw influent is then diverted into the secondary treatment system.

3.2 Secondary Treatment

Sewage first flows into one of the three Sewage Batch Reactors where it is dosed with coagulant to aid with phosphorus removal. Aeration is cycled on and off to ensure proper treatment, and settle when preparing for decant.

3.3 Disinfection

Supernatant from each SBR is disinfected using sodium hypochlorite, which is injected in the pipe that discharges into the contact tank. Calcium thiosulphate is then added at the end of the chlorine contact tank in the overflow weir to ensure adequate dechlorination of the final effluent prior to it entering the receiving stream.

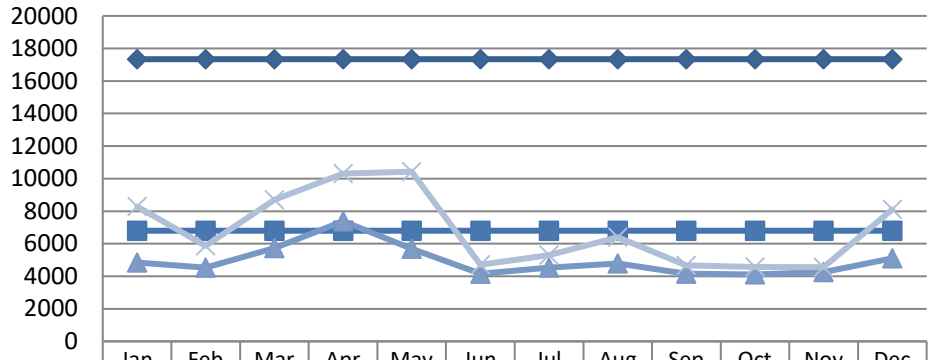
3.4 Solids Handling

Sludge from the SBRs is pumped to an aerobic sludge digester equipped with aeration. WAS from the digester is then sent to the two biosolids storage lagoons which are equipped with two decanting structures.

4 Treatment Flows

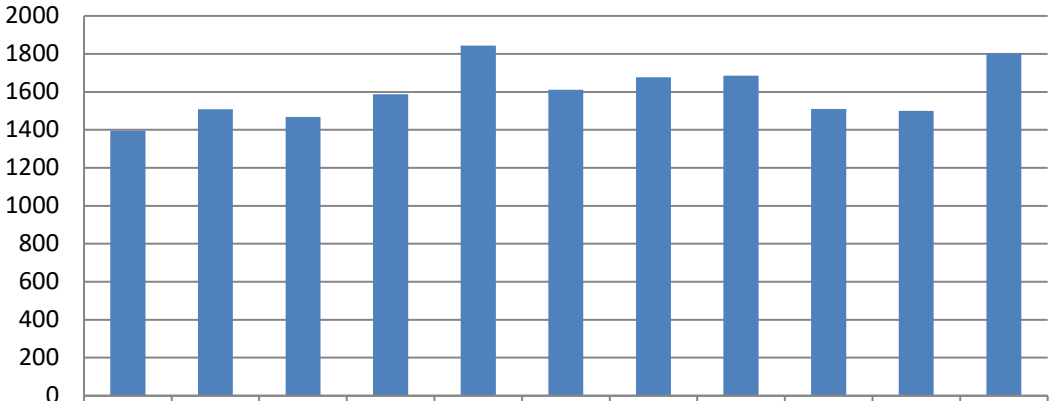
The Average Day Flows (ADF) reaching the Wastewater Pollution Control Plant in 2023 was 4940 m^3/d. The ADF is 73% of the 6,800 m^3/d rated capacity of the facility. A peak flow of 10427 m^3/d occurred on May 1, 2023, representing 60% of the 17 340 m^3/d maximum design flow capacity. This took place following a period of heavy rainfall.

4.1 Raw Flow (m3/d)



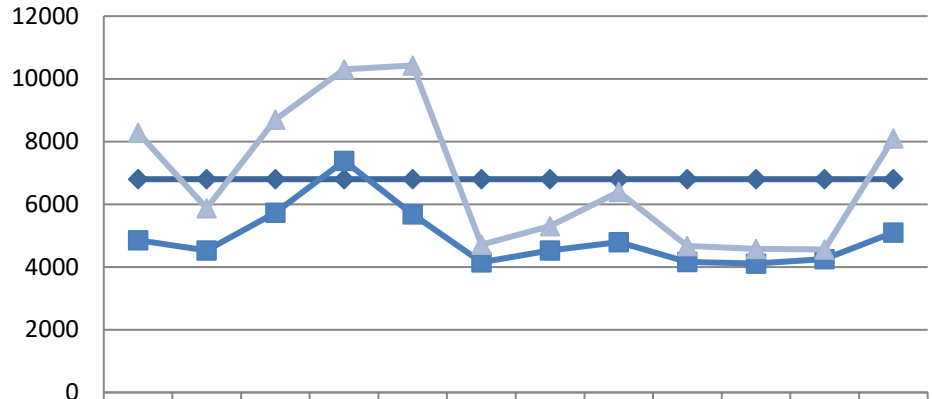
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Peak Flow Rate	17340	17340	17340	17340	17340	17340	17340	17340	17340	17340	17340	17340
Rated Capacity	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800
Average Daily Flow (m3/d)	4854	4524	5736	7384	5683	4153	4525	4795	4156	4111	4257	5098
Maximum Daily Flow (m3/d)	8283	5877	8699	10303	10427	4709	5300	6397	4668	4579	4559	8101

4.1.1 Annual Comparison (ML)



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total Annual Flow	1395	1508	1468	1587	1843	1611	1677	1685	1510	1500	1804

