

Carleton Place Wastewater System

2020 Annual Report

January 1, 2020 – December 31, 2020

Prepared By



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

This report has been prepared to meet the requirements set out in the facility Certificate of Approval #5001-7FZT4A issued October 03, 2008.

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Compliance Report Card

Compliance Event	# of Events	Details
Environment Canada Inspection	0	No Inspections during the reporting period
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 Exceedances during the reporting period
Non-Compliance	0	No Non Compliances during the reporting period
Bypass/Overflows	4	See Summary of Bypass/Overflows section
Community Complaints	0	No Community Complaints for the reporting period
Spills	1	See spills section

System/Process Description

The Carleton Place Water Pollution Control Plant (WPCP) is a conventional activated sludge plant with anaerobic digestion. Chemicals are added for phosphorus removal and alkalinity adjustment. Effluent is then UV disinfected prior to discharge to the Mississippi River.

Physical/Chemical tanks are available for use during high flows. For more details see the Bypass, Overflow, Diversion section of this report.

Sludge at the WPCP is co- thickened and stabilized in a two stage digestion process. There is a centrifuge on-site but due to hydrogen sulphide issues the centrifuge is not in operation.

Septage is also received at the plant and passed through the entire treatment process.

The Carleton Place WPCP is equipped with back-up power.

Effluent Quality Assurance or Control Measures

The Town of Carleton Place facilities are part of OCWA's Eastern Regional Hub. The facilities are supported by hub, 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.

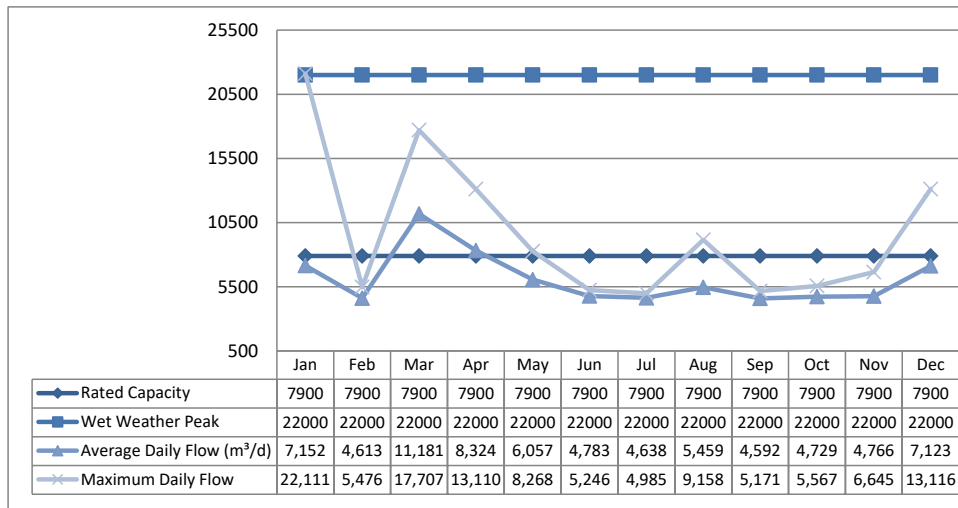
OCWA has additional "Value Added" and operational support services that the Town of Carleton Place benefits from including:

- 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 Collection (PDC) 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

