

# Lansdowne Wastewater System

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Waterworks # 110001934

## Annual Report

Prepared For: Township of Leeds and the Thousand Islands

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2022

Issued: February 21, 2023

Revision: 0

Operating Authority:



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

Document	Document #	Issue Date	Issue Number
Facility ECA	3483-9Q6QAL	November 18, 2014	N/A

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## 1 Revision History

Date	Rev#	Revisions	Revised By
2023-02-21	0	Annual Report Issued	PCT

## 2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	<ul style="list-style-type: none"> <li>No inspections in 2022</li> </ul>
Ministry of Labour Inspections	<ul style="list-style-type: none"> <li>No inspections in 2022</li> </ul>
Non-Compliance	<ul style="list-style-type: none"> <li>None to report</li> </ul>
Community Complaints	1 Community Complaint <ul style="list-style-type: none"> <li>Details reference in report</li> </ul>
Spills	<ul style="list-style-type: none"> <li>None to report</li> </ul>
Overflows	<ul style="list-style-type: none"> <li>None to report</li> </ul>
Bypass	<ul style="list-style-type: none"> <li>None to report</li> </ul>
Diversion (if applicable)	<ul style="list-style-type: none"> <li>None to report</li> </ul>

## 3 Process Description

Lansdowne's wastewater system was constructed in the mid-1970's and commenced operation in 1976. The system consists of approximately 5.2 kilometers of asbestos cement sewer pipe, one pumping station located on Railway Street, and a two cell facultative lagoon system with a design capacity of 336 m<sup>3</sup>/d. The sewage pumping station consists of a single wet well with a peak design flow of 30 L/s. The lagoon system is typically operated in series, with raw sewage flowing into the north cell for initial treatment and then being transferred to the south cell for polishing.

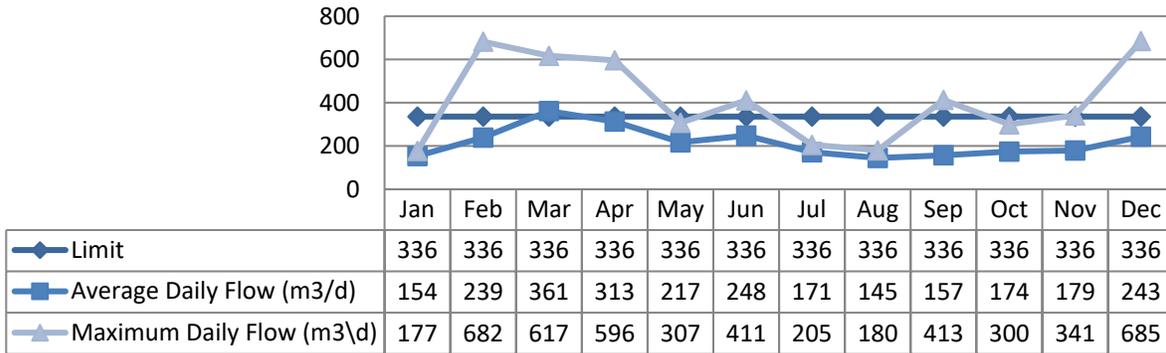
The north cell provides storage for 38,250 m<sup>3</sup> and the south cell can store 34,500 m<sup>3</sup>. The system was originally designed for effluent to be directed to a spray irrigation facility along with an option for surface discharge. Due to the need for extensive repairs in addition to constraints placed on the system resulting from impacts on neighbouring lands, the spray irrigation system has not been in use since 2008. The current practice is to discharge effluent from the lagoons to an open ditch which flows to the La Rue Mills Creek and ultimately to the St. Lawrence River. The lagoon cells are treated with aluminum sulphate by boat to ensure the total phosphorus concentration in the effluent is less than 1.0 mg/L.

Discharges typically take place on a semi-annual basis in the spring and in the fall.

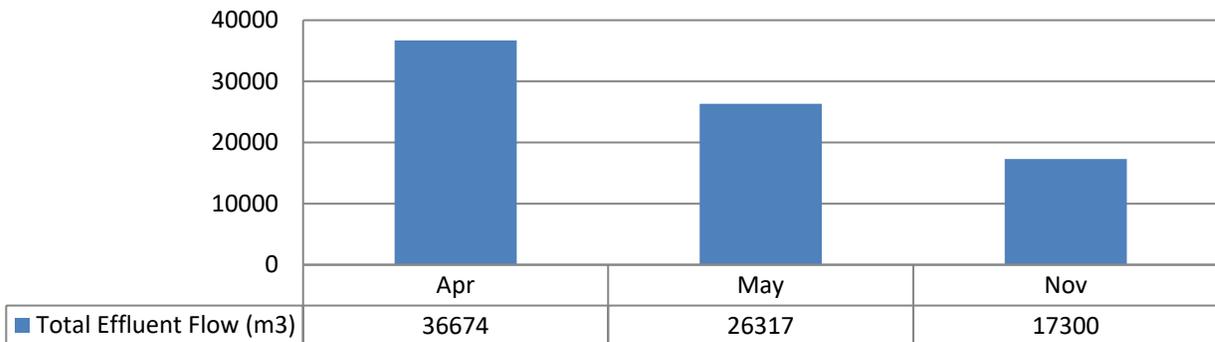
## 4 Treatment Flows

The hydraulic flows reaching the sewage lagoons in 2022 averaged 217 m<sup>3</sup>/day which represents 65% of the 336 m<sup>3</sup>/day design capacity.

