4210 King Street East
Kitchener, Ontario N2P 2G5

August 28, 2024

Astrid Télasco
Director, Waste Reduction and
Management Division
Environment and Climate Change Canada (ECCC)
351 Boulevard Saint-Joseph
Gatineau, QC K1A 0H3
Canada
ges-dechets-ghg-waste@ec.gc.ca

Re: ***Regulations Respecting the Reduction in the Release of Methane (Waste Sector):*** **Canada Gazette, Part I, Volume 158, Number 26 June 29, 2024)**

Dear Ms. Télasco:

As North America's largest provider of integrated waste management and environmental solutions, WM Canada is pleased to have this opportunity to respond to "***Regulations Respecting the Reduction in the Release of Methane (Waste Sector),"*** published in Canada Gazette, Part 1, Volume 158 (hereinafter referred to as the "Waste Sector Methane Rule"). WM has been an active participant in the consultations that have led to the publishing of this draft regulation and requests that Environment and Climate Change Canada (ECCC) evaluate this submission alongside our May 1, 2023, submission following publication of the "Proposed Regulatory Framework."

Across North America, WM operates more than 260 solid waste landfills, including 8 in Canada, and manages several closed landfill sites. WM is proud of the work it is doing in sustainability and has embraced its role as a leader in environmental stewardship. WM continues to make significant progress on its planned sustainability growth investments of more than $2.8 billion between 2022 and 2026 by adding more than 875,000 tons of recycling capacity, recovering more than 15 million tons of material, and generating more than 56 million MMBtus of renewable energy from gas captured at landfills—the equivalent of replacing 14 million gallons of diesel and powering more than 310,000 homes per year. We encourage ECCC to view the company's success in sustainability performance in our 2024 Sustainability Report.

WM has been ahead of the curve in terms of recognizing the environmental benefit of investing in methane capture infrastructure. Currently more than 100 of WM's landfill sites in North

America operate beneficial landfill-gas-to-energy projects. These projects produce renewable electricity, renewable fuel for stationary facilities, and renewable transportation fuel for vehicles. We also intend to invest over $1.4 billion between 2022 and 2026 to build 20 new WM-owned facilities that will convert landfill gas into pipeline quality renewable natural gas (RNG). By capturing and converting landfill gas into RNG, we can allocate a portion to our own fleet and offer a lower-carbon energy source to communities and customers. WM is also conducting cutting-edge research on landfill gas measurement with the aim of capturing more gas and continuing to improve decarbonization efforts in the years to come. As an example of our commitment to sustainability, WM recently was pleased to announce major investments in RNG production projects at our Sainte-Sophie landfill in Quebec and our Twin Creeks Environmental Centre in Watford, Ontario. WM expects the RNG facilities to be operational at these two sites in 2025.

WM Canada commends ECCC for the very open and collaborative process used to develop the proposed Waste Sector Methane Rule. Department staff has been open, transparent, and has appropriately encouraged broad stakeholder input. WM and ECCC have a shared interest in ensuring that the final rules for new, modified, and existing landfills are reasonable, cost-effective, easy to implement by both the regulated community and regulators, and reflects lessons learned in other jurisdictions and the extensive reductions already realized by WM and the broader landfill operator industry. WM worked closely with ECCC during the rulemaking process and incorporates herein our comment letter dated May 19, 2023, which is attached for your reference. WM's additional detailed comments are set forth below, organized by topic heading.

The Waste Sector Methane Rule Should Be Based on the Best Aspects of Existing Rules

As a general matter, WM commends ECCC for its detailed and thoughtful approach to the proposed Waste Sector Methane Rule, which is clearly influenced by other existing programs governing municipal solid waste landfills in the United States and in Canada. WM has extensive experience working with regulators and other stakeholders in each of these programs and encourages ECCC to incorporate the best aspects of each, while leaving behind outdated and impractical aspects of existing rules.

As a general matter, WM believes that ECCC should not attempt to apply all existing requirements under California's Landfill Methane Rule ("California LMR") to solid waste landfills located in Canada. California sites experience different climate variables relative to those in Canada and, as a result, are managed according to different operational practices. Moreover, the California LMR reflect some of the most stringent standards in the United States and, as discussed in greater detail below, has had a significant economic impact on affected facilities, arguably without commensurate environmental benefit.