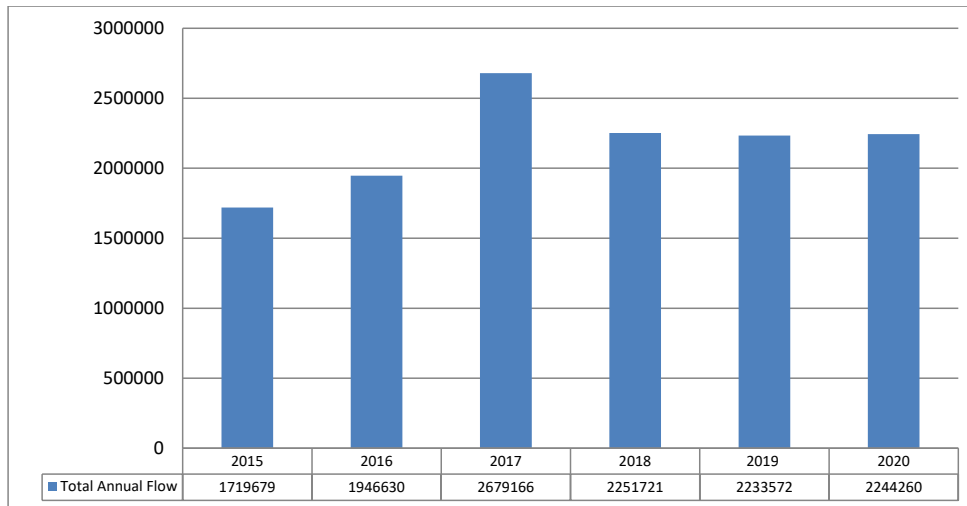
Treatment Flows

Flow (m³/d)

Annual average flow for 2020 = 6118.2 m³/d



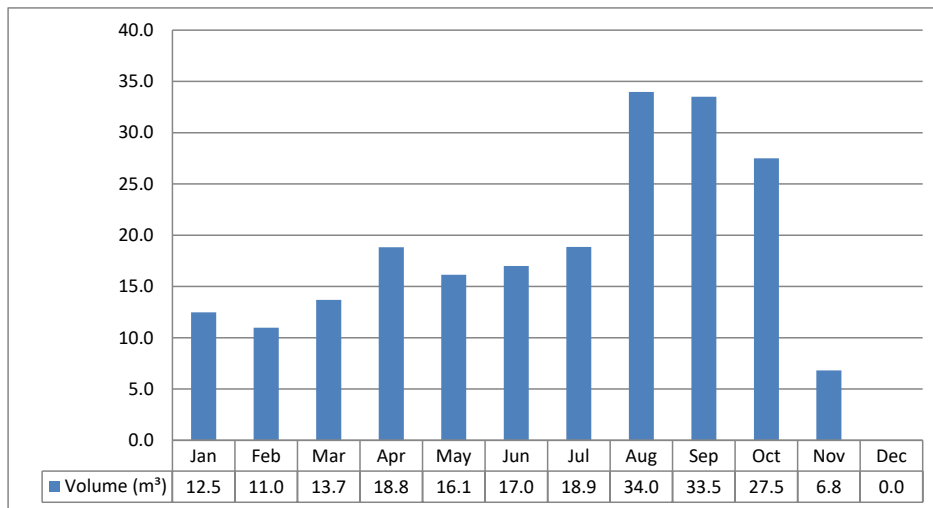
Annual Comparison (m³)