### 4.1 Raw Flow (m<sup>3</sup>/d)

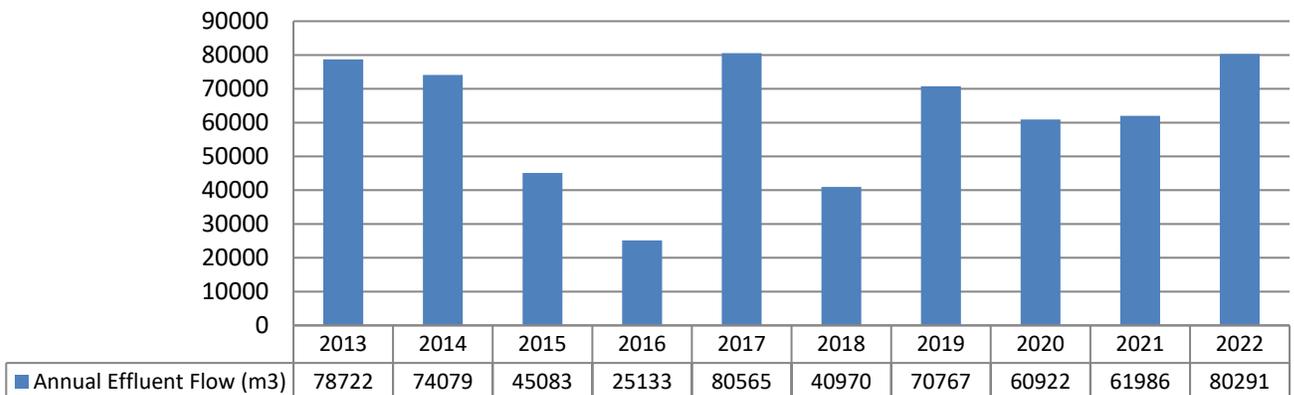


### 4.2 Effluent Flow (m<sup>3</sup>/d)



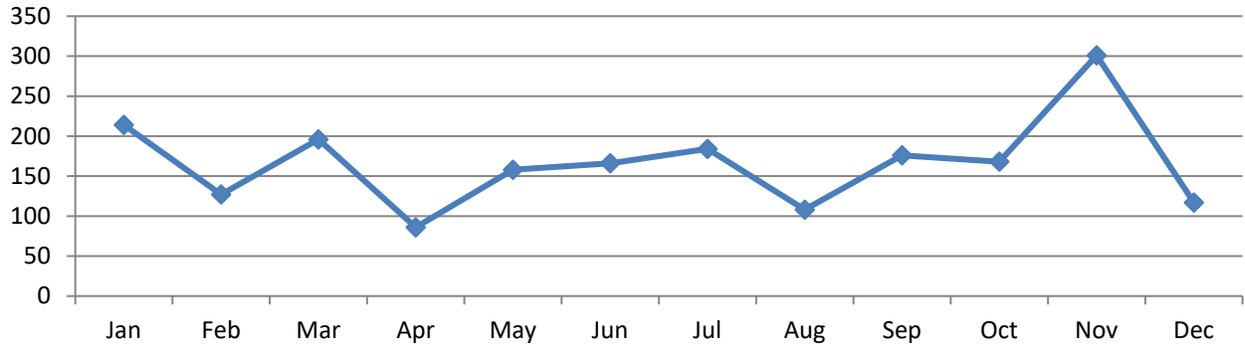
Discharges occurred in spring (April/May) and fall. (November) Flows are calculated using