As ECCC is aware, Quebec's regulation on methane monitoring at landfill sites was implemented in 2006 as part of a broader effort to address climate change and reduce greenhouse gas emissions. The goal of the regulation was to ensure that landfill operators take proactive measures to monitor and control emissions. The Quebec regulation mirrors several aspects of the requirements prescribed by the U.S. Environmental Protection Agency (EPA) New Source Performance Standards (NSPS) for municipal solid waste landfills. These standards govern landfill operating procedures for the majority of U.S. states, representing the most comprehensive in North America. Requirements under the Quebec regulation which WM supports for inclusion in the proposed Waste Sector Methane Rule, include the following:

- **Surface Methane concentrations** – the surface methane threshold used by the province of Quebec and EPA is 500 ppmv of methane.

- **Reporting frequency** – the Quebec regulation mandates that landfill sites report methane emission readings to the provincial government three times per year. No specific dates during that year are mandated, nor is there a prescribed period between measurements.

- **Spacing for methane readings** – the Quebec regulation mandates that the line separation for methane readings be 30 metres apart. As written, the proposed Waste Sector Methane Rule is three times more burdensome than the Quebec rule.

ECCC's Cost-Benefit Analysis does not Reflect WM's Operational Experience

Should the proposed Waste Sector Methane Rule be passed in its currently published form, the financial impact on WM would be significant and the costs associated with the rule would not materially contribute to Canada's 2030 methane reduction targets. This submission identifies specific provisions within the draft regulation that would have a direct and outsized impact on landfill operations and operational cost increases. In each section, the document proposes alternative requirements that would accomplish both compliance objectives and achieve significant environmental benefits to Canada.

At a high level, ECCC states that the average estimated monitoring cost per landfill site that would be captured as of 2027 (for a compliance period of 14 years) would be $58,000 per year. The preamble also claims that the scope of these costs includes capital, operating, and maintenance costs for new or expanded active landfill gas recovery and flaring systems. This average cost is severely underestimated. For instance, the overly stringent 7.5-metre line spacing requirement (discussed in further detail below), combined with the 90-day separation period between surveys, would require many of WM's sites to procure three new monitoring units at a cost of approximately $35,000 per unit (or over $100,000 per site). And this new investment does not account for the actual methane capture infrastructure, which will cost the average landfill site tens of millions of dollars.

As such, WM encourages ECCC to re-evaluate the cost impact assessment, as we believe there are a number of factors missing from the department's assumptions. The need to bolster and refine the cost-benefit analysis is particularly acute in provinces or territories that already implement programs for landfill methane control. The cost of complying with these current programs under an equivalency agreement is significantly different than the cost of continuing to comply with these requirements while also complying with federal regulations that may contain different, conflicting, or overlapping monitoring practices, reporting frequencies, or other provisions.

The following sections highlight the specific areas and sections of the proposed Waste Sector Methane Rule that WM recommends ECCC consider amending as part of its ongoing consultation process. Ultimately WM's recommendations are focused on helping the government find the right balance between over-regulation and environmental benefit. WM is making these recommendations with the support for the Government's objective of reducing methane emissions from Canadian landfills by 50% below 2019 levels by 2030 and meeting Canada's international commitments to combat climate change.

Applicability Thresholds

WM asks ECCC to carefully consider the waste-in-place, waste acceptance, and methane generation thresholds set forth in the proposed Waste Sector Methane Rule, which reflects the most stringent combination of such thresholds incorporated into U.S. state programs (such as California, Oregon, and Washington) and are significantly more stringent than EPA's NSPS. In particular, WM is concerned with the cost impacts to closed sites that may exceed the waste-in-place or methane generation thresholds but do not have sufficient revenue to fund compliance costs and are not likely to generate sufficient amounts of landfill gas over a period of time that would be appropriate to justify the installation of collection and control systems. Some of these closed facilities that would be subject to the proposed Waste Sector Methane Rule previously utilized landfill gas collection and control systems but have since shut down those systems due to lack of sufficient gas for operation.