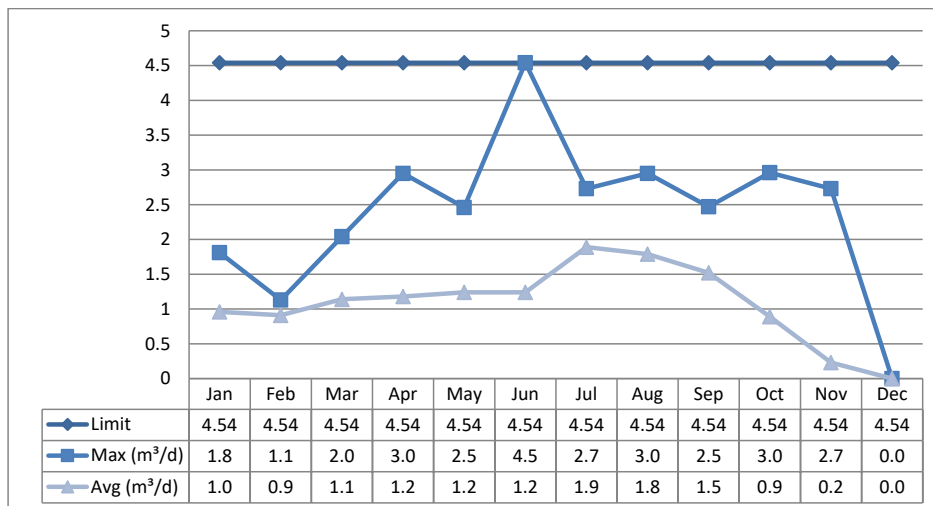
Septage Volumes

Average daily flow for 2020 = 1.44 m³/d
 Total Flow for 2020 = 209.8 m³

Monthly Total Volume Received



Monthly Average Volume Received



Raw Sewage Quality

Results of raw sewage concentrations and loadings are available in the Facility Performance Assessment Report in Appendix A.

Septage Quality and Loadings

Septage was sampled monthly. A summary of the results are attached in Appendix B. The current volume of received septage does not appear to be harmful to the process. Plant removal efficiencies are available in the Facility Performance Assessment Report in Appendix A.

Centrate

The centrifuge was not in operation during the reporting period.

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 (WESR) on a quarterly basis.

Effluent Parameter Summary

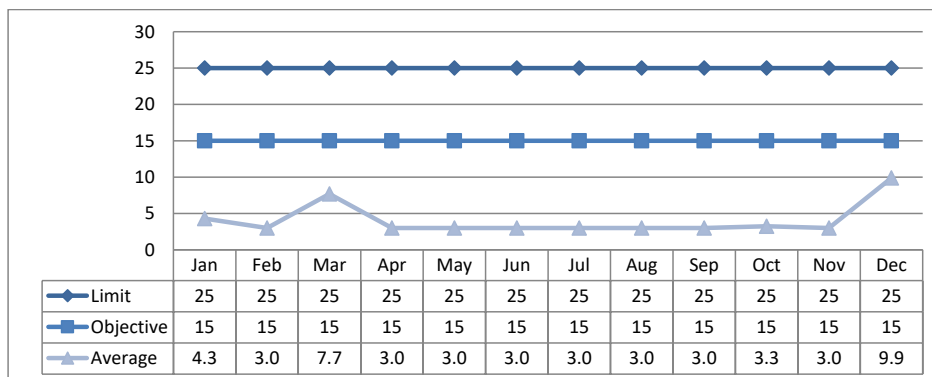
Carbonaceous Biological Oxygen Demand (CBOD5)

Compliance

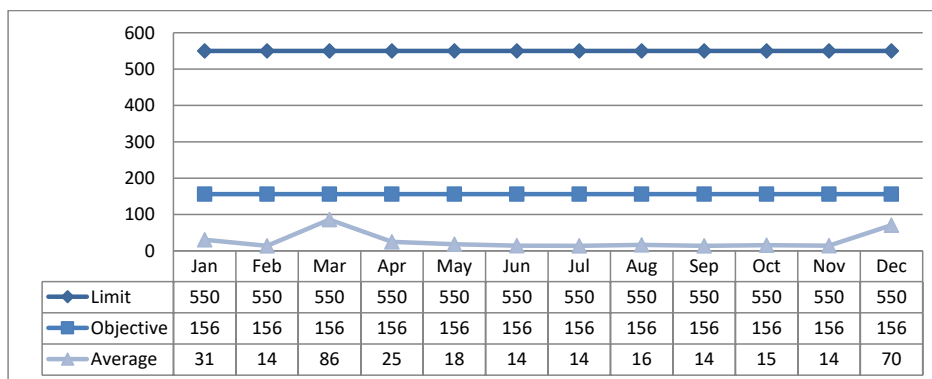
Compliance is based on an annual average.