4.2 Effluent Flow (m3/d)



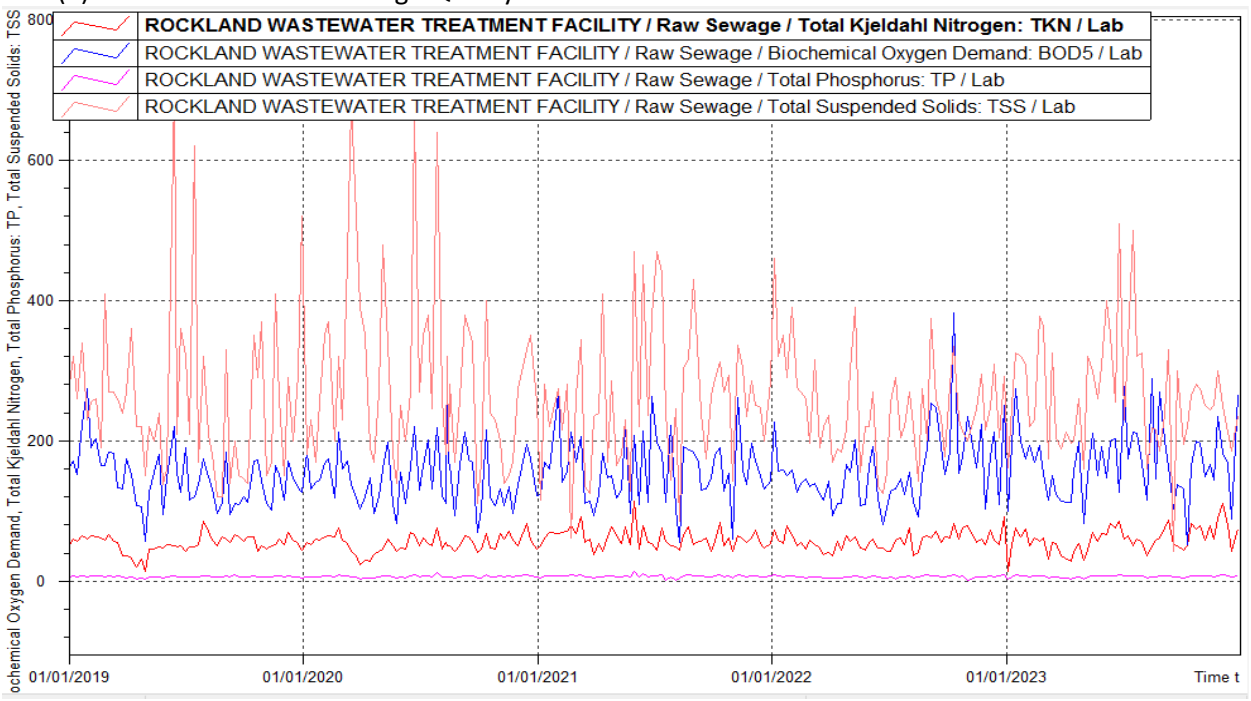
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Limit	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800
Average Daily Flow (m3/d)	4854	4524	5736	7384	5683	4153	4525	4795	4156	4111	4257	5098
Maximum Daily Flow (m3/d)	8283	5877	8699	10303	10427	4709	5300	6397	4668	4579	4559	8101

5 Raw Sewage Quality

Current year minimum, maximum and averages are available in Appendix A – Performance Assessment Report.

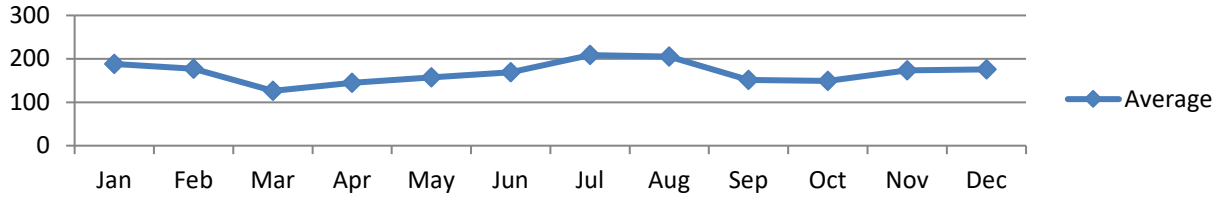
5.1 Influent Trending

Five (5) Year review of Raw Sewage Quality

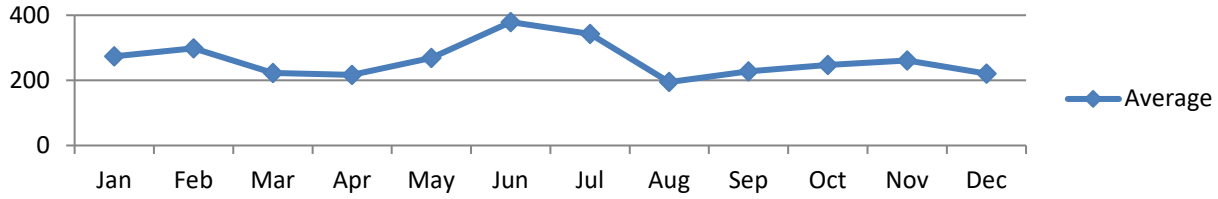


Year Average Trends for Raw Sewage Quality

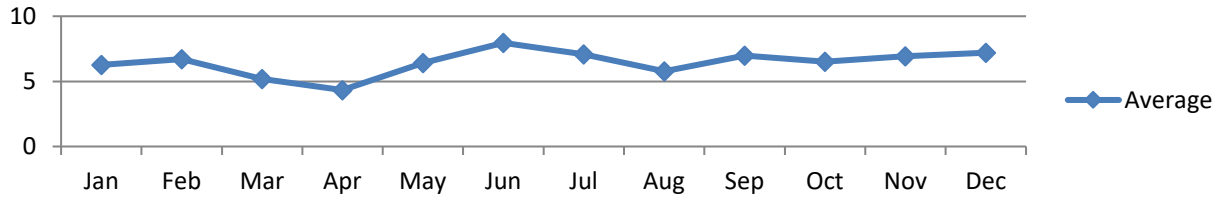
5.1.1 BOD5



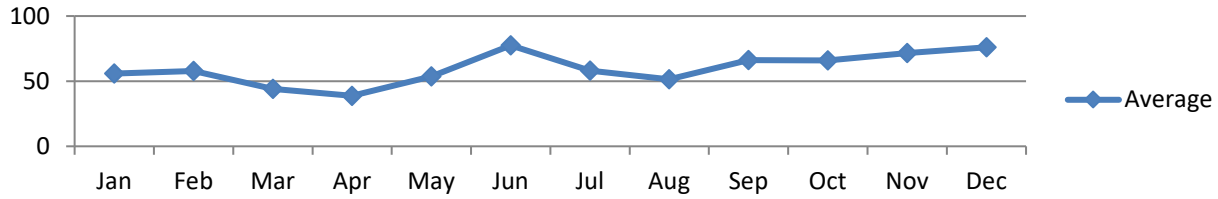
5.1.2 Total Suspended Solids



5.1.3 Total Phosphorus



5.1.4 TKN



6 Effluent Quality

The Rockland WPCP performed well throughout the 2023 reporting year. Effluent samples were collected weekly and as indicated below, sent to Caduceon Environmental Laboratories for analysis with respect to $cBOD_5$, Total Suspended Solids, Total Phosphorus, Total Ammonia Nitrogen and E. coli.