#### Annual Comparison (m<sup>3</sup>)

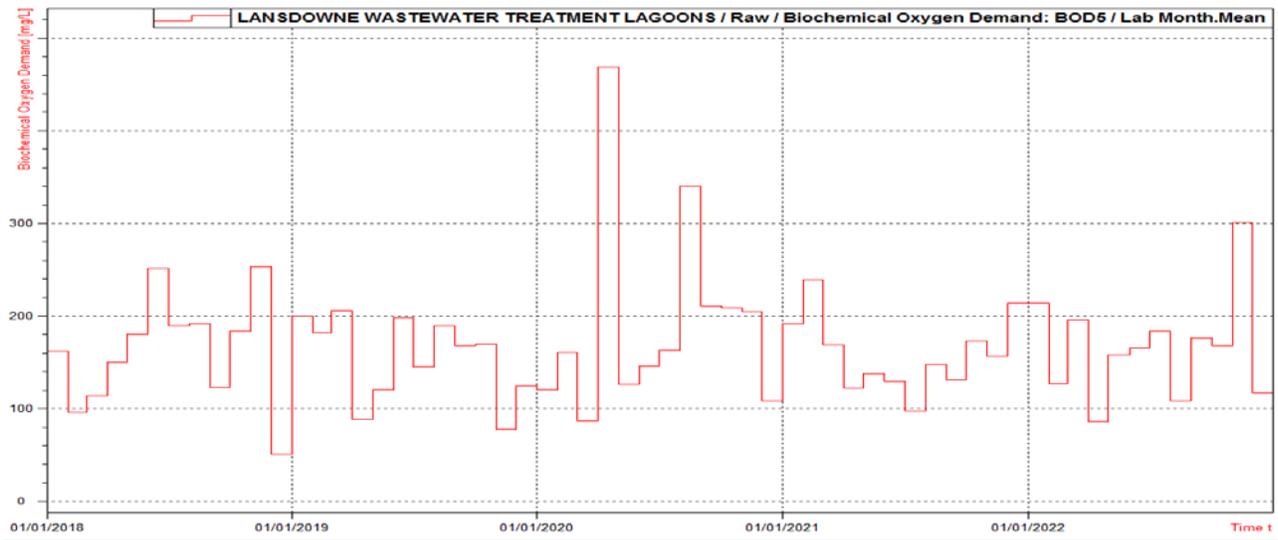


## 5 Raw Sewage Quality

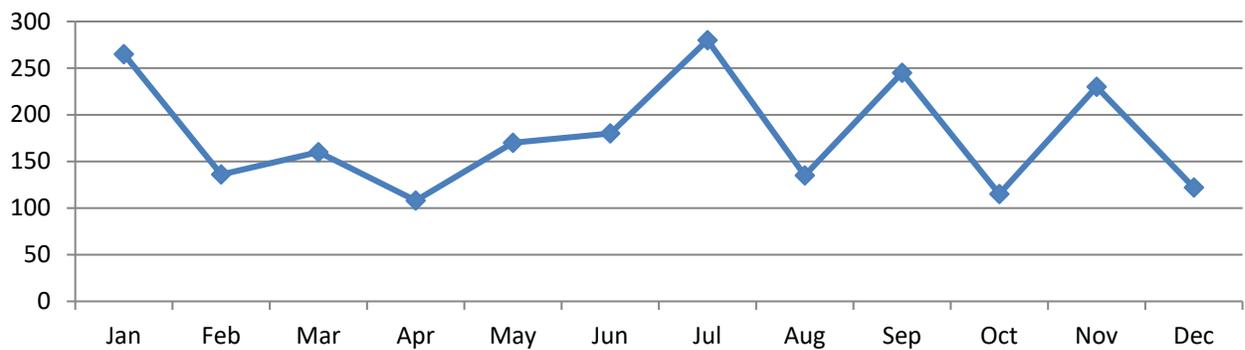
### 5.1 BOD5 (mg/L)



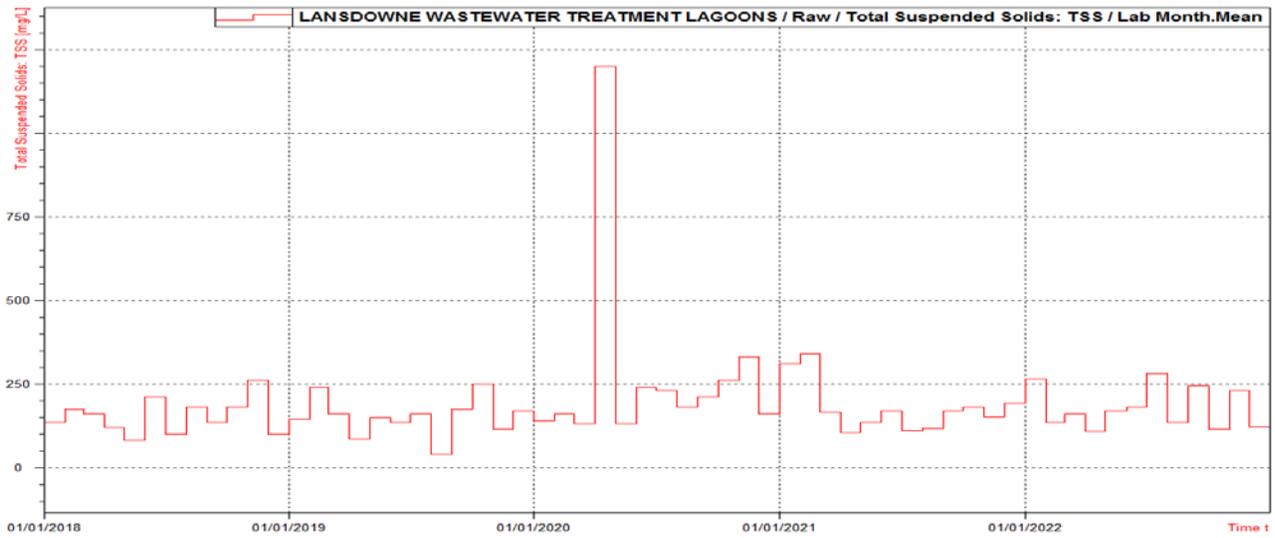
### 5-year BOD5 Trend



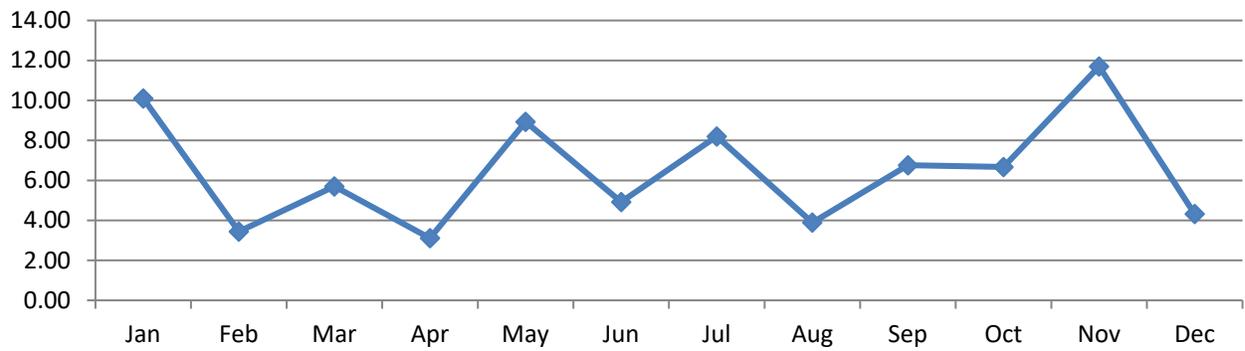
### 5.2 Total Suspended Solids (mg/L)



