The Corporation of the City of Sault Ste. Marie

Public Works & Engineering Services

Environmental Monitoring Committee Meeting Agenda

Date: September 11, 2025

Time: 10:00 a.m.- 12:00 p.m

Lunch provided

In-Person Location: Civic Centre – Thompson Room
Video Conference Link: https://teams.microsoft.com/l/meetup-join/19%3ameeting_NzE0MjkzZTUtY2ZjMi00YzU2LTkwM2QtODM0MDBlNjEzMTAw%40thread.v2/0?context=%7b%22Tid%22%3a%227e52620b-f514-4289-a30b-d618127a10ee%22%2c%22Oid%22%3a%22873f77c1-fd80-4301-9037-c9401aae3465%22%7d

Meeting ID: 214 613 745 845
Passcode: VD6mG3Kt

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1. Introductions
2. Approval of Minutes – December 2, 2024
3. Council Reports
4. 2024 Operations and Monitoring Reports
5. Environmental Assessment Update
   Solid Waste Management EA Final Report - City of Sault Ste. Marie
6. Odour Control / Complaints
7. On-going Initiatives Overview:
   a. Expansion and Development of New Waste Cells
   b. Source Separated Organics and Biosolids Composing Facility
   c. Pump Station Upgrades
8. Other
9. Adjournment

The Corporation of the City of Sault Ste. Marie

Public Works & Engineering Services

Environmental Monitoring Committee Minutes of Meeting

Draft

December 2, 2024
Time: 9:00 a.m.

Present (via Zoom)

Peter McLarty	Member of the Public (Committee Member)
David McLaughlin	Member of the Public (Committee Member)
Christian Tenaglia	Member of the Public (Committee Member)
Mike Blanchard	Manager of Waste Management, City
Mikhaila Lafleur	Environmental Compliance Officer, MECP
Catherine Taddo, P. Eng.	Manager, Development and Environmental Engineering, City
Spencer Lavergne	Supervisor, Waste Management, City
Corrina Barrett	General Manager, SSM Region Conservation Authority
Anjum Amin	Water Resources Engineer, SSM Region Conservation Authority
Rick Talvitie, P. Eng.	Manager, Northern Ontario, AECOM

Regrets

Ron Zagordo	City Councillor
Jace Dominey	Senior Environmental Officer, MECP
Ben Muncaster	Member of the Public (Committee Member)

1. Minutes for the October 29, 2024 meeting were approved.
    - Moved by: M. Blanchard
    - Seconded by: C. Taddo
      Carried

2. Blue Box Collection – Public Works Update
   City staff provided an update

3. Odour Control
   City staff provided an update

4. Landfill User Fees
   City staff provided an update

5. EA Update
   AECOM provided an update

6. Boards & Committees Membership Deadline
   City staff provided information

7. Other - Landfill Gas
   City staff addressed

8. Motion to adjourn.
   - Moved by: M. Blanchard
   - Seconded by: C. Taddo
   - Carried

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 Rumiel, Director of Engineering
DEPARTMENT:	Public Works and Engineering Services
RE:	Landfill Operations and Monitoring 2024 – Environmental Monitoring Committee

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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.

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 the annual operations and monitoring reports for the municipal landfill be received as information.

Respectfully submitted,

Carl Rumiel, P. Eng.
Director of Engineering
705.759.5379
c.rumiel@cityssm.on.ca

City of Sault Ste. Marie Environmental Monitoring Committee 2024 Reporting Year

Rick Talvitie and Tara Abernot (AECOM)
Muntazir Pardhan and Rob Kell (Dillon)

September, 2025

Presentation Overview

- Site Development and Operations Report
- Leachate Controls
- Reasonable Use Criteria
- Monitoring Report (Groundwater, Surface Water, Landfill Gas)

Site Development and Operations – General Information

- Reporting period – 2024 calendar year
- Site operating and reporting requirements dictated through the site Certificate of Approval issued by the MECP – originally issued in 1989 and many amendments have been issued for various changes.
- Site accepts domestic, commercial and non-hazardous solid industrial waste and processed organic waste (sewage sludge).
- Gate Fee = $11/visit (up to 300 kg)
  - Increased to $13.25/visit (up to 300 kg) in 2025
- Tipping Fee = $77/tonne
  - Increased to $92/tonne in 2025

Site Development and Operations – Site Changes

- Earth borrow activities continued to the north of the landfill footprint to provide adequate cover material for daily operations.
- A permanent bunker was constructed at the leaf and yard waste public drop-off depot (south of the HHW Depot and Blower Station) to accommodate self-haul of leaf and yard waste.
- Insulation surrounding the methane flare was replaced after an annual inspection found it to be significantly deteriorated.
- Upgrades were completed at the landfill pump station consisting of the replacement of the existing PVC pump station discharge header with a stainless-steel discharge header along with new valves, pipe supports and bracing.

Site Development and Operations – Diversion Activities

- Leaf and yard waste composting;
- Tires;
- Batteries;
- Propane tanks;
- Metals/appliances;
- Wood waste;
- Recyclables (fibres/containers);
- Waste Electrical and Electronic Equipment (WEEE);
- Household Hazardous Waste (HHW) Depot.

Site Development and Operations – Nuisance Management

Litter control

- Compaction;
- Cover (daily, interim and final);
- Portable and permanent fencing;
- Litter pick-up (manual and industrial vacuum).

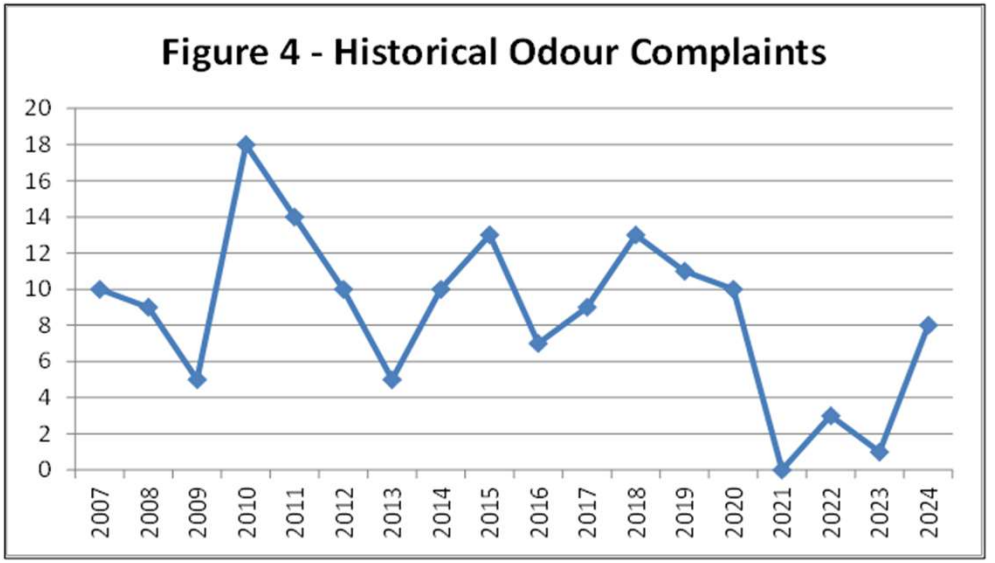
Site Development and Operations – Nuisance Management