All required lab results had concentrations below their respective compliance limits except for Total Ammonia Nitrogen which failed six months of the year. Furthermore, the facility's Total Suspended

Solids exceeded the concentration objective in January and Total Ammonia Nitrogen failed the Objective all months except for December.

6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of OCWA's Prescott-Russell Cluster. The cluster is supported by the Eastern Regional Hub, and corporate resources. Operational Services are delivered by OCWA staff that live and work in the community. The systems are operated to meet compliance with applicable regulations. The system has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents and are updated as required. These documents are also part of OCWA's Quality & Environmental Management System.

The process is reviewed and maintained by certified operators. These operator's complete in-house rounds and testing to monitor the process. All Sampling and analysis follow approved methods and protocols for sampling, analysis and recording as specified in the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", the Ministry's publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the publication, "Standard Methods for the Examination of Water and Wastewater".

All final effluent samples collected during the reporting period to meet legislated sampling requirements are submitted to Caduceon Environmental Laboratories for analysis, with the exception of disinfection residuals and temperature. Caduceon Environmental Laboratories has been deemed accredited by the Canadian Association for Laboratory Accreditation (CALA), meeting strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this laboratory, the Ontario Clean Water Agency is ensuring appropriate control measures are undertaken during sample analysis. The disinfection residuals and temperature parameters are analyzed in the field at the time of sample collection by certified operators, to ensure accuracy and precision of the results obtained.

OCWA uses several computer systems which include:

- Process Data Management (PDM)
    - This database program consolidates all operational data from a variety of sources including field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
- Maximo – OCWA's Work Management System (WMS)
    - This program is used to track and schedule maintenance activities for all equipment in the system. It is also used to assign tasks for specific operational tasks.
- Wonderware (OUTPOST5)/SCADA
    - Wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming.

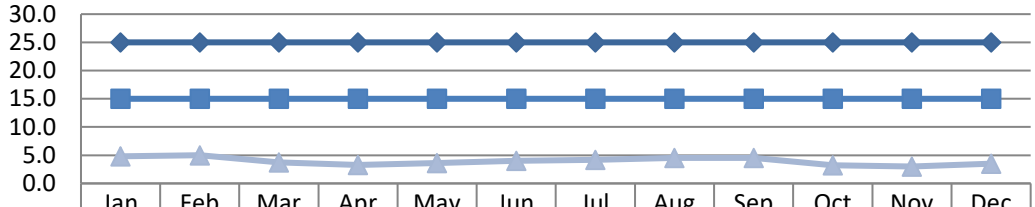
The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

Detailed individual sample results for both raw sewage and final effluent can be requested from the operating authority.

6.2 CBOD5

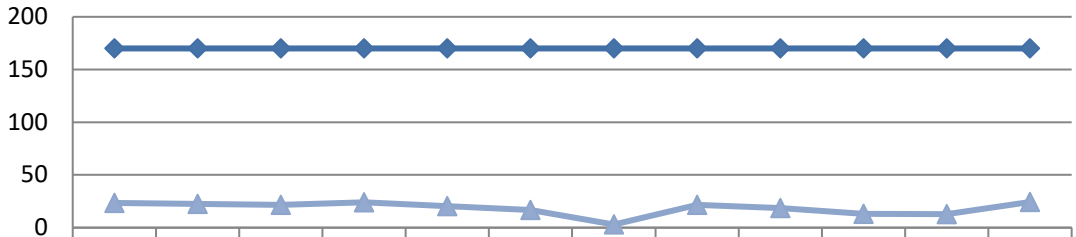
Compliance concentration objective, concentration and loading limit for this parameter were met.

6.2.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
ECA Objective	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Average	4.8	5	3.75	3.25	3.6	4	4.2	4.5	4.5	3.2	3	3.5

6.2.2 Loading (kg/d)

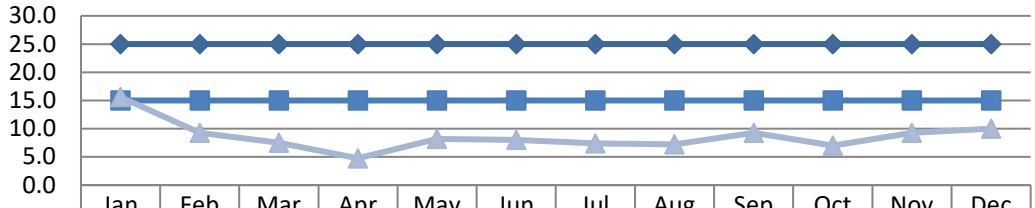


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	170	170	170	170	170	170	170	170	170	170	170	170
Average	23.3	22.6	21.5	24.0	20.5	16.6	3.0	21.6	18.7	13.2	12.8	24.3

6.3 Total Suspended Solids

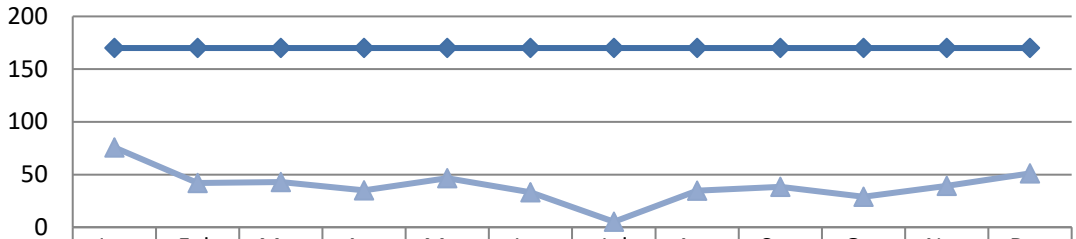
Compliance concentration and loading limit for this parameter was met.
Compliance objective for this parameter was not met, see Operational Issues/Problems section of this report for details.