	Concentration (mg/L)			Loading (kg/d)		
	Annual Average	Limit	Objective	Annual Average	Limit	Objective
CBOD	4.09	25.0	15.0	27.68	550	156

Concentration (mg/L)



Loading (kg/d)



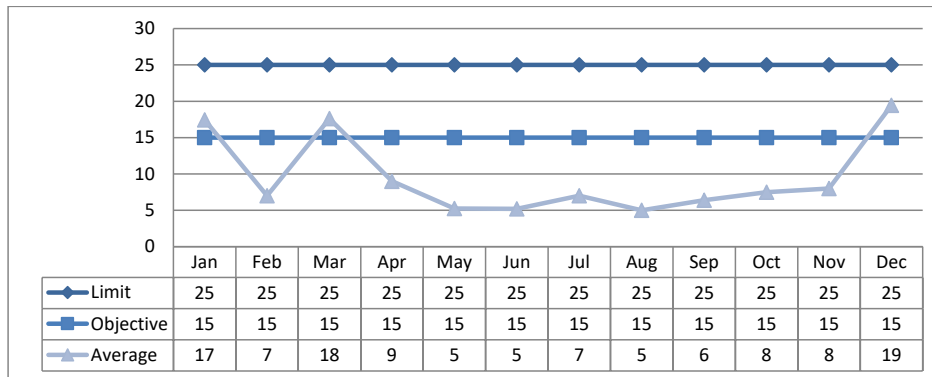
Total Suspended Solids

Compliance

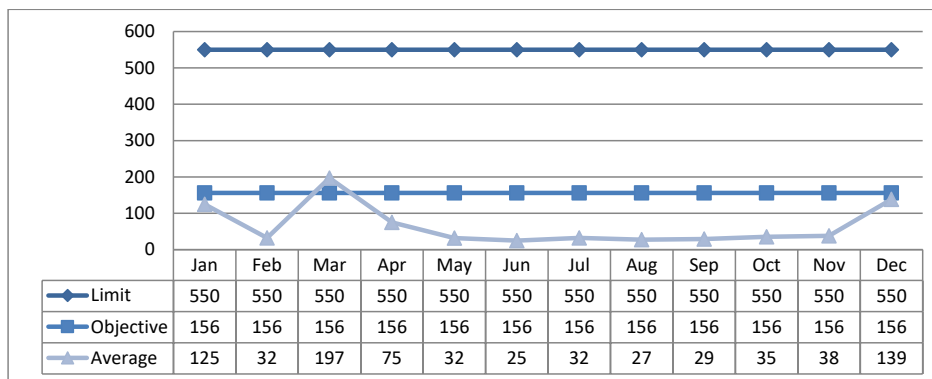
Compliance is based on an annual average.

	Concentration (mg/L)			Loading (kg/d)		
	Annual Average	Limit	Objective	Annual Average	Limit	Objective
Total Suspended Solids	9.57	25.0	15.0	85.57	550	156

Concentration (mg/L)



Loading (kg/d)