Odour Control

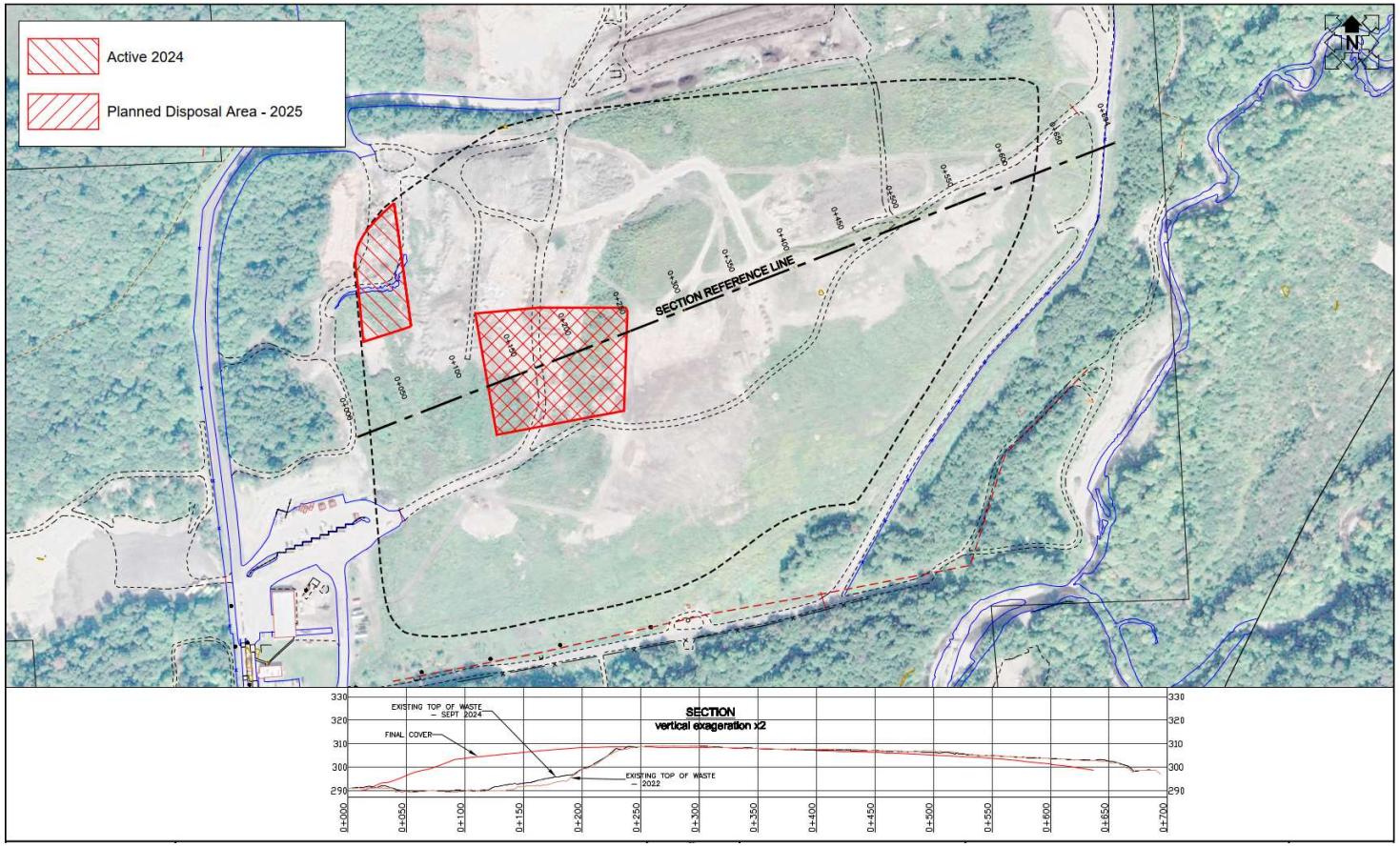
- Active landfill gas collection system;
- Application of odour reducing agent to biosolids at the plants;
- Cover application;
- Application of odour neutralizer to empty trailers;
- Impermeable tarps on trailers;
- Regular wash downs of trailers – 48 washes in 2024;
- Portable odour neutralizing mist sprayer;
- SOP for receipt and management of wastewater grit.

Site Development and Operations – Nuisance Management

- Eight odour complaints were received in 2024 which is up from one complaint in 2023, three in 2022 and zero in 2021.
- Majority of complaints in 2024 believed to be primarily related to biosolids deliveries.
- The flare was offline on three of the complaint days.
- Historical complaints believed to be primarily related to biosolids delivery and disposal and/or the flare being offline.