6.3.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
ECA Objective	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Average	15.6	9.3	7.5	4.8	8.2	8.0	7.4	7.3	9.3	7.0	9.3	10.0

6.3.2 Loading (kg/d)

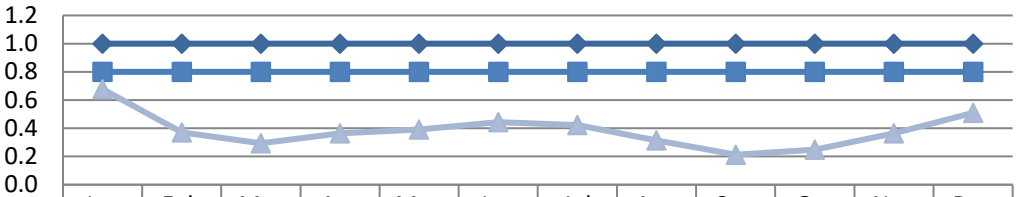


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	170	170	170	170	170	170	170	170	170	170	170	170
Average	75.7	41.9	43.0	35.1	46.6	33.2	5.2	34.8	38.4	28.8	39.4	51.0

6.4 Total Phosphorus

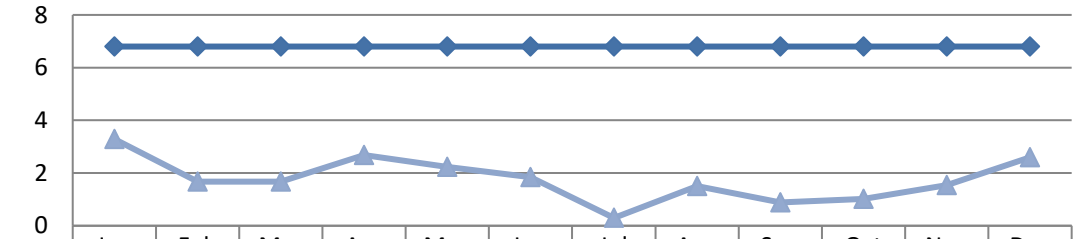
Compliance objective concentration and loading and concentration limits for this parameter were met.

6.4.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
ECA Objective	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Average	0.68	0.37	0.29	0.36	0.39	0.44	0.42	0.32	0.21	0.25	0.36	0.51

6.4.2 Loading (kg/d)

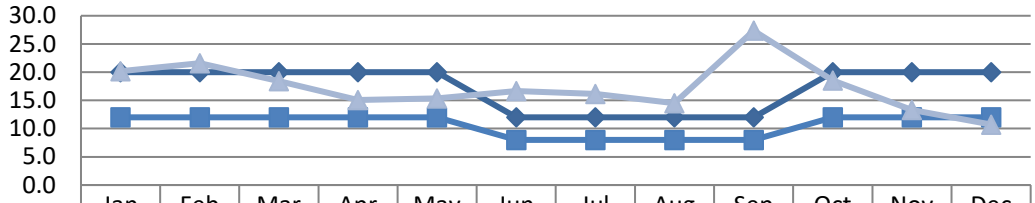


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Average	3.3	1.7	1.7	2.7	2.2	1.8	0.3	1.5	0.9	1.0	1.5	2.6

6.5 Total Ammonia Nitrogen

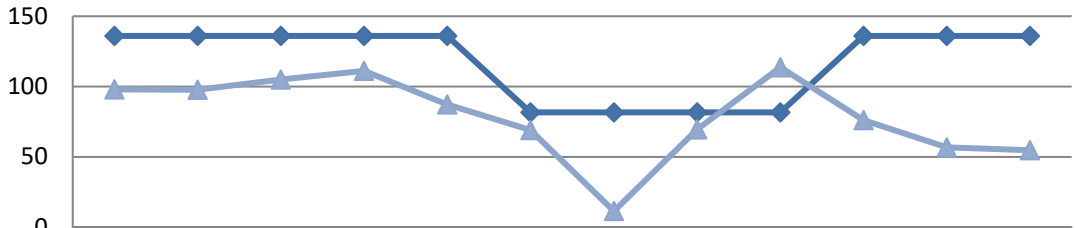
Compliance concentration and loading limit as well as concentration objectives for this parameter were not met see Operational Issues/Problems section of this report for details.

6.5.1 Concentration (mg/L)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	20.0	20.0	20.0	20.0	20.0	12.0	12.0	12.0	12.0	20.0	20.0	20.0
ECA Objective	12.0	12.0	12.0	12.0	12.0	8.0	8.0	8.0	8.0	12.0	12.0	12.0
Average	20.2	21.6	18.4	15.1	15.4	16.6	16.2	14.5	27.4	18.5	13.3	10.7

6.5.2 Loading (kg/d)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	136	136	136	136	136	81.6	81.6	81.6	81.6	136	136	136
Average	97.9	97.6	105.0	111.1	87.3	69.1	11.4	69.5	113.7	76.2	56.7	54.7

6.6 Acute Lethality

There was one (1) sample collected in 2023 and tested for acute lethality (Rainbow Trout and Daphnia Magna). This sampling is required federally. Results are displayed as % mortality. An adverse result is a > 50% mortality rate.

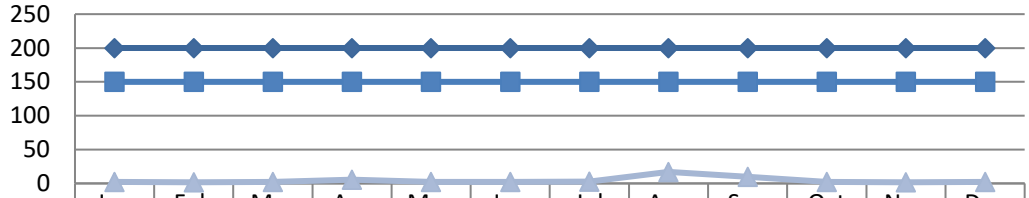
Compliance Limit for this parameter was met.

Date	Rainbow Trout
4-April-2023	0% mortality

6.7 E-coli

Compliance Limit and Objective for this parameter was met.