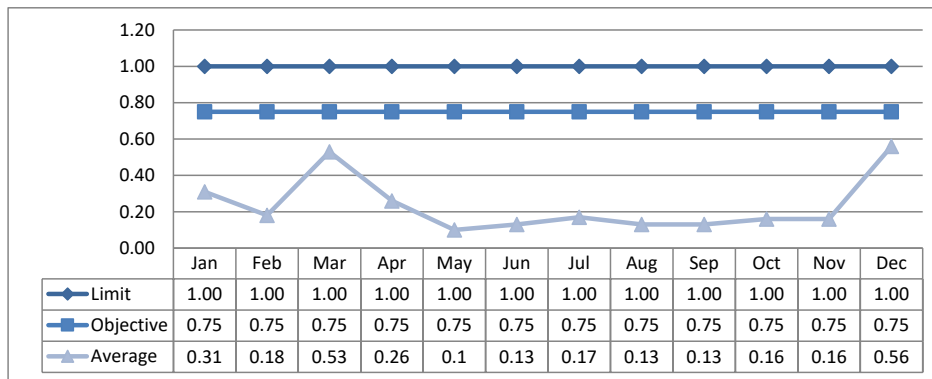
Total Phosphorus

Compliance

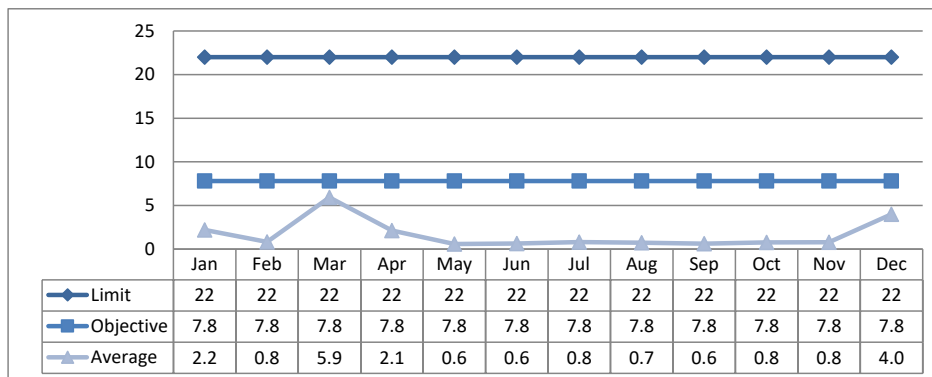
Compliance is based on a monthly average.

	Concentration (mg/L)			Loading (kg/d)		
	Annual Average	Limit	Objective	Annual Average	Limit	Objective
Total Phosphorus	0.31	1.0	0.75	1.66	22.0	7.8

Concentration (mg/L)



Loading (kg/d)



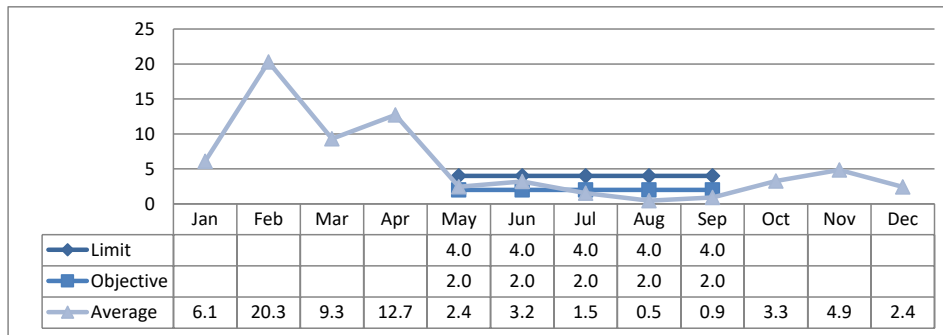
Total Ammonia Nitrogen

Compliance

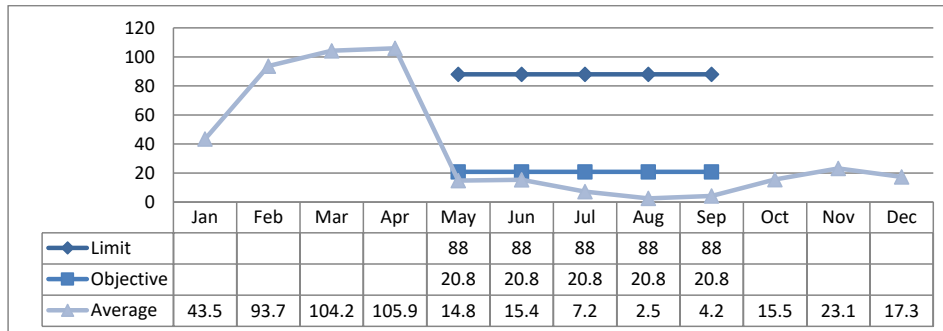
Compliance is based on a monthly average.