Site Development and Operations – Active Disposal Areas



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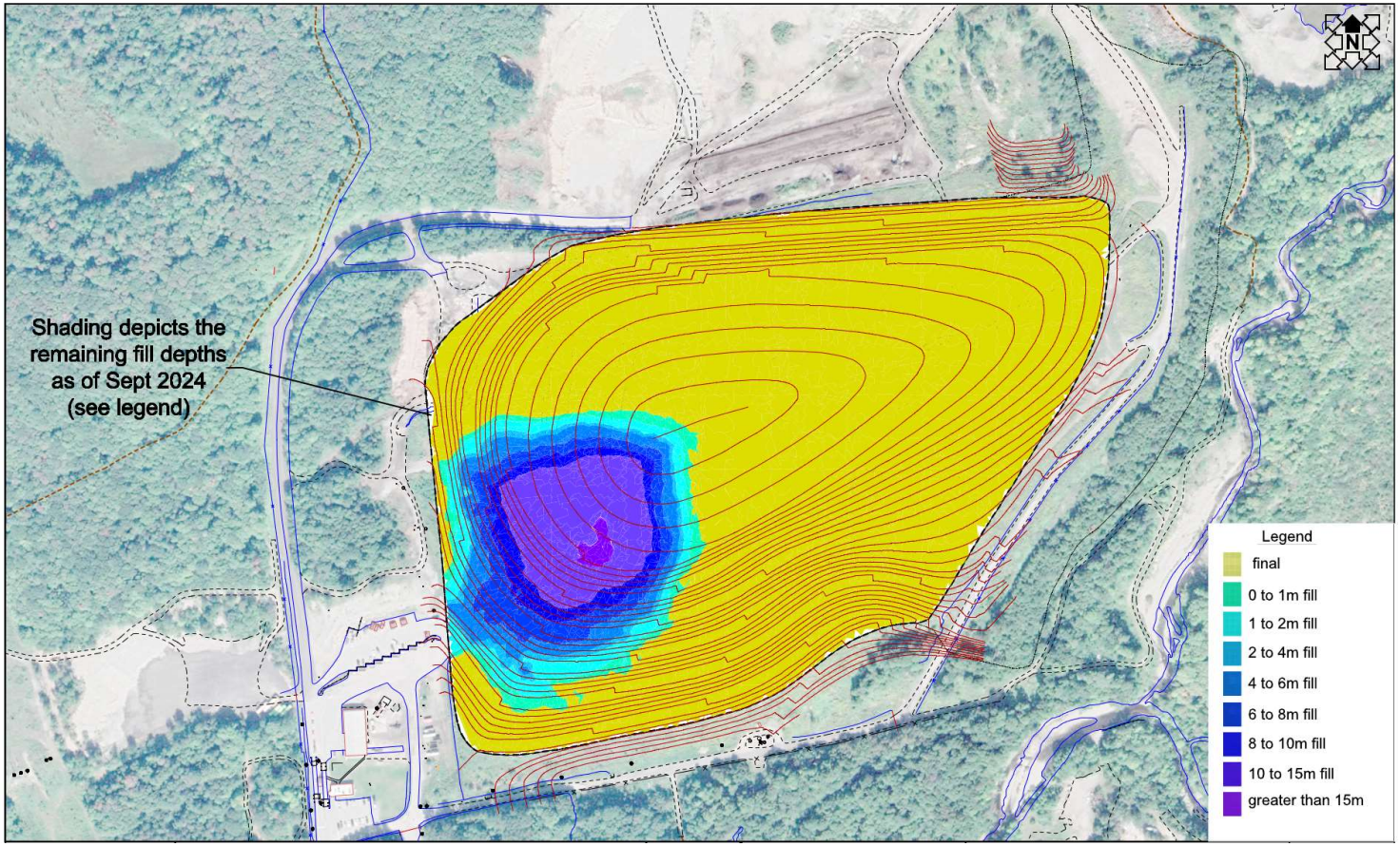
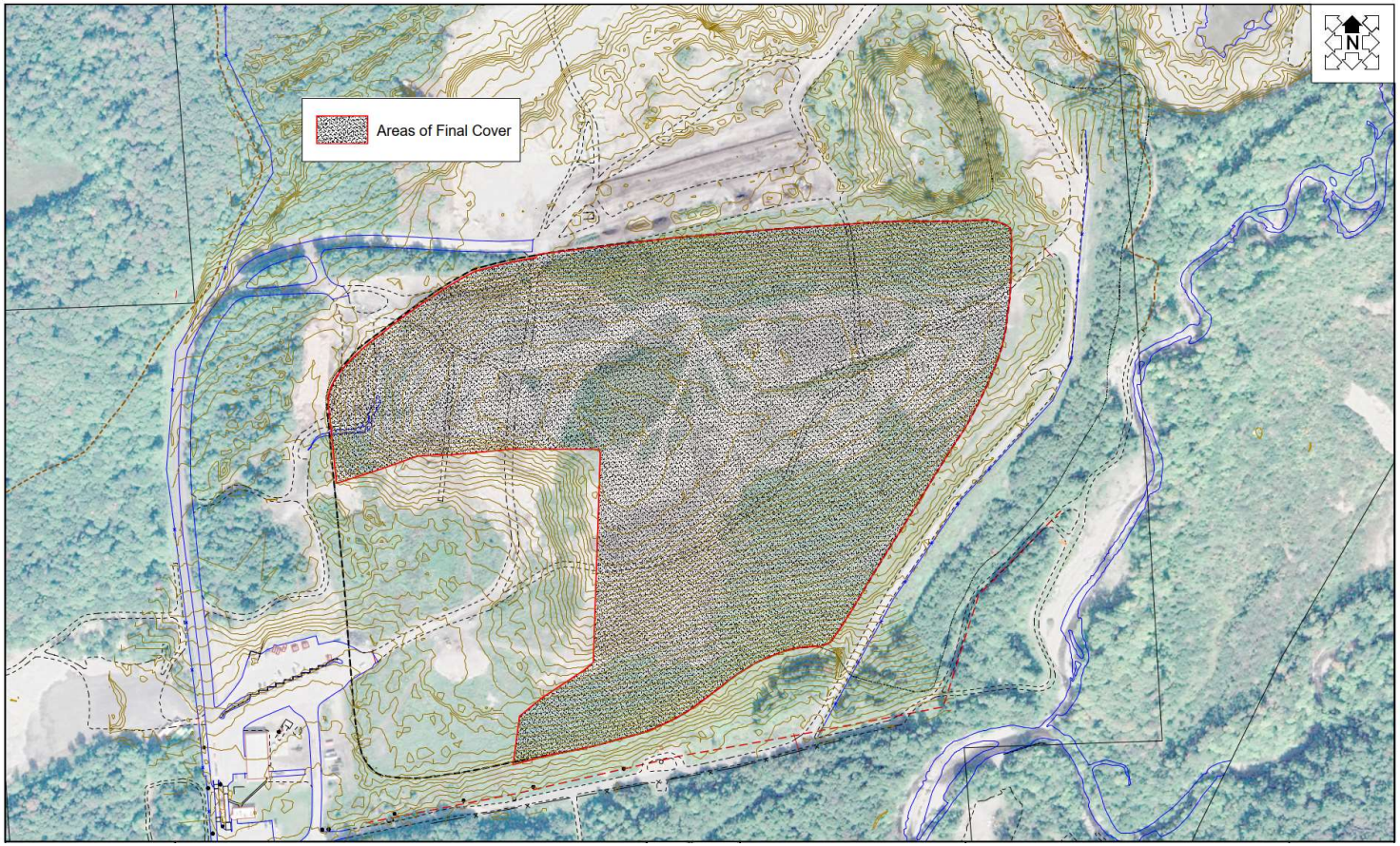
Site Development and Operations – Residual Capacity