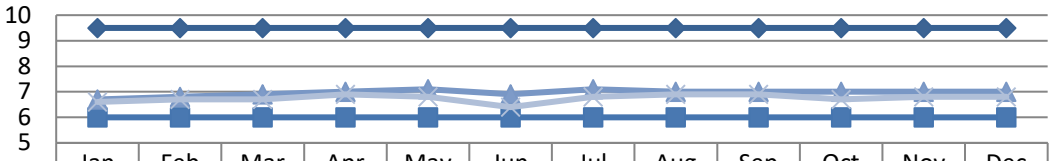
6.7.1 Geometric Mean (cfu/100mL)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Limit	200	200	200	200	200	200	200	200	200	200	200	200
ECA Objective	150	150	150	150	150	150	150	150	150	150	150	150
Average	2.0	1.7	2.0	5.6	2.0	2.0	2.5	17.0	9.8	2.0	1.7	2.0

6.8 pH

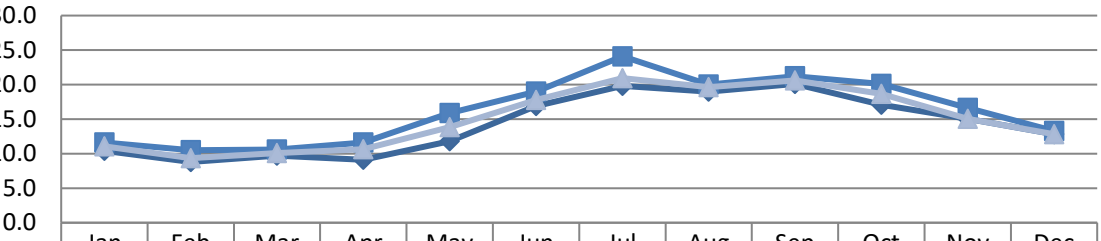
Compliance Limit range for this parameter is 6.0 – 9.5. The parameter was met. Each instance the pH is outside of that range is reported as a non-compliance.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ECA Max	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
ECA Min	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Maximum	6.7	6.8	6.9	7.0	7.1	6.9	7.1	7.0	7.0	7.0	7.0	7.0
Minimum	6.6	6.7	6.7	6.9	6.8	6.4	6.8	6.9	6.9	6.7	6.8	6.8

6.9 Temperature

There are no compliance limits or objectives defined for Effluent.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Minimum	10.4	8.8	9.7	9.1	11.8	16.9	19.8	19.0	20.1	17.1	15.0	12.8
Maximum	11.6	10.5	10.6	11.6	15.9	19.0	24.1	20.0	21.2	20.1	16.6	13.3
Average	11.1	9.4	10.1	10.7	13.8	17.8	20.9	19.7	20.6	18.7	15.0	12.8

7 Monitoring Schedule

The 2023 and 2024 Calendars can be viewed in Appendix B. Note that the 2023 sample day was Mondays and 2024 sample days are Tuesdays.

7.1 Deviations

Date	Details	Cause of Deviation
Jan 4	Wednesday	Holidays caused delays
Feb 14	Tuesday	Inclement weather
Feb 21	Tuesday	Monday was a holiday
March 7	Tuesday	Inclement weather
April 11	Tuesday	Monday was a holiday
April 16	Sunday	Short staffed
May 23	Tuesday	Monday was a holiday
July 4	Tuesday	Monday was a holiday
August 8	Tuesday	Monday was a holiday
Aug 15	Tuesday	Short staffed
Sep 5	Tuesday	Monday was a holiday
Oct 3	Tuesday	Monday was a holiday
Oct 10	Tuesday	Monday was a holiday
Nov 14	Tuesday	Monday was a holiday
Dec 27	Wednesday	Monday and Tuesdays were holidays

8 Operating Issues/Problems

Overall the facility operated well, satisfying all parameter objective and limits except for Total Ammonia Nitrogen. November of 2022 the screening upgrades were completed. February 2023 a new PLC was installed to allow SBRs to cycle aeration when in standby mode. Summer of 2023 the aeration pipes in the SBRs were replaced in order to remove built up rags and ensure proper air supplied to the process. Other parts of the process such as optimal coagulation is being reviewed early 2024 to help improve nitrification.

8.1 Effluent Quality Non-Compliance Summary

Date	Exceedance of	Limit	Value (mg/L)	Corrective Action
January	TSS	Objective	15.6	Lack of nitrification due to a limited supply of air to the SBRs. New PLC installed February 22 to allow SBRs to aerate on and off overnight
	TAN	Limit	20.2	
February	TAN	Limit	21.6	
March	TAN	Objective	18.4	Increase aeration overnight to accommodate for the lower limit during the summer months
April	TAN	Objective	15.1	
May	TAN	Objective	15.4	
June	TAN	Limit	16.6	
July	TAN	Limit	16.2	Replace aeration pipes in SBRs
August	TAN	Limit	14.5	
September	TAN	Limit	27.4	
		Loading Limit	113.7 kg/d	
October	TAN	Objective	18.5	Adjust settings to improve nitrification
November	TAN	Objective	13.3	

8.2 Summary of Abnormal Sewage Discharge Events

Abnormal Discharge Events include Bypass', Overflows, Diversions and Spills of Sewage. Summary Details are included in Appendix D.

8.3 Spills (Other than Sewage)

Date	Location	Details	Volume (m3)	Start Date and Time	End Date and Time
None					

9 Maintenance

Routine planned maintenance activities are scheduled in WMS and include:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water distribution systems, pumps, chemical feeders, and all other equipment installed at the facilities.
- Carry out a routine maintenance program including greasing and oiling as specified in the lubrication schedule.

- Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required.
- Maintain an equipment inventory
- Maintain accurate records of work conducted, activities, and achievements.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of WMS work orders. Work orders are automatically generated on a schedule as determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by the designated WMS Primary. Work orders are completed and electronically entered into WMS by the person responsible for completing the task.

Unplanned maintenance is conducted as required.

9.1 Normal Maintenance and Repairs

Work Order	Details
338503	Sewage plant compressor #2 change relief valve
3481383	Clarence Creek pumping station float
3526915	SBR #2 annual cleaning and inspection
3624942	SPs 1 rake wet well
3205756	SPS #2 submersible pump float replacement
3246820	SPS #2 Genset change fuel pump and rad heater coolant
3247730	SPS #2 Pump impeller replace motor
3526569	SPS #2 Transfer switch replacement
3246821	SPS #4 change radiator heater coolant
3526568	SPS #5 transfer switch replacement
3203677	SPS #7 Genset prestone heater change
3202878	Clarence Creek pumping station high level
3664837	990 Diane st sewage back up
3205671	Sewage plant Change 2 lights in basement
3206459	Sewage plant heating maintenance
3338297	Blower Hibbon overhaul SBR #2
3662754	Bar screen ventilation replacement

9.2 Emergency Maintenance and Repairs

Work Order	Details
3384877	SPS #2 Pump #1 noise in volute
3480007	Digester Miltronic
3664987	SPS #2 Pump #1 motor fail
3481369	SPS #2 Communication issue collection system
3287831	SPS #5 New Generator

Work Order	Details
3202824	Low Pressure 403 Edwards High Level
3571438	Hubber Blower #2 Fault

9.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
Influent Flow Meter	October 31, 2023	None