	Concentration (mg/L)			Loading (kg/d)		
	Monthly Average	Limit	Objective	Monthly Average	Limit	Objective
Total Ammonia Nitrogen	See graph below	4.0 May 15-Sept 30	2.0 May 15-Sept 30	See graph below	88.0 May 15-Sept 30	20.8

Concentration (mg/L)



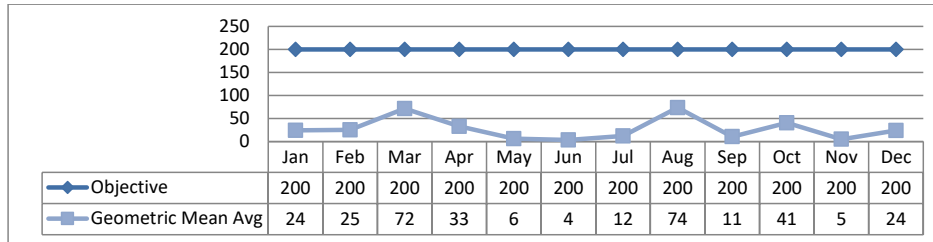
Loading (kg/d)



E-coli

There is no limit on e-coli in the Environmental Compliance Approval.

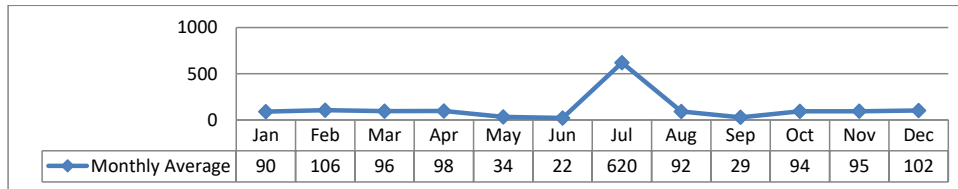
Concentration (cfu/100mL)



Faecal Streptococcus

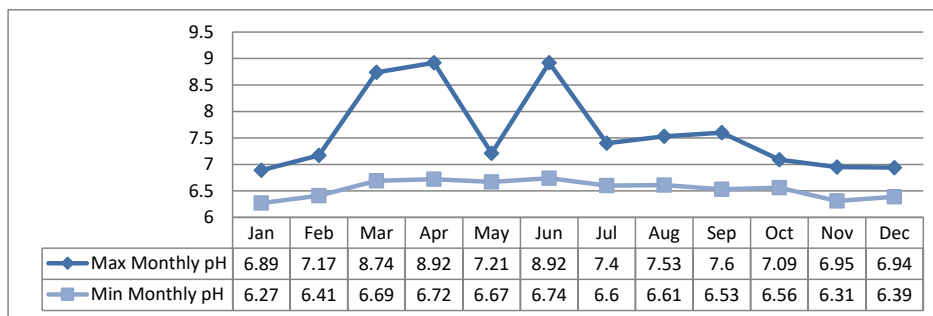
This parameter is required to be tested in the effluent but there are no limits or objectives established in the Environmental Compliance Approval.

Concentration (cfu/100 mL)



pH

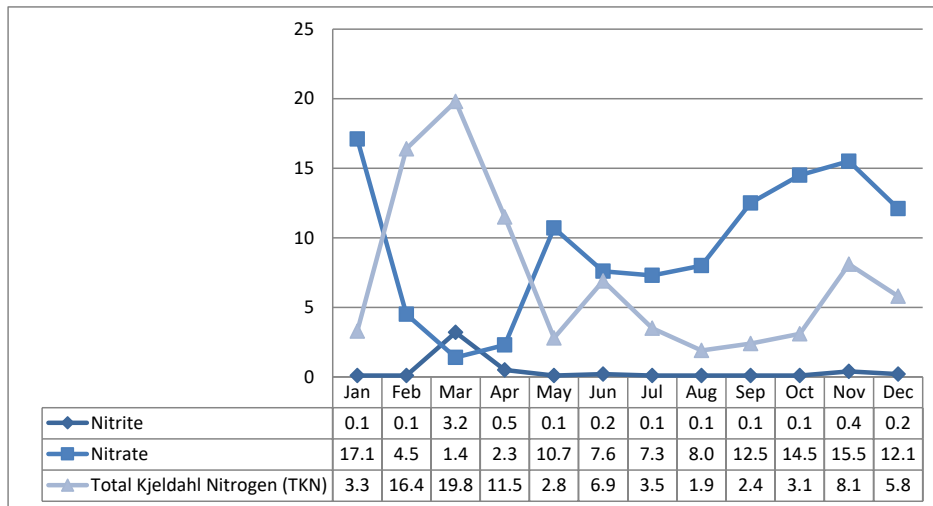
This parameter is to be maintained between 6.0 and 9.5 inclusively at all times.