Site Development and Operations – Final Cover Application

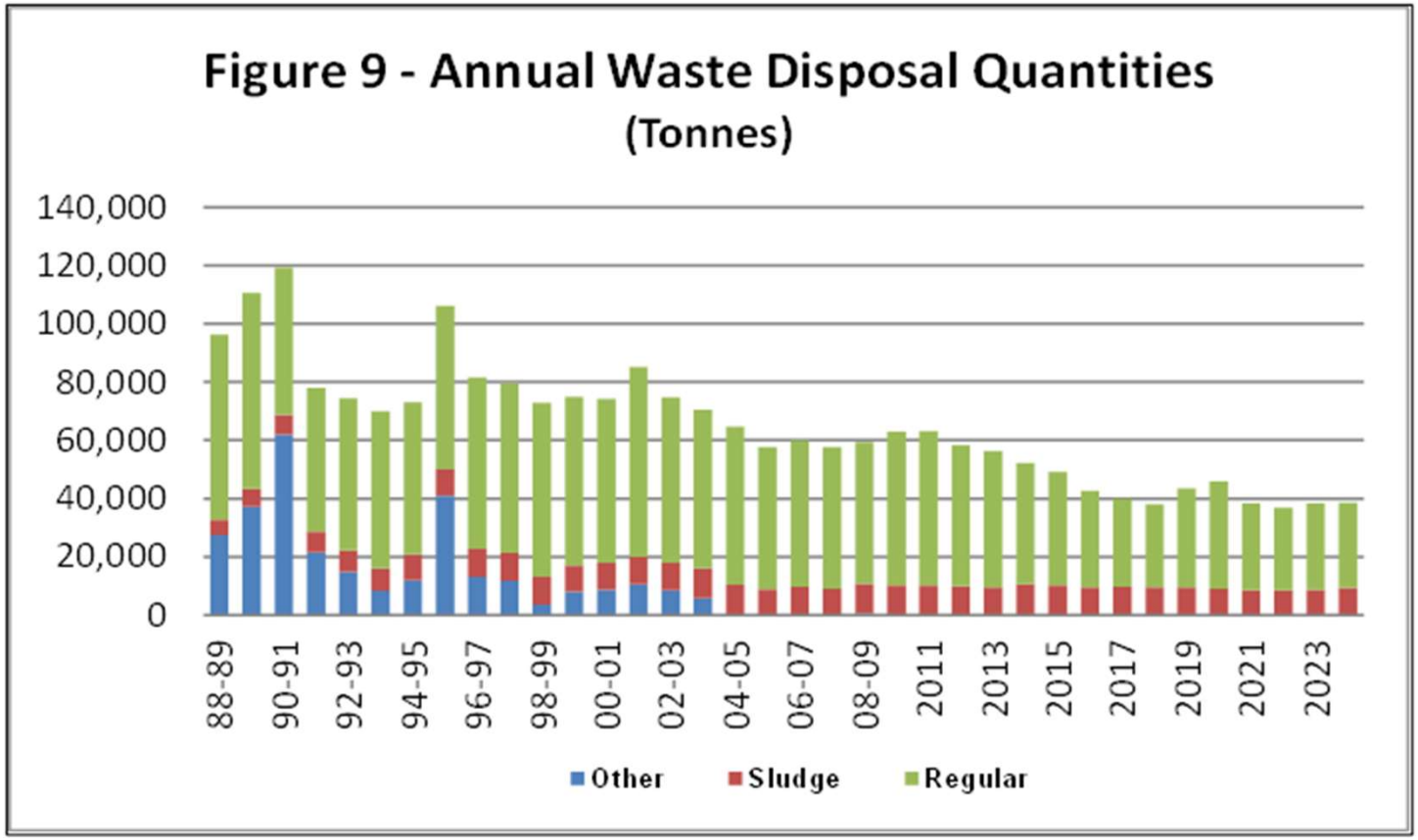


- Approximately 2.7 ha of final cover applied in 2024.

Waste Diversion – How Are We Doing?

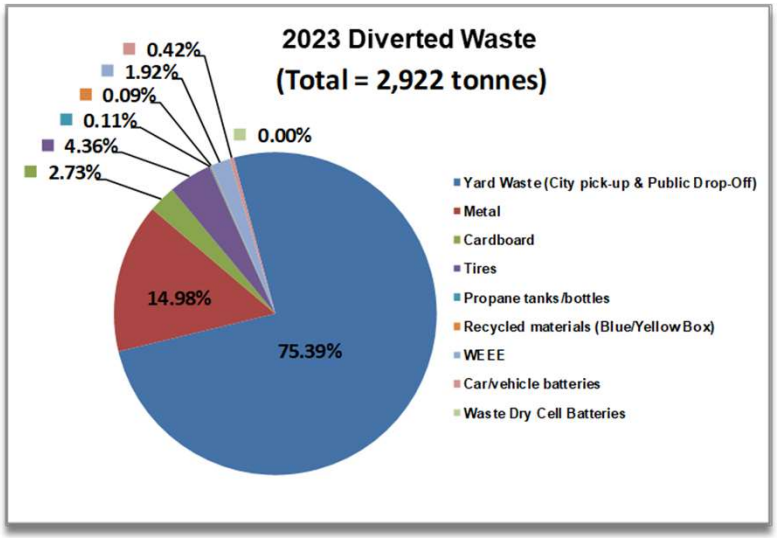
- The City transitioned their Blue Box recycling program to the producer responsibility model on September 30, 2023.
- The residential waste diversion rate has not been calculated since 2021 when the requirement to submit the RPRA Datacall concluded.
- The City expects the residential diversion rate to increase from the recent historical rate of approximately 30% to approximately 50% once source separated organics collection and processing is initiated in approximately 2027.