9.4 Authorized Alterations in Collection System

Work Order	Details	Significant Drinking Water Threat (Y/N)
None		

9.5 Notice of Modifications

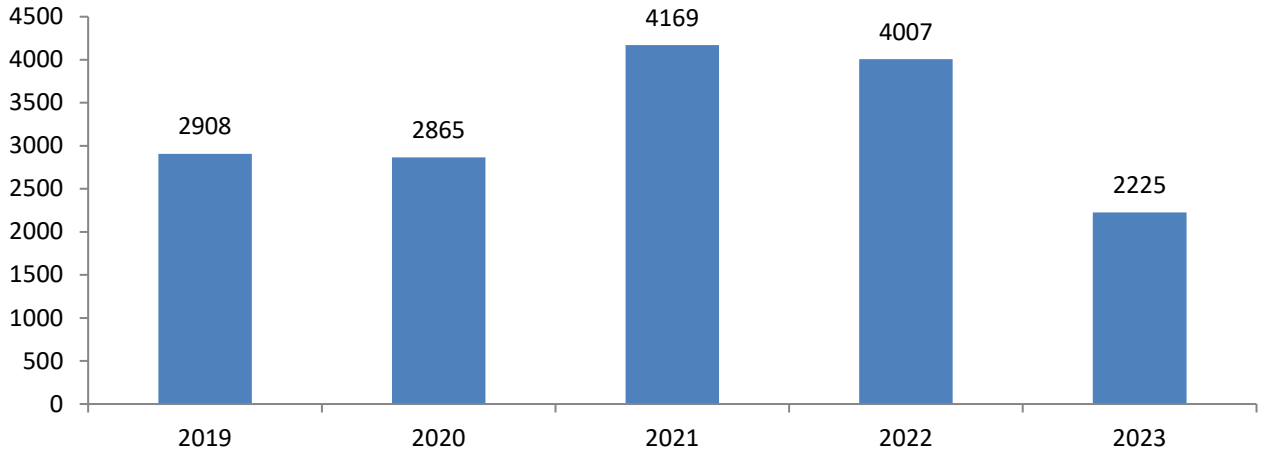
Date	Process	Modification	Status
None			

10 Sludge Generation

10.1 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m3)
September 10 – 16, 2023	Pilon Farm	24660	945
November 21-23, 2023	Roy Farm	24585	1, 280
		Total	2, 225

10.2 Annual Comparison (m3/year)



It is anticipated that sludge volumes will remain similar to the 2024 volumes.

10.3 Sludge Quality

Sludge quality reports are available in Appendix B

11 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
990 Diane St	November 16	Sewage back up	Contractor checked sewers, lateral blocked but mains clear

Appendix A

Appendix A – Performance Assessment Report

Ontario Clean Water Agency - Performance Assessment Report

From: 01/01/2023 to 31/12/2023

Facility Org Number: 6816
Facility Name: ROCKLAND WASTEWATER TREATMENT FACILITY
Facility Owner: City of Clarence Rockland
Receiver: Ottawa River
Service Population: 10000
Total Design Capacity: 6800.0 m3/day

	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Total	Avg	Max	Min
Raw Sewage / Flow - m³/d																
Count	31	28	31	30	31	30	31	31	30	31	30	31				
Maximum	8283	5877	8699	10303	10427	4709	5300	6397	4668	4579	4559	8101			10427	
Mean	4854	4524	5736	7384	5683	4153	4525	4795	4156	4111	4257	5098		4940		
Minimum	3905	3800	4200	5514	4329	3887	3927	3164	3901	2869	4006	4165				2869
Total	150480	126674	177812	221526	176164	124582	140281	148653	124688	127454	127708	158047	1804069			
WPCP Effluent / Flow - m³/d																
Count	31	28	31	30	31	30	31	31	30	31	30	31				
Maximum	8283	5877	8699	10303	10427	4709	852	6397	4668	4579	4559	8101			10427	
Mean	4854	4524	5736	7384	5683	4153	702	4795	4156	4111	4257	5098		4621		
Minimum	3905	3800	4200	5514	4329	3887	552	3164	3901	2869	4006	4165				552
Total	150480	126674	177812	221526	176164	124582	21771	148653	124688	127454	127708	158047	1685559			
Raw Sewage / Biochemical Oxygen Demand: BOD5 - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	274	194	151	198	211	203	278	289	201	200	234	266			289	
Mean	188.2	177.5	126.25	144.75	157.4	169.25	208.6	205	151	149	173.25	176		168.9		
Minimum	99	152	114	112	82	126	168	116	102	52	144	88				52
Raw Sewage / Total Suspended Solids: TSS - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	325	378	325	260	320	510	500	218	330	280	300	250			510	
Mean	273.4	298	223	217	269.2	379	343	194.75	227.5	247	261	221		262.8		
Minimum	162	220	175	196	160	256	230	160	42	195	244	186				42
Raw Sewage / Total Kjeldahl Nitrogen: TKN - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	76	61.2	55.4	52.8	68.8	85.4	65.2	61.2	86.2	82.1	90	110			110	
Mean	55.8	57.725	44.125	38.775	53.68	77.475	58.04	51.55	66.15	65.86	71.675	76.05		59.7		
Minimum	14.2	51.1	32.1	28.8	30.4	66.5	50.7	36.3	50	43.6	58	42.2				14.2
Raw Sewage / Total Ammonia Nitrogen: NH3 + NH4+ as N - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	50.7	39.4	34.7	27.2	50.8	54.8	52.3	51.2	69	64.8	59.9	58.7			69	
Mean	39.02	29.75	27.675	19.825	31	50.9	42.68	42.25	51.4	51.52	52.375	45.875		40.4		
Minimum	23.1	3.6	20.1	14.5	14	46.9	30.8	25.5	35.5	44	42.6	23.4				3.6
Raw Sewage / Total Phosphorus: TP - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	8.38	7.31	6.21	6.27	8.12	8.33	7.65	6.95	7.94	7.98	7.63	8.76			8.76	
Mean	6.254	6.712	5.183	4.333	6.416	7.955	7.084	5.773	6.983	6.502	6.92	7.208		6.4		
Minimum	1.89	5.42	3.95	3.15	3.38	7.58	6.78	3.95	5.59	4.91	6.28	5.49				1.89
Chemical addition / Coagulant Dosage - mg/L																
Maximum	51.4	41.21	40	94	139	345	327	560	268	246	241	265			560	
Mean	41.713	40.677	40	71.733	87.477	133.467	153	239.581	190.133	218.581	220.633	245.645		140.2		
Minimum	40.8	40	40	31	13	58	108	125	132	184	208	209				13
WPCP Effluent / Carbonaceous Biochemical Oxygen Demand: CBOD5 - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	7	< 9	< 6	< 4	< 6	< 5	< 7	< 7	< 7	< 4	< 3	< 4			< 9	
Mean	< 4.8	< 5	< 3.75	< 3.25	< 3.6	< 4	< 4.2	< 4.5	< 4.5	< 3.2	< 3	< 3.5		< 3.9		
Minimum	< 4	< 3	< 3	< 2	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3				< 2
WPCP Effluent / Total Suspended Solids: TSS - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	24	12	16	< 7	18	11	10	< 10	< 15	12	< 18	< 26			26	