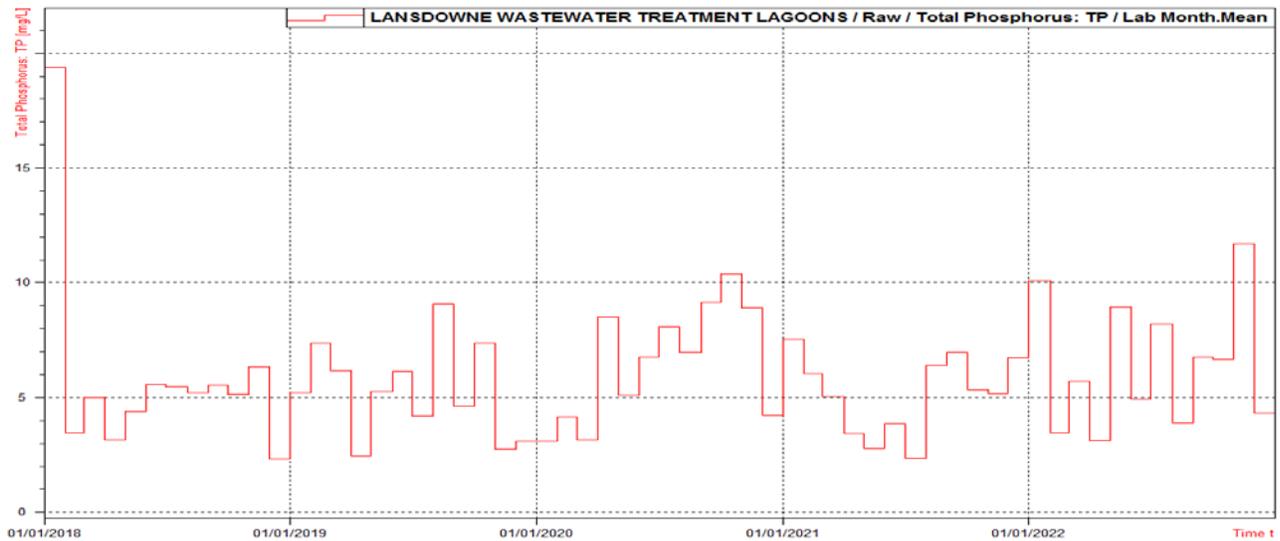
**5-year Total Suspended Solids Trend**



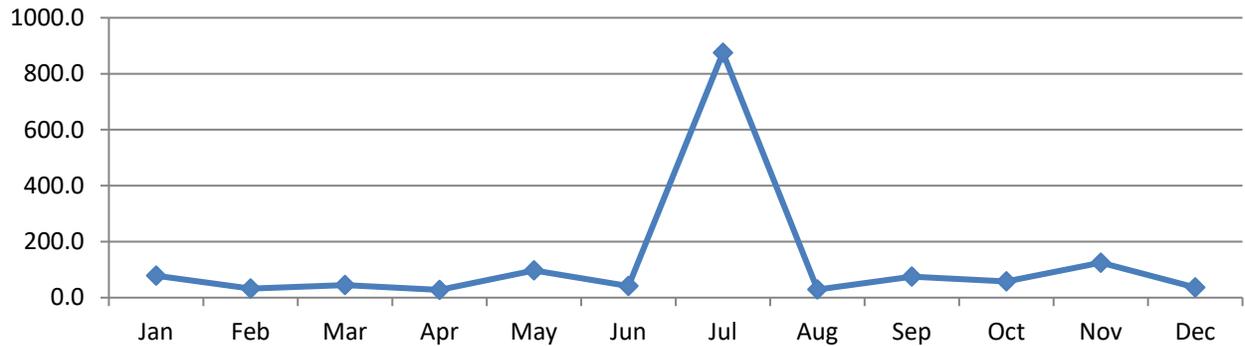
**5.3 Total Phosphorus (mg/L)**



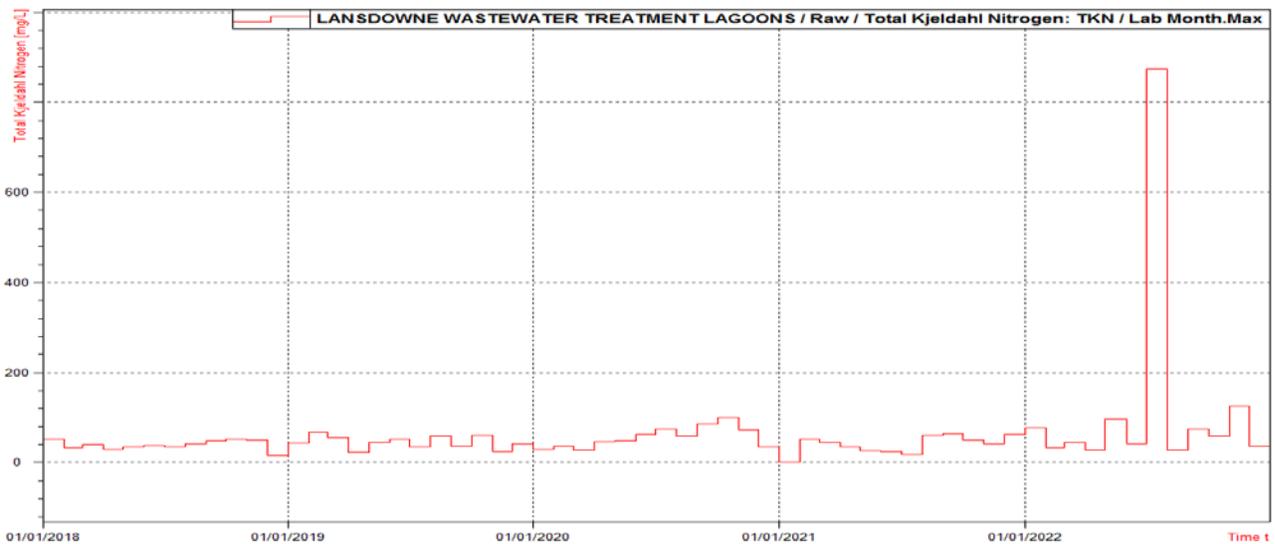
**5-year Total Phosphorus Trend**



### 5.4 Total Kjeldahl Nitrogen (mg/L)



### 5-year Total Kjeldahl Nitrogen Trend



### 5.5 Imported Waste Quality

There was no imported sewage in 2022.

## 6 Effluent Quality

There were no exceedances of the seasonal average effluent concentration limits outlined in the ECA during the reporting period.

### 6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of OCWA’s Seaway Valley 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 Kingston for analysis. Caduceon Kingston 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.

OCWA uses several computer systems which include:

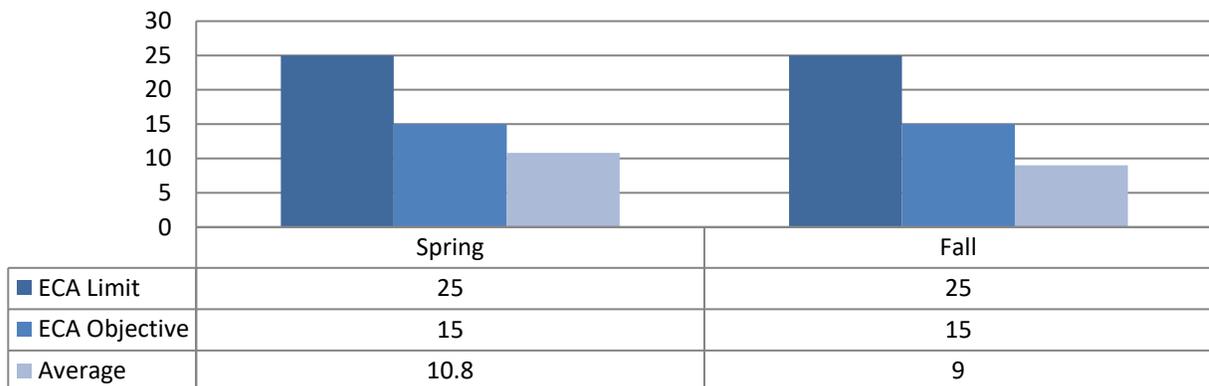
- Process Data Management (PDM)
  - This database program consolidates all operational data from a variety of sources including field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
- Maximo – OCWA’s Work Management System (WMS)
  - This 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.

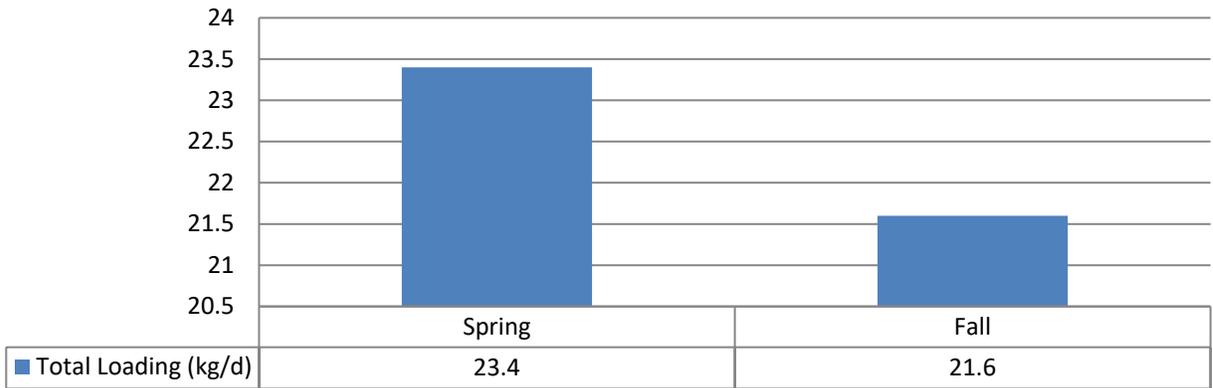
Detailed individual sample results for both raw sewage and final effluent can be requested from the operating authority.

## 6.2 CBOD5 (mg/L)

The compliance limit and objective for this parameter were met in 2022.

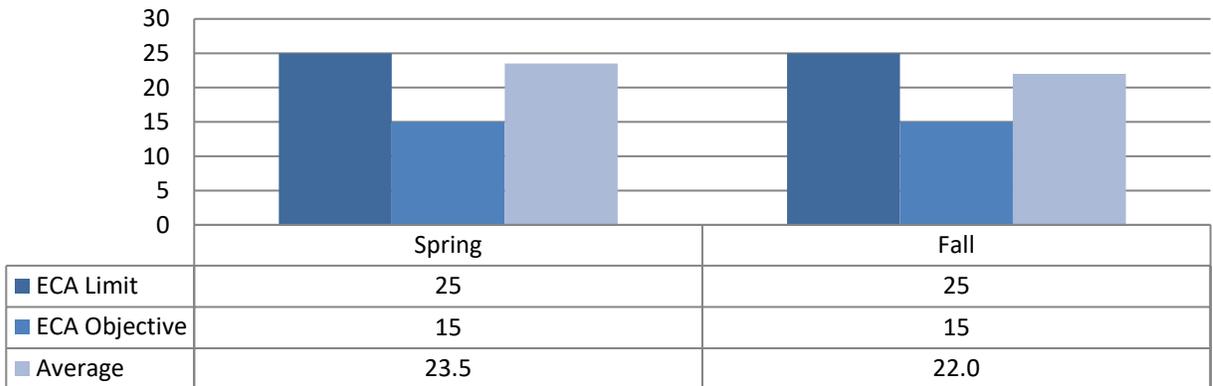


Loading (kg/d)