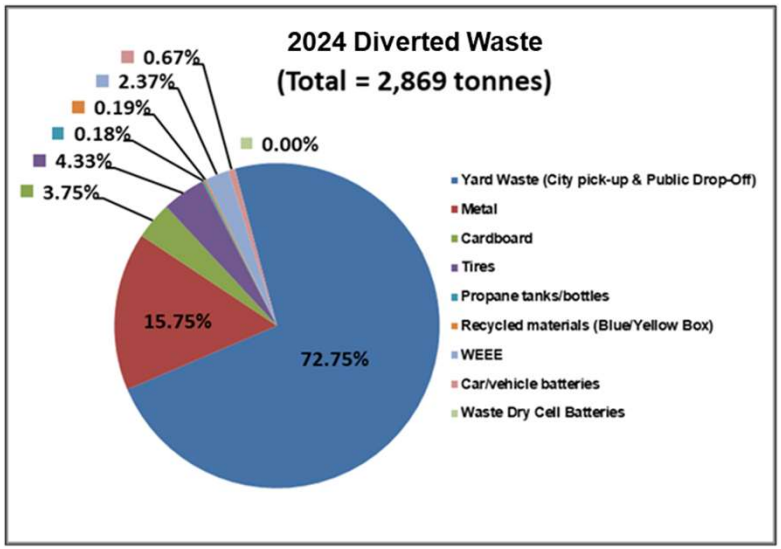
Historical Waste Disposal Quantities



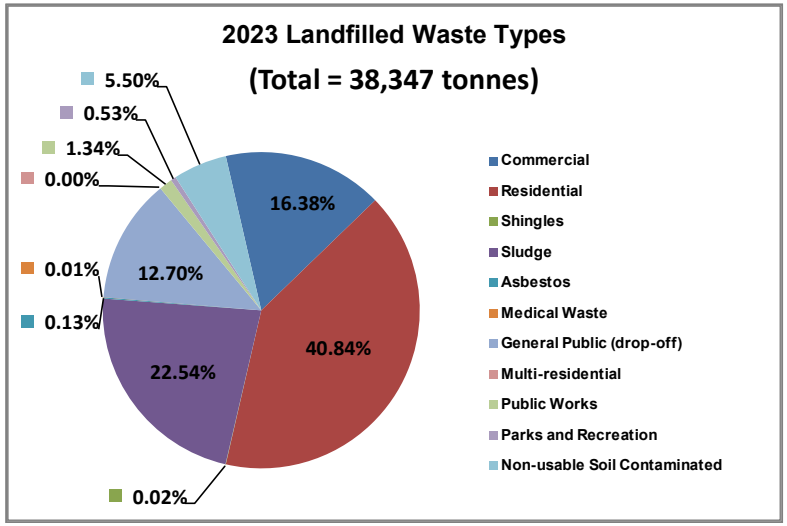
Waste Received at the Landfill

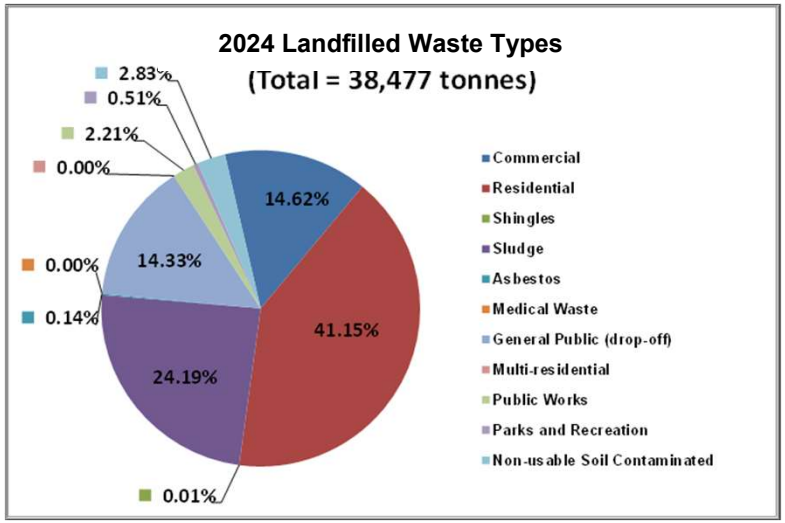
Waste Diversion Activities





Landfilled Waste Types





Residual Disposal Capacity

- Computed and reported annually.
- Fluctuates due to:
    - Settlement and degradation that occurs over time – maximum waste depth = 30m;
    - Management of interim cover and contaminated soils;
    - Waste types and disposal rates.
- The estimate completed at the end of 2024 indicated 4.2 years or remaining site life (based on September 2024 site survey and quantities received from time of survey to end of 2024).
- 4.1 years of residual capacity was reported in 2023.

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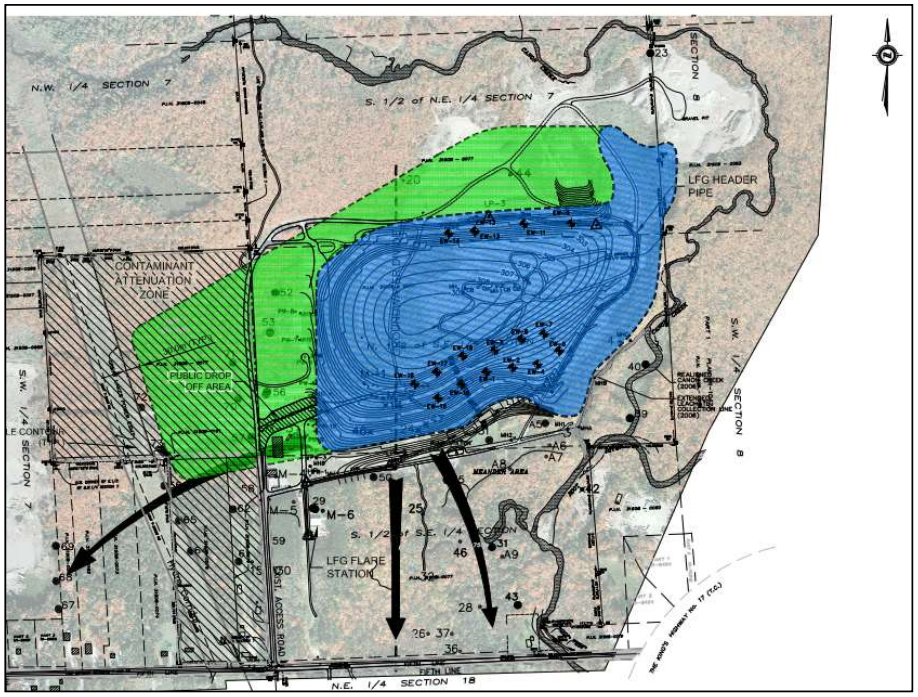
Waste Management EA Update

- Final submission made in January, 2024.
- 7-week review period ended on March 1, 2024.
- Addressed MECP, external Agency, Batchewana First Nation and general public comments.
- Updated submission of EA made in June 2025.
- Addressed additional comments by external Agencies and Updated Final EA submission made in August 2025.



Waste Management EA Update

- MECP presently completing a review of the Updated Final EA Report and all comments/questions received, and responses.
- MECP will publish their formal review which will be followed by a 5-week comment period whereby the public, government agencies, Indigenous communities or any other interested party can identify any outstanding issues to the Ministry or request a hearing with the Environmental Review Tribunal which is an independent body that hears disputes.
- Once public comment on the Ministry review is complete, the Minister will make a decision which may consist of referring it to mediation, referring it to the Environmental Review Tribunal for a hearing, or make a decision to approve, approve with conditions, or refuse.
- Timeline for the above to be completed is unknown.

Leachate Management – Collectors and Purge Wells

- Collectors are present along the south (1992) and southeastern (2006) sides of the site – low maintenance
- Purge wells are present along the west side of the site (initially 3 wells in 1997 and others added over time)
- PW's require frequent (weekly) inspection and maintenance to ensure efficient operation (initiated in 2004)
- Duty wells = 2 to 11 (PW-11 installed in May 2022)
- Leachate is discharged to a pump station and pumped to the City's WPCP
- Estimated leachate removed = 13.9 L/s (439,824 m^3/yr)
- Permit to Take Water issued in 2021 with max = 19 L/s

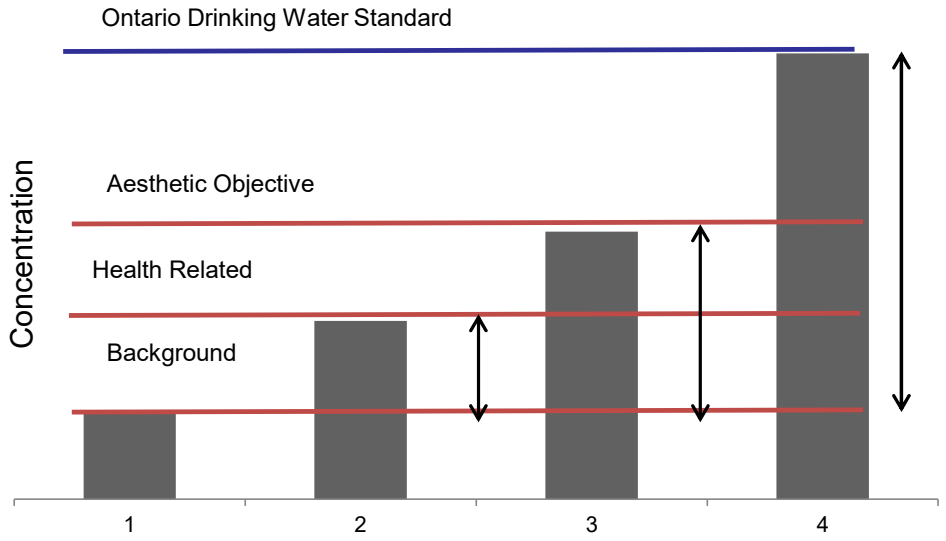
Reasonable Use Defined

- Discharge to a neighboring property must have no more than a negligible or trivial effect on the existing or potential reasonable use of a property.
- Reasonable use of GW on adjacent properties in the case of the SSM landfill is drinking water.