Mean	15.6	9.25	7.5	< 4.75	8.2	8	7.4	< 7.25	< 9.25	7	< 9.25	< 10		< 8.6		
Minimum	9	6	3	< 3	3	4	5	< 3	< 3	3	< 3	< 3				< 3
WPCP Effluent / Total Kjeldahl Nitrogen: TKN - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	30.4	28.3	30.3	21	19.7	29	27.6	28.5	29.5	82.1	90	110			110	
Mean	24.7	25.15	22.525	18.2	17.84	21.775	21.06	17.925	23.75	65.86	71.675	76.05		33.9		
Minimum	18	23	12.5	13	15.9	3.8	8	7.8	16.1	43.6	58	42.2				3.8
WPCP Effluent / Total Ammonia Nitrogen: NH3 + NH4+ as N - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	24.8	24.9	23.2	18	18.7	22.1	20.2	22.8	39.3	28	20.3	15.3			39.3	
Mean	20.16	21.575	18.425	15.05	15.36	16.633	16.17	14.482	27.35	18.526	13.33	10.725		17.3		
Minimum	12.9	19.2	10.6	11.1	13	2.73	6.55	4.93	21.8	5.03	6.32	7.4				2.73
WPCP Effluent / Nitrate as N: NO3-N - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	< 0.2	< 0.2	0.6	0.65	< 1.27	< 3.97	< 0.4	< 1.52	< 23	< 0.89	6.57	< 4.36			< 23	
Mean	< 0.114	< 0.138	0.35	0.308	< 0.308	< 1.033	< 0.192	< 0.418	< 5.808	< 0.262	2.335	< 1.898		< 1.1		
Minimum	< 0.07	< 0.1	0.07	0.06	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05				< 0.05
WPCP Effluent / Nitrite as N: NO2-N - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	< 0.1	< 0.59	< 0.1	< 0.05	< 0.19	< 0.1	< 12.8	< 0.13	< 0.14	< 0.47	< 0.05	< 0.05			< 12.8	
Mean	< 0.09	< 0.21	< 0.063	< 0.05	< 0.078	< 0.07	< 2.616	< 0.07	< 0.073	< 0.144	< 0.05	< 0.05		< 0.3		
Minimum	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05				< 0.05
WPCP Effluent / Total Phosphorus: TP - mg/L																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	0.81	0.48	0.37	0.47	0.6	0.54	0.71	0.44	0.29	0.32	0.43	0.87			0.87	
Mean	0.678	0.372	0.293	0.363	0.392	0.443	0.422	0.315	0.213	0.248	0.363	0.51		0.4		
Minimum	0.57	0.29	0.23	0.29	0.13	0.32	0.22	0.09	0.13	0.19	0.31	0.22				0.09
WPCP Effluent / E. Coli: EC - cfu/100mL																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Geometric Mean Density	2	1.682	2	5.589	2	2	2.491	17.024	9.772	2	1.682	2				
WPCP Effluent / Temperature - °C																
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	11.6	10.5	10.6	11.6	15.9	19	24.1	20	21.2	20.1	60.1	51.2			60.1	
Mean	11.08	9.35	10.075	10.65	13.82	17.8	20.94	19.65	20.625	18.66	16.6	13.3		15.2		
Minimum	10.4	8.8	9.7	9.1	11.8	16.9	19.8	19	20.1	17.1	15.025	12.8				8.8
WPCP Effluent / pH - ---											14	12.1				
Count	5	4	4	4	5	4	5	4	4	5	4	4	52			
Maximum	6.7	6.8	6.9	7	7.1	6.9	7.1	7	7	7	7	7			7.1	
Mean	6.66	6.75	6.8	6.975	6.98	6.775	6.94	6.95	6.95	6.9	6.925	6.9		6.9		
Minimum	6.6	6.7	6.7	6.9	6.8	6.4	6.8	6.9	6.9	6.7	6.8	6.8				6.4

* Coagulant dosages averaged for March due to new PLC/SCADA

Appendix B

Appendix B - Sample Calendar

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **January 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 1 of 12
Reviewed by: Erin Markham (PCT)		Approved by: Stephane Barbarie (SOM)

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat														
	2-8			**9-15**			**16-22**			**23-29**			**30-5**		
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **February 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 2 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday

In the event of STAT sample day moved to next working day

	Week 1			Week 2			Week 3			Week 4			Week 5		
							Monday Stat								
	6-12			**13-19**			**20-26**			**27-5**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **March 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 3 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
	6-12			**13-19**			**20-26**			**27-2**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **April 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 4 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
	Friday Stat			***Monday Stat***											
	3-9			**10-16**			**17-23**			**27-3**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **May 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 5 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
										Monday Stat					
	1-7			**8-14**			**15-21**			**22-28**			**29-4**		
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **June 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 6 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
	5-11			**12-18**			**19-25**			**26-2**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **July 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 7 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday

In the event of STAT sample day moved to next working day

	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat														
	3-9			**10-16**			**17-23**			**24-30**			**31-6**		
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **August 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 8 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat														
	7-13			**14-20**			**21-27**			**28-3**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **September 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 9 of 12
Reviewed by: Erin Markham (PCT)		Approved by: Stephane Barbarie (SOM)

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
	Monday Stat														
	4-10			**11-17**			**18-24**			**25-1**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **October 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 10 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
				Monday Stat											
	2-8			**9-15**			**16-22**			**23-29**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **November 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 11 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
				Monday Stat											
	6-12			**13-19**			**20-26**			**27-3**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

QEMS Ontario Clean Water Agency	External Laboratory Sample Schedule **Rockland WPCP** **December 2023**	Issued: 21-Dec-21 Rev.#: 2 Page 12 of 12
Reviewed by: Erin Markham (PCT)	Approved by: Stephane Barbarie (SOM)	