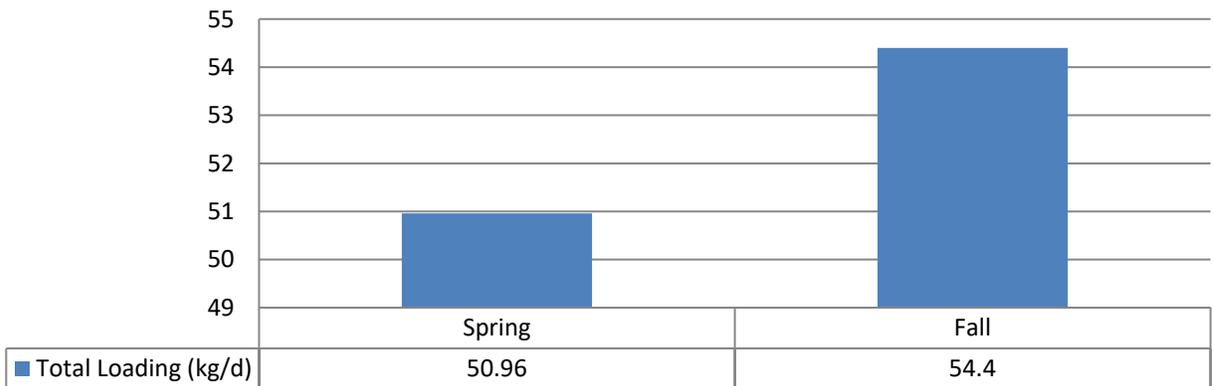


**6.3 Total Suspended Solids (mg/L)**

The compliance limit for this parameter was met in 2022.



Loading (kg/d)

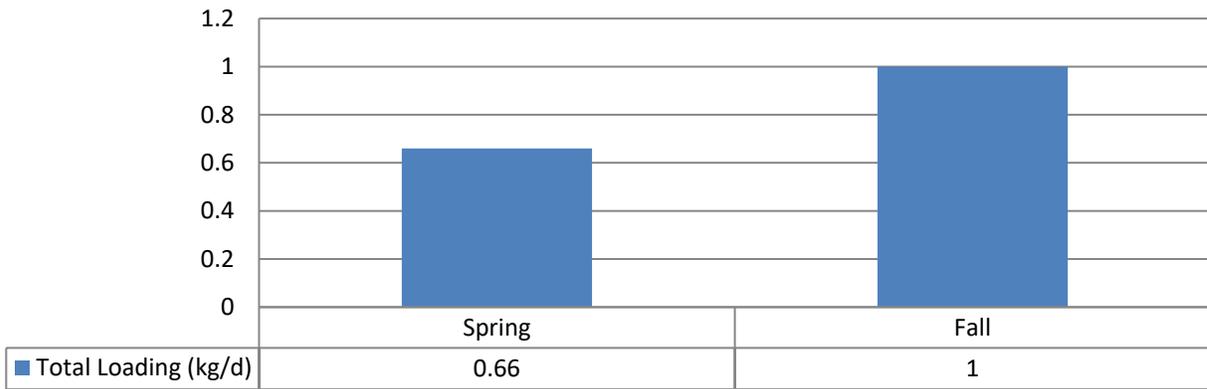


### 6.4 Total Phosphorus (mg/L)

The compliance limit and objective for this parameter was met in 2022.