Contaminant Limits

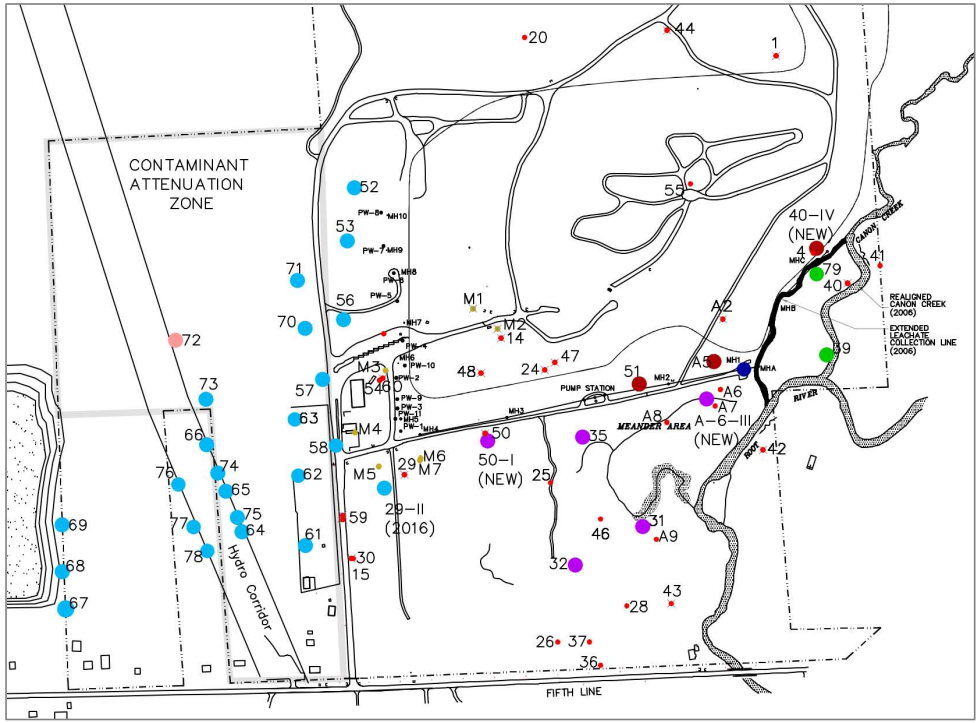
- Water quality cannot be degraded in excess of 25% of the difference between background and the ODWS for health-related parameters

- Water quality cannot be degraded in excess of 50% of the difference between background and the ODWS for non-health related parameters



Groundwater Monitoring

- Approx. 207 groundwater monitors have been installed over time – approx. 98 in good condition
- 40 of 40 monitors sampled in the spring, summer and fall of 2024
- Leachate pump station was sampled 4X in 2024
- Background, source and quality monitors