Nitrate, Nitrite and Total Kjeldahl Nitrogen (TKN)

These parameters are required to be tested in the effluent but there are no limits or objectives established in the certificate of approval.

Monthly Average Concentration (mg/L)



Acute Lethality

There were four (4) samples collected in 2020 and tested for acute lethality of Rainbow Trout. Results are displayed as % mortality. This sampling is required under the federal fisheries regulations.

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

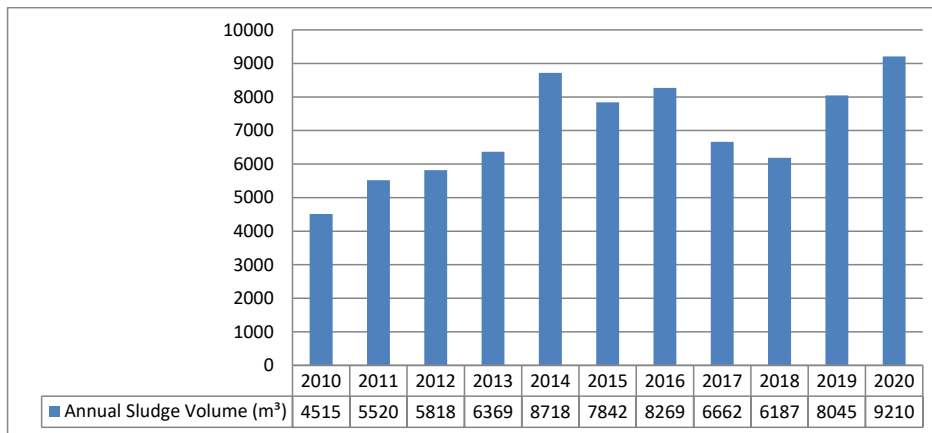
Biosolids

Sludge generated from the treatment plant was spread on agricultural land during the spreading season as per the Nutrient Management Act O.Reg 267/03. During the winter sludge is stored on-site until the Organic Soil Conditioning Sites are available for spreading.

Biosolids Disposal Summary

Date	Site	NASM Plan number	Volume (m ³)
January 2020	Third High Farms Facility	ECA A710174 ECA 5948-7JRMAJ	53.6
February 2020	Third High Farms Facility	ECA A710174 ECA 5948-7JRMAJ	77.9
March 2020	Third High Farms Facility	ECA A710174 ECA 5948-7JRMAJ	270.3
April 2020	Third High Farms Facility	ECA A710174 ECA 5948-7JRMAJ	267.9
April 2020	Terrapure Storage Facility	ECA S-3708-42	200
May 1 2020	Terrapure Storage Facility	ECA S-3708-42	120
May 6 2020	Sunol Farms - James	22416	2080
June 29 2020	Jockbrae Farms - Marks	24344	560
July 6 2020	Jockbrae Farms - Marks	24344	1520
August 19 2020	Terrapure Storage Facility	ECA S-3708-42	80
August 31 2020	Sunol Farms – 14-15	24216	680
September 1 2020	Sunol Farms – 14-15	24216	640
September 3 2020	Jockbrae Farms - Marks	24344	360
November 4 2020	Sunol Farms - Amanda's	24013	2180
November 10 2020	Terrapure Storage Facility	ECA S-3708-42	20
Total			9209.7

Annual Comparison



It is anticipated that sludge volumes will remain constant based on the average treated volumes and past years history.

Quality

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

Centrate sampling was not completed as sludge was not de-watered during this reporting period.

Summary of Complaints

The following were received community complaints related to the operations of the Carleton Place WPCP.

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

Summary of Bypass, Overflow and Diversions

A Bypass is where influent flows do not receive any treatment and are discharged to the Mississippi River.