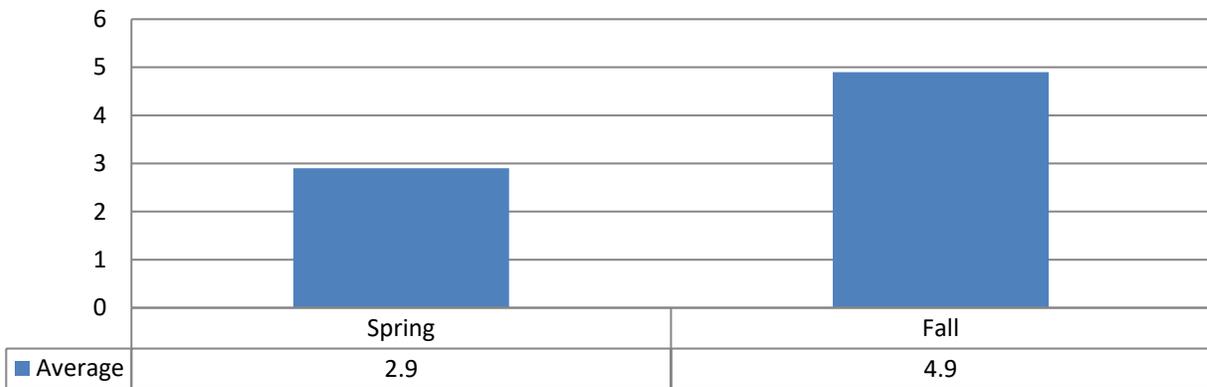


### Loading (kg/d)

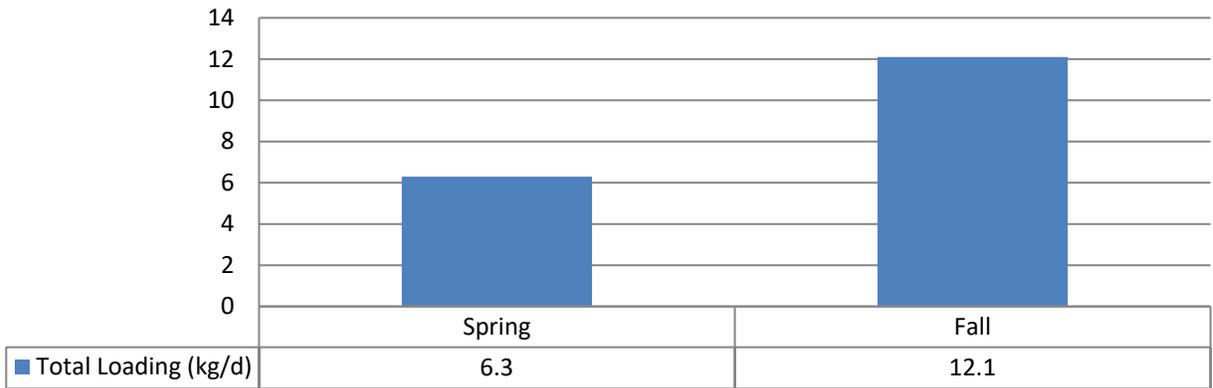


### 6.5 Total Ammonia Nitrogen (mg/L)

There are no compliance objectives or limits set out for Total Ammonia Nitrogen in the ECA.

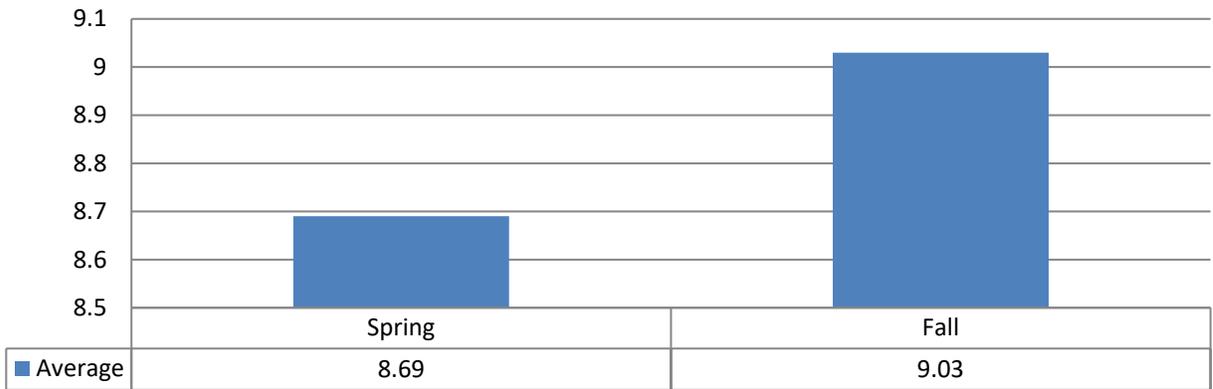


Loading (kg/d)



**6.6 Total Kjeldahl Nitrogen (mg/L)**

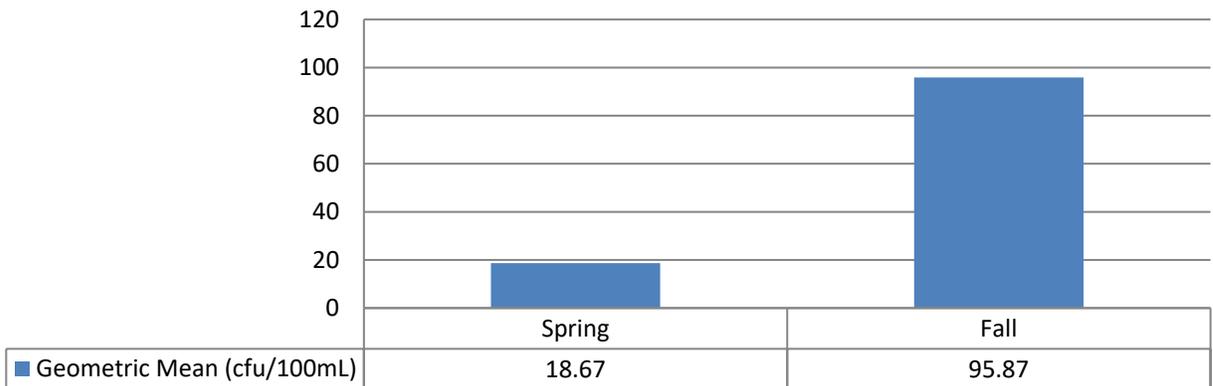
There is no compliance limit or objective set out for this parameter in the ECA.