As proposed, the Waste Sector Methane Rule would apply to any landfills that have accepted any quantity of municipal solid waste for disposal after January 1, 2010, and have more than 450,000 tonnes of municipal solid waste in-place. This would potentially include closed landfills that have been closed for more than 15 years by the time the earliest monitoring and compliance requirements come into effect. ECCC has provided no support for the idea that landfills closed for this length of time are still significant sources of methane emissions. WM recommends the proposed Regulations apply to landfills that have accepted any quantity of municipal solid waste for disposal after January 1, 2017 (approximately ten years prior to the implementation of the proposed Regulations).

A methane generation threshold of 664 or 1,000 tonnes of methane may be too low to support sustained operation of landfill gas controls without the use of supplemental fuel, itself a greenhouse gas contributor. At one U.S. site, WM estimates that using around 9,800 liters of supplemental propane per year can account for up to approximately 15 tonnes or more of additional CO_2e emissions.

Further, the use of a methane generation model to assess applicability of the 664 and 1,000 tonne thresholds introduces a high degree of uncertainty into the applicability assessment. Regarding its similar first-order decay model that is used to estimate landfill methane generation, EPA noted that predicted methane emissions ranged from 38% to 492% of actual and had a relative standard deviation of 0.85.

Operational Challenges

WM is concerned with many of the operational challenges that the proposed Waste Sector Methane Rule would impose upon our sites across Canada. While our company agrees that more needs to be done to bring all operators up to a standard, we also feel that the requirements presented in the draft Waste Sector Methane Rule go too far and will not reap the incremental environmental benefits that are assumed. Specifically, WM encourages ECCC to review the following provisions within the proposed regulation, and to continue to work with industry to set more appropriate and implementable guidelines:

Venting Prohibited, Exceptions 7(2)(c) – ***Landfill gas may be vented in portions of the landfill that are under final cover, if the methane concentration in landfill gas in the venting location is below 25% by volume in eight consecutive measurements taken quarterly with an instrument referred to in paragraph 19(1)(a).***

WM supports an exception from the venting prohibition but recommends that ECCC increase the minimum methane content average for the venting exception in landfill areas that are under final cover from 25% to 45%. At 25%, and with the expectation that the closed landfill site would be required to continue to combust the methane through a flare, the danger of explosion and the need for additional/supplemental propane increases. At such a low level (25%) there is the potential for the concentration to drop to highly dangerous levels of 15-20% methane content, at which point the risk of an explosion is more likely. As WM has experienced in other jurisdictions, at 25%, WM would need to procure and store significant amounts of propane in order for the collection system flare to be functional and safe. WM's operators typically balance the wellfield to achieve an optimal methane concentration between 48% and 52%, and methane concentrations less than 45% may be considered to be indicative of air intrusion. As a practical matter, WM would respond to such low methane conditions with individual wells via temporary or partial decommissioning for a period of time in order to allow for maximum flexibility under changing conditions at the beginning and end of the landfill gas generation curve.

Methane Destruction 8(4) – ***An owner or operator of a landfill shall, at least every 15 minutes, measure the methane concentration in recovered landfill gas and the volumetric flowrate, in cubic metres at standard conditions (a temperature of 15°C and a pressure of 101.325 kPa), of that recovered landfill gas that is conveyed to each of the devices or systems referred to subsection (1).***

WM is concerned with the burdens associated with this proposed requirement and instead recommends that the regulation require monthly monitoring of methane at each control device flare, and not continuous gas composition monitoring (i.e., amend the "every 15 minutes" requirement). WM has found that the data generated by handheld monitoring equipment is more accurate than the continuous monitoring devices it has installed at the point of combustion at sites such as its Twin Creeks facility in Watford, ON. Essentially, WM has found that the continuous LFG analyzer cannot retain calibration. The portable gas analyzers (GEM) are calibrateddaily or before every use. LFG quality does not flucturate enough during the month to warrant continuous monitoring of methane if the government's objective is to evaluate monthly methane collection volumes. The portable method is also significantly less expensive, especially where sites have multiple control devices. Specifically, WM estimates that the hardware and installation costs for a single gas composition monitor sufficient to meet this continuous monitoring requirement is approximately $48,000. WM does not view the value of continuous data in this context as providing a commensurate benefit for this cost. Accordingly, WM recommends that methane readings be conducted monthly, and through proven handheld monitoring methods.