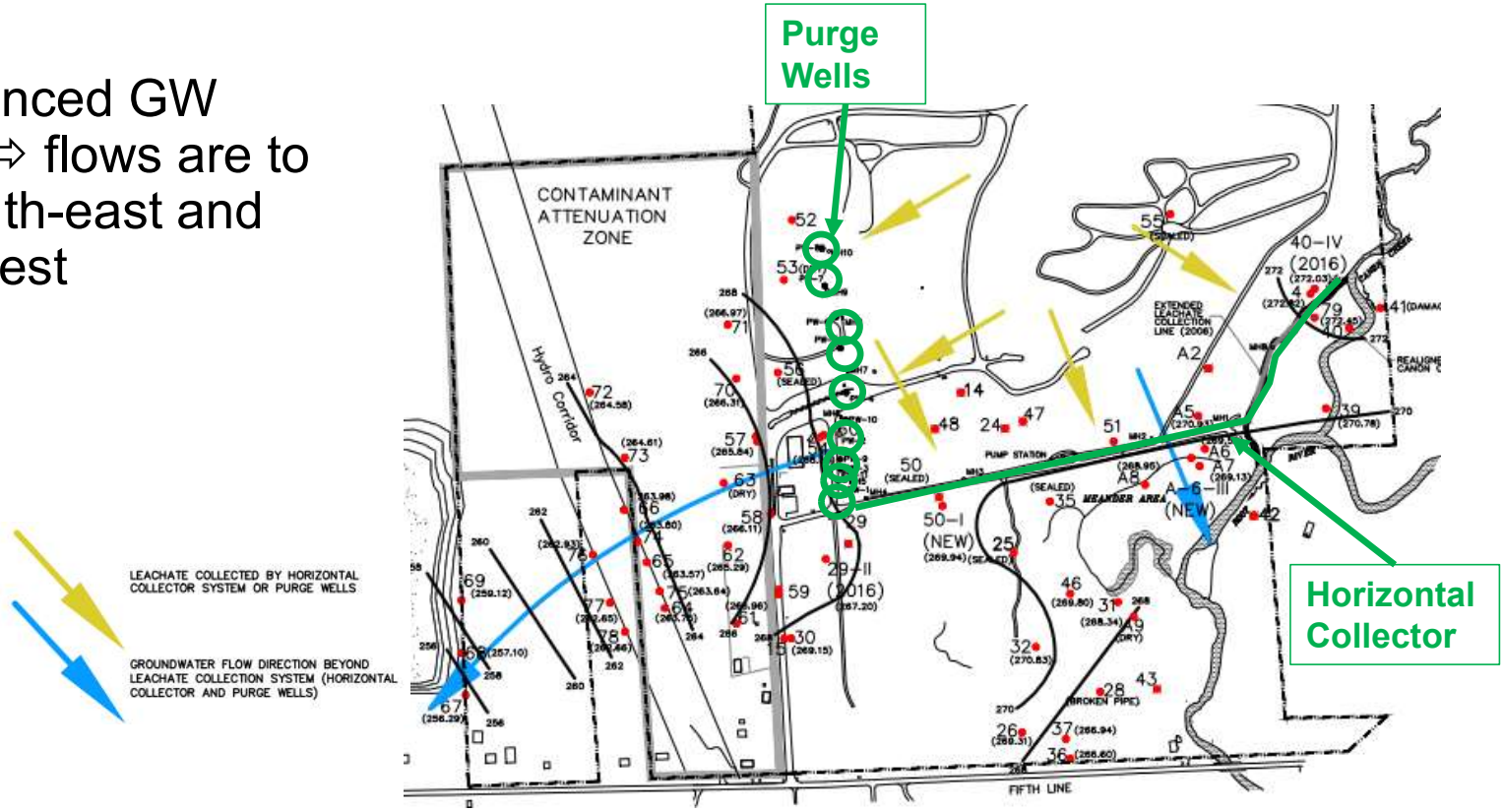


Groundwater Monitoring

- Water levels measured to track migration of ground water
- Ground Water Quality assessed to identify compliance with Reasonable Use Criteria
- General chemistry, major and minor ions, trace metals and volatile organics
- Major leachate indicators include chloride, alkalinity, conductivity and total organic carbon
- Leachate from Pump Station analyzed 4 times annually

Groundwater Monitoring

- Pronounced GW divide ⇨ flows are to the south-east and southwest



2024 Results - Groundwater

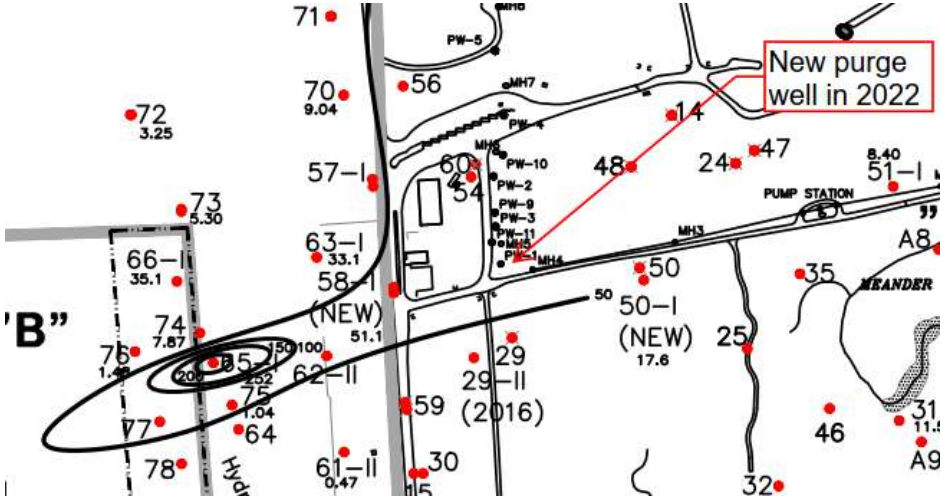
- East and Southern Boundary = 31, 32, 35, 39, 50 and 79
  - Leveling off of some parameters at monitors 39 since 2007. Exceedances for TOC and ON (naturally occurring at high levels) at 39.
  - Well 50-I continues to have low chloride concentrations since it was replaced in 2016
  - Positive effects of the collector are evident from sampling upstream and downstream of the collector.
  - Water quality is good in the former meander area south of the fill area.
  - A new well (79) was installed in between the eastern collector and Canon Creek in December 2022 and was sampled in May and August 2023 and three occasions in 2024. Nitrate exceeded the boundary criteria of 3.6 mg/L in May 2023 (7.37 mg/L), but was below the criteria since then. Further monitoring will be used to evaluate trends at this well.
  - Well 31-I was plugged in October 2024 and is in the process of being replaced.

2024 Results – Groundwater Continued …

- West Boundary = 29, 52, 53, 56, 57, 58, 61-69, 70-78
  - Chloride concentrations at 56 have decreased significantly following the start-up of PW-5 in 2003, very low chloride concentrations since 2015. In 2024, chloride was 26.9 mg/L, slightly lower than 2023 and well below the boundary criteria and the historical high of 184 mg/L
  - 71 to 73 quality reflects background.
  - At 58, chloride increased in 2021 to historical high levels at ~300 mg/L but reduced in 2022 (~100 mg/L) and further 2023 and 2024 (32 to 67 mg/L) (below boundary criteria).
  - 62, chloride in 2024 was 150 mg/L, below the boundary criteria and below 2022 (190 mg/L) and 2021 (305 mg/L) previous historical range of 146-298 mg/L
  - 65, chloride levels continued to be elevated in 2024 between 199 to 252 mg/L, 2023 (81 to 159 mg/L, 2022 (129 to 357 mg/L), 2021 (69 to 462 mg/L)
  - Narrow plume centered on 58 to 65

2024 Results – Groundwater Continued …

- West Boundary = 29, 52, 53, 56, 57, 58, 61-69, 70-78
  - Site continues to perform as anticipated with no unusual upward trends or changes. Trigger values for contingency plans were not exceeded
  - **Purge well system continues to be effective but has limitations**



Surface Water Monitoring

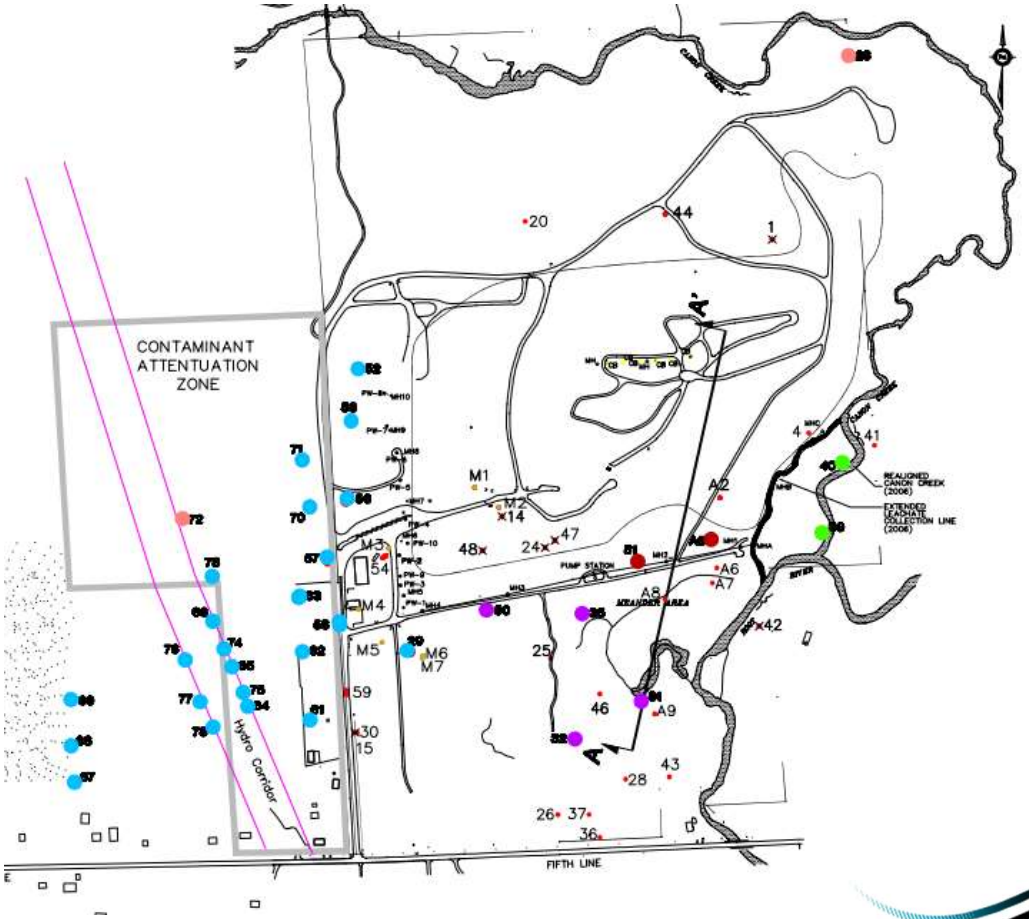
- Surface water sampled and analyzed at 5 locations (S-1B, S-2, S-3, S-4 S-5 – upstream, adjacent to and downstream relative to the site)
- Sampled 5 times per year in January, May, June, August and October 2024 – results compared to Provincial Water Quality Objectives