**6.7 E-coli**

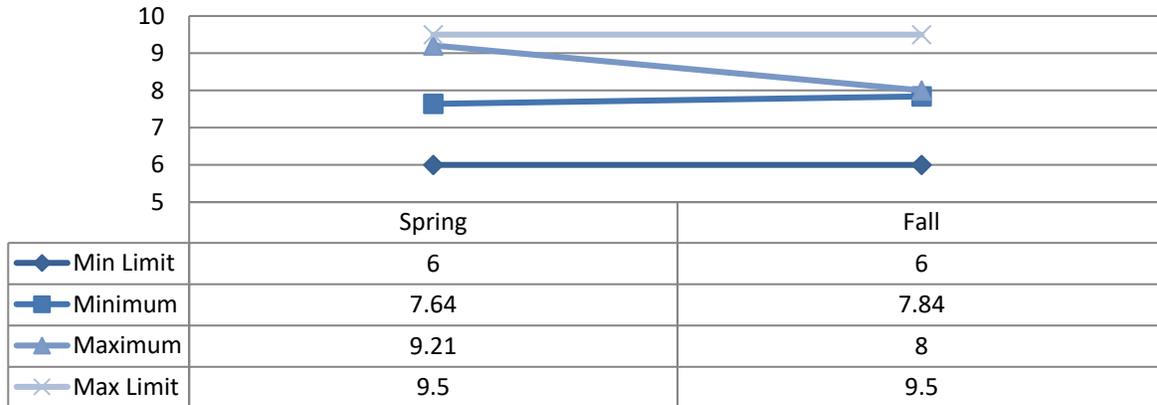
There is no compliance objective or limit for this parameter in the ECA.

Geometric Mean (cfu/100mL)



### 6.8 pH

pH is to remain in the range of 6-9.5. Each instance the pH is outside of that range is reported as a non-compliance.



## 7 Monitoring Schedule

The 2023 Calendar can be viewed in Appendix B.

### 7.1 Deviations

Date	Details	Cause of Deviation
There were no deviations of the sample schedule or missed samples in 2022		

## 8 Operating Issues/Problems

There were no operating issues in 2022 that are not mentioned in the objective exceedances below.

### 8.1 Effluent Quality Non-Compliance Summary

Date	Exceedance of	Limit	Value	Corrective Action
May 2022	TSS ECA Objective	15	23.5	Historical issues with algae growth in the lagoon has led to total suspended solids issues. Lagoon monitored closely by operators when discharging. Photos of samples are taken.
November 2022	TSS ECA Objective	15	22	Historical issues with algae growth in the lagoon has led to total suspended solids issues. Lagoon monitored closely by operators when discharging. Photos of samples are taken.

## 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
No spills (other than sewage) to report in 2022					

## 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
2636731	Valve box cleaning, SPS cleanout
2823590	Storm Sewer camera work
2636738	Berm repair at lagoon
2636737	Vegetation spraying at lagoon
2636735	Pump #2 rebuild/replace at SPS

Work Order	Details
2636731	Manhole repairs
2636732	Lab stirrer for jar testing

## 9.2 Emergency Maintenance and Repairs

Work Order	Details
No emergency maintenance/repairs in 2022	

## 9.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
FIT-01 SPS Effluent	April 5, 2022	N/A

## 9.4 Authorized Alterations in Collection System

Work Order	Details	Significant Drinking Water Threat (Y/N)
No authorized alterations in collection system in 2022		

## 9.5 Notice of Modifications

Date	Process	Modification	Status
No modifications made to the collection system in 2022			

# 10 Sludge Generation

Sludge depth is monitored periodically, and plans for sludge removal are made as needed for optimal operation of the lagoon system. Sludge removal from the north cell is planned for 2026. Some berm repairs were completed in 2022 to the north cell.

# 11 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
Lansdowne Lagoon	October 2022	Odour	Complaint came through Ministry Inspector. Informed inspector of sludge exposure in the lagoon due to berm maintenance on the north cell. Once finished the north cell would be filled, and any odours would subside.

# Appendix A

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## Appendix A - Imported Sewage Sample Results

No imported sewage in 2022.

# Appendix B

## Appendix B - Sample Calendar

### Lansdowne Sewage - 2023

	Grab				
	Date	B.O.D.	S.S.	T.P.	TKN
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					

\* Refer to ECA Short for sampling required during effluent discharge

# Appendix C

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## Appendix C - Biosolids Quality Report

No sludge was removed from the lagoon in 2022.

# Appendix D

## Appendix D - Details of Abnormal Sewage Discharge Events

### Facility Bypass

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
No facility bypass' in 2022								

### Facility Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
No facility overflows in 2022								

### Collection Overflow

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
No collection system overflows in 2022								

### Spills of Sewage

Date	Location	Details	Volume (m3)	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
No spills of sewage in 2022								

### Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
No collection system overflows in 2022						

# Appendix E

## Appendix E - ECA Annual Report Requirements

Facility ECA # 3483-9Q6QAL Section 11 (5)	Section in Report
a) Summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works	Section 6 – Effluent Quality
b) Description of any operating problems encountered and corrective actions taken	Section 8 – Operating Issues/Problems
c) Summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works	Section 9 - Maintenance
d) Summary of any effluent quality assurance or control measures undertaken in the reporting period	Section 6 – Effluent Quality
e) Summary of the calibration and maintenance carried out on all effluent monitoring equipment	Section 9.3 – Flow Meter Calibrations
f) Description of efforts made and results achieved in meeting the Effluent Objectives or Condition 6	Section 8 – Operating Issues/Problems
g) Tabulation of the volume of sludge generated in the reporting period, 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	Section 10 – Sludge Generation
h) Summary of any complaints received during the reporting period and any steps taken to address the complaints	Section 11 – Complaints
i) Summary of all By-pass, spill or abnormal discharge events	Appendix D, Section 8 – Operating Issues/Problems
j) Copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule 'B', Section 1, with status report on the implementation of each modification	Section 9 - Maintenance
k) Report summarizing all modifications completed as a result of Schedule 'B', Section 3	Section 9 - Maintenance
l) Any other information the Water Supervisor requires from time to time	N/A