Sample day = Monday *In the event of STAT sample day moved to next working day*	Week 1			Week 2			Week 3			Week 4			Week 5		
										Monday & Tuesday Stat					
	4-10			**11-17**			**18-24**			**25-31**					
	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded	Sampled	Received	Uploaded
Raw Sewage (Minimum Weekly)															
Final Eff Acute Lethality (WSER)															
Weekly Final Effluent															
Bi-Weekly Biosolids															

This schedule is for guidance purposes only

Please refer to all regulatory requirements that affect the sampling schedule

Appendix C

Appendix C - Biosolids Quality Report

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

Facility: ROCKLAND WASTEWATER TREATMENT FACILITY
Works: 6816
Period: 01/01/2023 to 12/01/2023

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)
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		10,650.000	7,450.000	189.000	12.045	1.000	1.000	846.000	6.523	38.700
Feb		9,880.000	6,320.000	151.000	27.100	0.100	0.100	661.000	13.600	36.600
Mar		10,975.000	5,560.000	178.000	56.100	0.100	0.100	767.000	28.100	25.150
Apr		11,650.000	7,690.000	233.500	65.500	0.100	0.100	711.500	32.800	39.200
May		16,200.000	9,310.000	193.500	24.500	0.400	0.400	493.000	12.450	47.800
Jun		12,450.000	9,220.000	306.500	16.000	0.400	0.400	740.000	8.200	48.850
Jul		11,500.000	6,990.000	270.500	11.500	0.300	0.100	633.000	5.900	36.600
Aug		12,500.000	8,075.000	258.500	27.500	0.200	0.100	760.500	13.850	44.350
Sep		10,750.000	7,330.000	195.500	68.500	0.350	0.250	613.000	34.425	45.250
Oct		13,500.000	9,660.000	405.000	44.000	0.100	0.100	1,070.000	22.050	42.800
Nov		12,050.000	8,400.000	228.500	27.500	0.250	0.250	817.000	13.875	53.650
Dec		10,400.000	8,460.000	193.500	20.000	0.850	0.250	746.000	10.425	45.400
Average		11,875.417	7,872.083	233.583	33.354	0.346	0.263	738.167	16.850	42.029
Total	0.000	142,505.000	94,465.000	2,803.000	400.245	4.150	3.150	8,858.000	202.198	504.350

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

Facility: ROCKLAND WASTEWATER TREATMENT FACILITY
Works: 6816
Period: 01/01/2023 to 12/01/2023

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)
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	0.125	1.555	0.002	0.050	0.100	0.100	0.100	2.760
Feb	0.100	0.030	0.030	0.100	1.340	0.002	0.050	0.090	0.100	0.100	2.230
Mar	0.100	0.030	0.030	0.075	1.030	0.002	0.115	0.085	0.100	0.100	1.935
Apr	0.100	0.030	0.030	0.150	1.870	0.002	0.180	0.120	0.100	0.100	2.920
May	0.100	0.030	0.030	0.215	2.145	0.002	0.180	0.140	0.100	0.100	3.170
Jun	0.100	0.030	0.035	0.215	2.780	0.002	0.180	0.180	0.100	0.100	4.095
Jul	0.100	1.265	0.035	0.250	2.365	0.003	4.590	0.250	5.050	0.100	3.430
Aug	0.100	0.030	0.030	0.175	2.570	0.003	0.180	0.150	0.100	0.100	4.080
Sep	0.100	0.030	0.030	0.165	2.800	0.002	0.180	0.140	0.100	0.100	4.830
Oct	0.100	0.030	0.030	0.125	2.270	0.003	0.180	0.105	0.100	0.100	3.370
Nov	0.100	0.030	0.045	0.170	3.055	0.002	0.180	0.130	0.100	0.100	3.915
Dec	0.100	0.030	0.035	0.130	2.260	0.002	0.180	0.100	0.100	0.100	2.850
Average	0.100	0.133	0.033	0.158	2.170	0.002	0.520	0.133	0.513	0.100	3.299
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)	8.421	11.193	2.737	13.298	182.730	0.186	43.823	11.158	43.156	8.421	277.780

Appendix D

Appendix D - Details of Abnormal Sewage Discharge Events

Event Details Summary

Facility Bypass

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
None								

Facility Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
None								

Collection Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
None								

Spills of Sewage

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
None								

Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
N/A			BOD			
			Total Suspended Solids			
			Total Phosphorus			
			Total Kjeldahl Nitrogen (TKN)			
			E.Coli			

Appendix E

Appendix E - ECA Annual Report Requirements

Facility ECA # 8309-BPKNTM **Section 11(4)**	**Section in Report**
a. a summary and interpretation of all Influent, Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;	Raw Sewage Quality
b. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;	Effluent Quality
c. a summary of all operating issues encountered and corrective actions taken;	Operating Issues and Problems
d. a summary of any effluent quality assurance or control measures undertaken;	Effluent Quality
e. a summary of the calibration and maintenance carried out on all Influent and Imported Sewage monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;	Maintenance
f. a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations: i. when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality; ii. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;	Operating Issues and Problems
h. a tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;	Sludge Generation
i. a summary of any complaints received and any steps taken to address the complaints;	Summary of Complaints
j. a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;	Operating Issues and Problems Appendix D
k. a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification.	Maintenance
l. a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for	Maintenance Operating Issues and Problems

Facility ECA # 8309-BPKNTM **Section 11(4)**	**Section in Report**
the year following that for which the report is submitted and a summary of efforts made to achieve conformance with Procedure F-5-5 and establish /maintain a Pollution Prevention and Control Plan (PPCP).	
m. any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works.	Process Description
a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year;	Monitoring Schedule Appendix B- Sample Calendar

Collection ECA # 175-W601 **Schedule E**	
4.6.3 If applicable, includes a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.	Operating Issues and Problems
4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.	Operating Issues and Problems
4.6.5 Includes a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.	Maintenance
4.6.6 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.	Summary of Complaints
4.6.7 Includes a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.	Maintenance
4.6.8 Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including: a) Dates; b) Volumes and durations; c) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli; d) Disinfection, if any; and e) Any adverse impact(s) and any corrective actions, if applicable.	Operating Issues and Problems Appendix D
4.6.9 Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable: a) A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted. b) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines. c) An assessment of the effectiveness of each action taken.	Maintenance Operating Issues and Problems

Collection ECA # 175-W601 **Schedule E**	
d) An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives. e) Public reporting approach including proactive efforts.	