2024 Results – Surface Water

- Historical results have been consistent at upstream locations S-1B and S-2.
- No exceedances of un-ionized ammonia from 2009-2022 excepting S-4 which is free standing water in the meander area (not part of Canon Creek or the Root River).
- In 2024, field pH readings were within historical ranges (in 2022 field pH were abnormally high probably due to faulty field meter). Un-ionized ammonia levels at S-5 were below criteria; slight exceedance at S-3 (June) and S-4 (January)
- Concentrations have been stable since 2007 and is likely attributed to the Canon Creek realignment.
- Surface water conditions have improved since 2007.

Landfill Gas

- Measured at three locations near building infrastructure.
- Monitor M3 first showed high concentrations in 2008 and have continued through to 2024.
- M6 and M7 were replaced in the fall of 2018 no significant gas detected since.



2024 Results - Landfill Gas

- Low readings at M4 and M5. M3 continued to show high concentrations in 2024.
- Readings at M3 over the lower explosive limit indicates landfill gas migration in a southwesterly direction – this is expected to continue as landfilling operations move closer.
- Detection and mitigation added to buildings in 2009.

MECP Review of Recommendations

- The last MECP review was conducted on April 21, 2016, for the 2014 monitoring report.

Conclusions and Recommendations

- A new well (79) was installed in Dec, 2022 east of 40 to monitor conditions east of the fill area and down gradient from the extended collection system but west of Canon Creek, Sampled in 2023 and 2024, Nitrate exceeded the boundary criteria of 3.6 mg/L in May 2023 (7.37 mg/L), but was below the criteria since then. Further monitoring will be used to evaluate trends at this well.
- Continue with aggressive inspection and maintenance program of purge wells and operational issues should be promptly addressed. As recommended in the 2021 Annual Report, a new purge well was installed in May 2022
- Signs warning of explosive gases to be maintained in the vicinity of M3.
- Continue taking readings inside nearby buildings within enclosed spaces on a monthly basis. The indoor methane detection system should be maintained, operated and tested as per the manufacturer's recommendations.

Thank you.

Questions/Comments?

2024

Complainant Information					Weather Conditions								Non-Routine Activities at Landfill
No.	Complainant Name	Resident Address	Date of Complaint Received	Time of Complaint Received	Date and Time Odour was Prevalent	Odour Characterization	Wind Direction (from)	Wind Speed (km/h)	Temp (degrees C)	Barometric Pressure (kPa) and Humidity (%)	Precipitation Rain(R) /Snow(S) /None(N)	Source of Weather Data Local (L) or Off-site (O)	
1			June 05 2024	10:27am	June 05 at 10:27 am	Fecal Odour	E	15 km/h	22	100 at 73%	(N)	Weather Network	Regular landfill activities. Biosolids truck arrived at approximately 9:27am from the East Plant.
2			July 12 2024	10:10am	July 12 2024	Garbage Smell	no km/hr	no	15	101.9	(N)	Weather Network	Regular landfill activities. Flare not running. Wet well repairs on going this week and repaired and operational at 2:30pm July 11th. Repairs began on Friday July 05th. The resident called to file a complaint on July 12th, stating the odour was present a few nights before calling.
3			July 15th	1:50 PM	12:45 to 1:15pm	Fecal Odour	NW	13km/h gust 26km/h	27	101.6 at 70%	(N)	Weather Network	Regular landfill activities. Flare not running. Biosolids truck arrived at 10:30 am and left at 11 am with the second load. The third load arrived at 12:40 pm and left at 1 pm.
4			August 29 2024	9:31am	9:25am to 9:40am	Fecal Odour	E	15 km/h	20	102.4 at 72%	(N)	Weather Network	Regular landfill activities. Biosolids truck arrived at approximately 8:50am from the East Plant and left at 9:35 am. Grit bin also arrived from the West plant at 9:16 am and left at 9:39 am.
5			September 16 2024	9:15am	9:00am to 9:20am	Fecal Odour	E	6 km/h	19	102.3 at 88%	(N)	Weather Network	Regular landfill activities. Biosolids truck arrived at approximately 8:50am from the East Plant.
6			October 01 2024	1:10pm	9:00am to 1:00pm	Fecal Odour	NW	10 km/h	17	89% humidity 101.2 Pressure	Overcast - Visibility 16km	Weather Network	Regular landfill activities. Flare not running at 1pm. Accident in the morning with Third-party sewage truck hitting a City vehicle at the working face. Delayed dumping of the trailer until and investigation was completed.
7			October 03 2024	2:07pm	October 2nd and October 3rd in am	Sewage Odour	WSW	14 km/h	13	70% humidity 101.0 Pressure	Visibility 19km	Weather Network	Regular landfill activities. Complainant at 3:45pm said that in the past couple of days the sewage smell was very bad, but it subsided in the afternoon of Oct 03rd. Biosolid Delivery - Oct 01 - 33.63 tonne, Oct 02nd 43.27 tonne, Oct 03 23.63 tonne.
8			October 07 2024	9:44am	October 7th in the am	Sewage Odour	NW	17km/h	11	57% humidity 101.4 Pressure	Visibility 33km	Weather Network	Regular landfill activities. Note: Truck delivered 13 tonnes of biosolids to the landfill at 9:12am and left at 9:28am..

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

AECOM

DILLON CONSULTING

SAULT STE. MARIE MUNICIPAL LANDFILL SITE
DESIGN AND OPERATIONS REPORT

F.R.G.	F.R.G.
D.B.C./S.K.B.	F.R.G.
MARCH 2023	
1:2500	

CELL DEVELOPMENT SEQUENCE

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