An overflow is where influent is diverted around the treatment and is discharged at a different location other than the designed effluent outfall pipe. It should be noted that there is no way for this facility to overflow from the treatment plant.

A Diversion is when the three (3) physical/chemical tanks are brought into service. These tanks are used during high flow periods to provide partial treatment to the influent while protecting the biomass in the secondary treatment process.

Details	Category	Volume (m³)	Start Date and Time	End Date and Time	Discharge Receiver	Disinfection Provided
Carleton Place WPCP heavy rain fall event	Bypass	22	Jan 11 2020 20:11	Jan 12 2020 12:14	Mississippi River	Yes
Carleton Place WPCP heavy rain fall event	Diversion	26,940	Jan 11 2020 18:00	Jan 14 2020 08:11	Mississippi River	Yes
Carleton Place WPCP spring flooding	Diversion	68,264	March 10 2020 10:20	March 20 2020 10:50	Mississippi River	Yes
Carleton Place WPCP heavy rainfall event	Bypass	Unknown	Dec 25 2020 05:20	Dec 25 2020 11:24	Mississippi River	Yes
Carleton Place WPCP heavy rainfall event	Diversion	24,277	Dec 25 2020 12:10	Dec 28 2020 10:05	Mississippi River	Yes

Summary of Spills/Abnormal Discharges

Date	Location	Details	Corrective Action Taken
October 1, 2020	Bridge Street Sewage Pumping Station	Contractor performing new Force main install accidentally hit the old force main, piercing the pipe with the excavator bucket	Repairs were made immediately to the pipe and normal operations resumed at the sewage pumping station

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 Eastern Regional Hub has specialized and 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 Carleton Place 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
1661182	Capital SCADA Replacement
1662104	Capital Fasteners & Fittings
1662487	Capital #2 SCADA/PLC replacement
1663111	Capital Communication tower install Highgate SPS
1708829	Capital UV Parts
1832923	Capital SPS clean out
1917717	Capital Storm tank 1 cleanout
1918586	Capital Sodium Hydroxide pump relay
1952689	Capital New glassware for lab bench work
1963194	Capital South East controller failure
1963277	Capital Submersible pump cable end
1963564	Capital Electrical parts for lighting system and other electrical repairs
1622870	Capital Move DO/ TSS Aeration Probe
1662751	Capital Engineering service
1832924	Capital YSI pH sensor cap

WO #	Summary
1832931	Capital Hach portable pH meter
1873102	Capital Duct cleaning
1918431	Capital Campbell Fuels Inc: Facilities and SPS stations top up
2038280	Capital - WAS push button and reprogramming
2039398	Capital Controls service call
2039401	Capital SCADA transfer cycles not functioning
2039404	Capital Boiler sequence changes

Calibration

The flow meters were calibrated on October 13, 2020. See Appendix D for the calibration reports.

Collection Highlights

Collection System Highlights were provided by the Town of Carleton Place.

The Public Works Department responded to approximately 1600 locate requests from January through to November of 2020. During the same period in 2019, the Public Works Department responded to 1485 locate requests. This is an 8% increase in locate requests. Due to the increase in the number of locate requests, staff implemented new Utililocate software to computerize locates. The software has significantly increased the efficiency which locates are completed.

The Collection System is broken into four sections and is flushed in a four year rotational cycle. This year's quadrant was flushed by 3rd party contractor with staff oversight. In addition, Public Works crews also flushed known trouble areas on an intermittent basis.

Staff assisted with various components of Public Works construction projects.

Staff responded to 12 complaint calls regarding the collection system – both mains and laterals. Problems ranged from private blockages, to pipe integrity, to developer activity. As a result, only two pipe repairs were required.

Staff responded to emergencies and spills including, Forcemain Air Relief Valve failure, Contractor damaging pipe and 2 wet weather events causing spills (related to Sewage plant events).

Appendix A

Facility Performance Assessment Report

Appendix B

Septage Quality and Loadings

Appendix C

Biosolids Quality Report

Appendix D

Calibration Records