ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

Executive Summary

West Lorne Wastewater Treatment Lagoon Spill

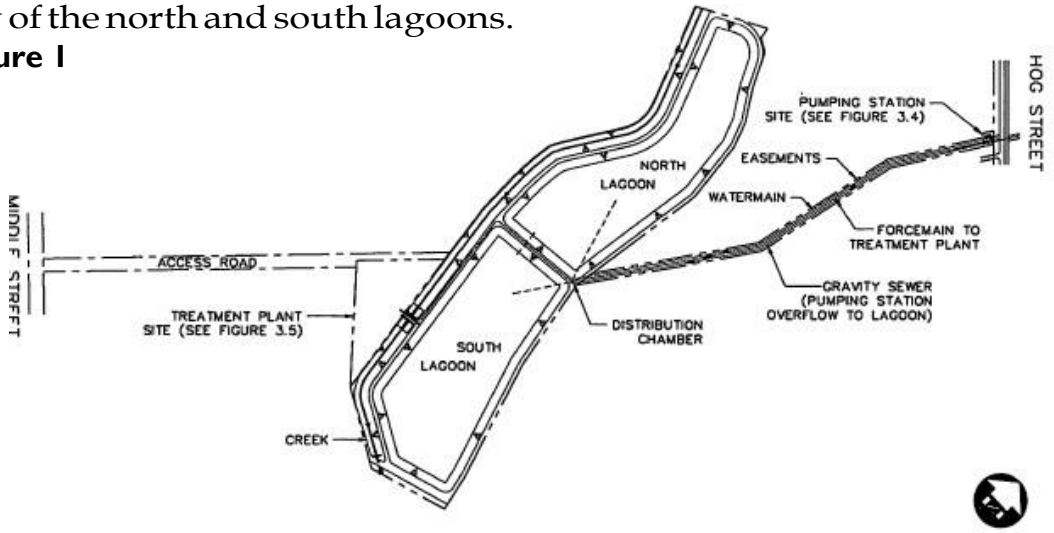
June 25th, 2025

Prepared by: Ontario Clean Water Agency

West Lorne Wastewater Treatment Plant Overview

The West Lorne Wastewater Treatment Plant (WWTP) is an extended aeration facility, which consists of: grit removal and screening, extended aeration, settling, phosphorus removal, filtration and UV disinfection (seasonal). Sludge is directed to the north lagoon for storage and settling. The south lagoon is used for additional storage, as required. Decant liquid off the south lagoon is returned to the influent of the plant for treatment via the scum pump. A valve interconnecting the north and south lagoon is available to equalize but remains closed. Figure 1 below is an overview of the north and south lagoons.

Figure 1



Cause

A breach of the south lagoon berm was identified on May 25th, 2025. The spill event was estimated to have began on May 18th and was flowing at approximately 4L/s. It is estimated that a total of 3,000m^3 of lagoon contents were discharged as a result of the spill. The onsite lagoon system spilled due to filling after excess snow melt and rain accumulation, which caused damage to the berm on the southwest corner. Additionally, the north and south lagoon interconnect valve was opened which may have been a contributing factor to the spill event. The interconnect was opened on May 12th (closed on May 23rd) as the level in the north lagoon, which does not have decant capabilities, had reached capacity. Contents of the lagoon breached the damage berm and spilled onto the ground before migrating to the adjacent Municipal Zoller Drain. This lagoon is used for storage only, as required. The southwest corner of the south lagoon has been identified as a low point and remediation efforts were previously initiated in 2018. Based on the system drawings, the maximum level of the lagoons is 118 inches measured at the chamber. Additionally, the operating levels of the lagoon, as per the drawings, is between 24 and 79.2 inches.

Operations staff measured the south lagoon on May 19th and recorded a value of 91 inches. This level, based on visual inspections at the chamber and the maximum

lagoon level, should not have been problematic however, given the elevation of the southwest corner it has been determined that the level in the lagoon cannot exceed 78 inches.

The WWTP utilizes the lagoon outlet structure to allow supernatant to be returned to the treatment plant to ensure adequate storage in the lagoons and safe operating levels. In the fall of 2024, it was identified that the scum pump, which directs the supernatant to the headworks, required extensive repairs. On May 16th, approval was granted to proceed with the required maintenance. During this time, an alternate pump was put in place however, the pumping capacity is unable to output the desired flow rate and thus rapidly reduce the lagoon levels.

Immediate Corrective Actions

On May 25th a sample of the lagoon contents was collected in accordance with regulatory requirement. The results are outline below in Table 1. On May 27th, remediation of the berm was completed by the Municipality of West Elgin. Operations staff at the West Lorne WWTP are continuing to monitor the decant process to ensure the lagoon levels are adequately maintained. A new scum pump has been purchased and was installed on June 17th, 2025.

Table 1. Lagoon Sample Results

	*Procedure F-5-1 Effluent Guidelines	Lagoon Spill Results
BOD (mg/L)	30	12
TSS mg/L)	40	58
TP mg/L	-	0.08
TKN mg/L	-	1.6

*Determination of Treatment Requirements for Municipal and Private Sewage Works Discharging to Surface Waters, annual average

The above sample results indicate that the water in the south lagoon is of good quality and posed no threat to the receiving waters. The total suspended solids concentration was elevated however, this was due to the nature in which the sample was collected and sediment being obtained during collection.

Long Term Corrective Actions

Operations staff at the West Lorne WWTP are actively monitoring the decant process to ensure the lagoon levels are adequately maintained. Additionally, a standard operating procedure was developed for lagoon operation. The purpose of the standard operating procedure is to clearly define the monitoring requirements, the operational levels required to be maintained and decant operations. A lagoon weekly inspection

sheet was also created to formally document and track the weekly inspections. The capital repairs to the scum pump will also ensure adequate supernatant can be returned to the plant to maintain lagoon levels.

Conclusion

Operations staff at the West Lorne WWTP are committed to the safe and environmentally sustainable operation of the north and south lagoons. Additional training has been provided to the operations staff responsible for the operation and maintenance of the treatment plant, specifically the lagoons, to further reinforce the importance of routine monitoring and inspections of the lagoons.