



The Corporation of the
City of Sault Ste. Marie

COUNCIL REPORT

June 23, 2025

TO: Mayor Matthew Shoemaker and Members of City Council
AUTHOR: Carl Rumieli, Director of Engineering
DEPARTMENT: Public Works and Engineering Services
RE: Landfill Operations and Monitoring 2024 – Environmental
Monitoring Committee

Purpose

The purpose of this report is to fulfill condition 6(b) of By-law 2014-215 related to the Landfill Environmental Monitoring Committee which requires an annual Council report following the submission of the Landfill Operations and Monitoring reports to the Ministry of the Environment, Conservation and Parks.

Background

The Environmental Monitoring Committee is the formal point of contact with the public for landfill operations, as mandated under the Certificate of Approval. The Committee consists of four members of the public, one Councillor, the Ministry of the Environment, Conservation and Parks, and staff. It was originally established under By-law 89-174, which was repealed and replaced through By-law 2004-215.

The report will summarize the conclusions and recommendations of the annual 2024 operations and monitoring reports. The reports include, but are not limited to, waste quantities and site capacity, leachate collection system information, and monitoring details related to ground water quality, surface water quality, and methane gas. Copies are available from Public Works and Engineering Services if any Councillor wishes to review them.

Analysis

Site Development and Operations Report 2024 Municipal Landfill Waste Quantities and Site Capacity

In 2024, 63,061 tonnes of waste were received at the landfill. Of this value, 38,477 tonnes were landfilled, 21,715 tonnes were used as cover or stockpiled for future use, and 2,869 tonnes were diverted through recycling, leaf and yard waste, tires, etc. The projected residual life remaining of the landfill at the end of 2024 was 4.2 years.

Leachate Collection System

A leachate collection system has been operating at the landfill since 1992. It consists of a gravity collection system along the south boundary and a purge well system on the western boundary. As part of the 2006 Canon Creek relocation project, the gravity leachate collector system was expanded along the old creek alignment in the southeast corner. The system is designed to intercept leachate before it leaves the site and divert it for treatment.

A western contaminant plume was detected several years back, which prompted increased emphasis on purge well maintenance to ensure continuous operation of the wells. There are presently ten purge wells in operation. The system continues to be maintained, operated, and monitored with vigilance, and remains effective.

In 2009 a contaminant attenuation zone (CAZ) was approved through the MECP. While the CAZ doesn't expand the landfill footprint, it moved the compliance boundary westerly.

Odour Control

Council approved the construction of 24 passive landfill gas vent flares in 2004 with an additional six passive flares in 2007. Due to a landfill gas regulation that was implemented in 2008, an active landfill gas system was constructed to meet the new requirements. The system was operational in 2010. There was a total of eight odour complaints at the landfill in 2024, which is higher than the previous three-year average. There were a total of eight odour complaints at the landfill in 2024, which is higher than the previous three-year average.

Municipal Landfill Site Monitoring Report 2024

The monitoring report provides the results of the groundwater, surface water and landfill gas monitoring program, with the purpose of:

- Monitoring the quality of groundwater and surface water;
- Assessing the ability of the engineered controls and natural environment to attenuate contamination from the landfill site;
- Establishing whether concentrations of targeted chemical parameters in the groundwater and surface water exceed Ministry of the Environment, Conservation and Parks criteria;
- Predicting future movement of contaminants and compliance; and
- Ensuring safety within the buildings at the site as it relates to landfill gas.

Conclusions and Recommendations of Monitoring Report

Ground Water Quality

A system of monitoring wells is sampled regularly to determine the quality of groundwater on and off the site in the vicinity of the landfill. The program for 2024 consisted of 41 wells, and one maintenance hole.

Engineered controls and natural attenuation processes, including dilution, are either reducing or keeping the leachate plume stationary along the eastern and southern property boundaries of the landfill. In 2024, the water quality in most of the western wells has generally improved or levelled off when comparing historical data to recent data. This continues to demonstrate the overall effectiveness of the purge well system, which has been effective at reducing chloride concentrations in general and isolating impacts to a relatively narrow band. The purge well system also continues to be effective. Leachate discharging to the treatment plant continued to comply with the City's sewer-use bylaw.

Surface Water Quality

The relocation of Canon Creek away from the landfill in the fall of 2006 appears to have reduced leachate impacts on Canon Creek and the Root River. Surface water is sampled and analyzed at five locations, which are upstream, adjacent to, and downstream of the site. The locations are sampled five times per year, and results are compared to Provincial Water Quality Objectives. Generally, consistent results have been shown at two upstream locations. Water quality has been variable at some of the other sampling locations. The meander area station has had a slight increasing trend since 2014 for some parameters, which appear to have stabilized and are generally within the historical ranges. This may be in part due to low water levels and stagnant water in this area. The downstream locations have been variable over time, and since 2007 have been more stable, likely as a result of the Canon Creek realignment and leachate collection system extension.

Methane Gas

Since 2008, methane gas concentrations at one of the methane gas monitors, located east of the maintenance building, have been in the flammable range. A methane mitigation project was completed in 2010. The system was installed to monitor indoor air quality, control ventilation, and provide warnings if there is a problem. Signage is in place as an additional mitigation measure.

Financial Implications

There is no financial impact.

Strategic Plan / Policy Impact / Climate Impact

This report is linked to the maintaining existing infrastructure component of the Strategic Plan.

Recommendation

It is therefore recommended that Council take the following action:

Resolved that the report of the Director of Engineering dated June 23, 2025 concerning annual operations and monitoring reports for the municipal landfill be received as information.

Landfill Operations and Monitoring 2024

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Respectfully submitted,

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