



## REPORT N° INF2020-42

<b>Date</b>	07/12/2020
<b>Submitted by</b>	Philippe Cormier
<b>Subject</b>	Biosolids lagoons - 2019 Annual Report
<b>File N°</b>	INF2020-42

1) **NATURE/GOAL :**

The purpose of this report is to present to Council the annual report of the Clarence-Rockland wastewater treatment plant's biosolids lagoons completed as required under the site's Environmental Compliance Approval (ECA).

2) **DIRECTIVE/PREVIOUS POLICY :**

N/A

3) **DEPARTMENT'S RECOMMENDATION :**

**Whereas**, the ECA for the operation of the City's biosolids lagoons stipulates that a requirement to submit an annual report to the Ministry of Environment, Conservation and Parks (MECP) with respect to the operation of the lagoons;

**Be it resolved that** Council receives the report entitled "2019 Monitoring Program Annual Report – Biosolids Storage Lagoons", and

**Attendu que** l'approbation environnemental (AE) pour les opérations des lagunes biosolides stipule que le prérequis est de soumettre un rapport annuel au Ministère de L'environnement par rapport aux opérations du lagunes

**Qu'il soit résolu que :** le conseil reçoit le rapport intitulé "2019 Monitoring Program Annual Report – Biosolids Storage Lagoons".

4) **BACKGROUND :**

In 1997, a new wastewater treatment plant was built in Rockland to replace the previous lagoon treatment system.

From 1997 to 2002, the excess biosolids produced during the treatment process were pumped 400m to the previous treatment lagoon site located at the end of Industrielle Road.

In the fall of 2002, the new biosolids lagoons were constructed and operational by early 2003. The new lagoons consist of two (2) lagoons,

each of 0.14 hectare in size, and are located on land once formerly occupied by the aeration lagoons, situated approximately 50 meters north of the wastewater treatment plant.

A requirement of the construction of the biosolids lagoons was to install monitoring wells around the perimeter in order to monitor their integrity (sealed containment) and ensure that they did not impact existing groundwater. In addition to the groundwater monitoring plan, an "emergency action plan" was established in order to address a groundwater impact by the lagoons.

Over the course of several years, additional monitoring wells were installed in response to the MECP review of the 2016 annual report.

*Site Monitoring Program:*

WSP was retained by the Corporation of the City of Clarence Rockland (City) to undertake the annual groundwater monitoring and reporting pursuant to satisfying the conditions prescribed by the amended ECA (no. 3-0466-93-967, Notice 3) originally issued February 8, 1996. This report addresses the activities at the site for the period of February 2019 to January 2020. Specifically, the scope of the monitoring program includes:

- Recording quarterly static water levels at the 12 on-site monitoring wells;
- Collecting representative groundwater samples from each of the 12 monitoring wells two (2) times per year;
- Comparing groundwater sample results to the established groundwater thresholds, as well as Provincial Water Quality Objectives (PWQO) where appropriate; and
- Compiling and interpreting the data and prepare a report summarizing the findings.

5) **DISCUSSION :**

The results of the groundwater chemical analysis have been tabulated and are summarized in Table 2 included in Appendix B of the annual report. The results were used to undertake an assessment of the site's threshold values, as well as compare against the limits prescribed by the Ontario Drinking Water Quality Standards/Guidelines (ODWQS) and MECP's publication Provincial Water Quality Objectives (PWQO). It is noted that there are groundwater uses on adjacent properties, and groundwater discharges to nearby surface waters. The comparison to the ODWQS and PWQO is for information purposes only.

Attachment 2 identifies the location of site monitoring wells and boreholes. No samples were collected from BH03-4 in September 2019, nor from MW17-2 in September and November 2019, due to the wells being dry. Monitoring well MW-5 was not sampled during the 2018 sampling year due to the well being damaged. In September 2019, WSP made temporary alterations to MW-5 to enable sample collection. The analytical results are included in Appendix E of the annual report (reference Attachment 1). The following are specific noteworthy observations:

- Monitoring wells MW11-8 and BH03-4 had significantly elevated ammonia concentrations compared to the background well MW-3.
- Total phosphorus concentrations exceeded the PWQO limit of 0.02 mg/L at each monitoring well during the September and November 2019 sampling events including at the background well MW-3.
- Monitoring well MW-2 exceeds the limit prescribed by the ODWQS for nitrate of 10 mg/L during both sampling events. Although not exceeding, monitoring wells MW17-01 and BH03-04 had significantly higher nitrate concentrations than the background monitor MW-3.
- Monitoring wells MW11-6 and MW11-7 had concentrations of chloride above the ODWQS limit and significantly elevated compared to other monitors.
- MW11-8 and BH03-04 had significantly elevated TKN during both monitoring events compared to the background monitor MW-3.

It is evident that there are groundwater impacts associated with the operation of the biosolids storage lagoons. In the immediate vicinity of the lagoons, there is evidence of groundwater "mounding" in the and there are elevated concentrations of contaminants in the groundwater down gradient this suggests that exultation from the lagoons is occurring which results in impacts to the groundwater regime. It is unclear if the groundwater impacts associated with apparent exfiltration from the biosolids lagoons is via the "floor" of the lagoon, and/or embankments or the lagoon liquid removal system and associated gravity sewers.

6) **CONSULTATION:**  
N/A

- 7) **RECOMMENDATIONS OR COMMENTS FROM COMMITTEE/ OTHER DEPARTMENTS :**  
N/A

- 8) **FINANCIAL IMPACT (expenses/material/etc.):**  
Because of the observed impacts of the operation of the biosolids lagoons on the surrounding groundwater regime, it will be necessary to consider remediation works to address this problem. These works will require funding approval by Council and will be the subject of a future staff report to Council.

- 9) **LEGAL IMPLICATIONS :**  
There is a requirement to address the groundwater impacts associated with the operation of the biosolids storage lagoons otherwise, the MECP may have to issue a provincial compliance order.

- 10) **RISK MANAGEMENT :**  
The findings contained in the annual report have "flagged" some operational concerns which will have to be addressed in the near future.

- 11) **STRATEGIC IMPLICATIONS :**  
Identifying the impacts of the biosolids storage lagoon operation is consistent with the City's strategic priority for environmental stewardship of its assets.

- 12) **SUPPORTING DOCUMENTS:**  
Summary report: 2019 Monitoring Program Annual Report – Biosolids Storage Lagoons