Monitoring 13(1)(a) – ***An owner or operator of an equipment component that is part of a landfill gas management system in operation at a landfill shall, to identify methane leaks in that component, (a) three times per calendar year separated by an interval of at least 90 days, monitor the equipment component using an instrument referred to in paragraph 19(1)(a) that is operated in accordance with Section 8.3.1 of EPA Method 21 to the extent that it is consistent with the manufacturer's recommendations for the instrument.***

To the extent that this provision intends to require periodic methane monitoring of landfill gas collection system components, such as wellheads, WM disagrees that such monitoring is appropriate or necessary. Such wells will be subject to monthly pressure monitoring and associated periodic surface emissions monitoring, which is adequate to ensure that the system is operating effectively and under vacuum. WM is familiar with certain state or permit-based methane monitoring requirements for landfill gas processing equipment located downstream of the blower in beneficial use projects, but not for well field components. Further, any such requirement to conduct monitoring three times annually should be revised to reduce the required minimum number of days between each of the three reporting periods from 90 to 60 days. This would provide more flexibility to operators and would account for winter and other challenging weather events that are unique to the Canadian climate. In Quebec, and within their regulatory requirements, WM would be able to meet the reporting requirements adequately with a 60-day separation between each monitoring exercise.

Instruments Section 19(4)(b) – ***Measurements are to be taken at intervals of no more than 2 metres along a pattern that traverses, at no more than 7.5-metre intervals, the portions of the landfill that are under final cover or where waste disposal has not taken place in the previous 12 months.***

The 7.5-metre line separation requirement set forth in the proposed Waste Sector Methane Rule is overly stringent and should be revised to reflect the Quebec and EPA NSPS requirement of 30 metres. Under the 7.5-metre interval provision, ECCC would quadruple the labour-hours required to perform field monitoring relative to the aforementioned standards. Over a 100 hectare landfill it currently takes WM approximately 3 days to complete a walking sweep under a 30-metre line separation requirement that is applied in Quebec. Under a 7.5 metre spacing requirement, WM's staff would be required to walk a total distance of 140 to 150 kms. This raises safety and labour shortage concerns and is an interval that would not equate to a commensurate level of exceedance detections. As noted above, the stringent spacing requirements incorporated into the California LMR have been a tremendous cost burden at nearly $35,000 per event without objectively observable improvements in system performance.

Further, WM supports ECCC's incorporation of EPA's OTM-51 as an alternative to traditional handheld monitoring approaches, but asks ECCC to confirm that the use of OTM-51 is not limited to the singular vendor that is approved for such technology in the U.S. Additionally, WM anticipates that many sites may opt to use both walking and drone mounted approaches and asks ECCC to confirm that affected facilities are not constrained to one or the other approach. Finally, WM supports flexibility within the proposed Waste Sector Methane Rule to allow for the approval and deployment of developing technologies to satisfy surface emission monitoring requirements.

Cessation of Application Section 23(1) – ***The proposed Regulations would cease to apply to a closed landfill with an active gas collections system only if the system was in continuous operation in the previous calendar year, and the quantity of methane recovered was less than 125 tonnes; or if the modeled methane generation was less than 150 tonnes.***

The high degree of uncertainty associated with modeling methane generation is addressed in WM's comments in the "Applicability Thresholds" section above. The 125 tonnes of collected methane equates to approximately 42 Nm^3/hr (25 scfm) of landfill gas. Operating a landfill gas collection and control system over an entire year at these low levels is not feasible and can even be dangerous as discussed in WM's comments, above. Consistent with EPA requirements for system removal, WM recommends that the proposed Waste Sector Methane Rule cease to apply to a closed landfill at which the active gas collection system had been in operation for at least 15 years and where no exceedances are detected for three consecutive monitoring events, as described in Section 23(1)(a).

Surface methane concentration limits and monitoring – ***The proposed Regulations would require that surface methane concentrations not exceed the following limits in areas of the landfill with final cover or where waste disposal has not taken place during the previous 12 months: 500 ppmv at any single location; and 25 ppmv zone-average concentration in each zone of 4 500 m2, covering the landfill surface. The proposed Regulations would set area and coverage requirements for the zones but would allow zones to be located in any fashion on the landfill surface.***

WM recommends that ECCC adopt the Quebec regulation threshold for mitigation of 500 ppmv to require closed landfills to comply with the federal regulation. However, WM recommends that ECCC remove the added "zone-average" requirement. The average of surface methane concentration measurements in a zone of no more than 4,500 square metres and with an exceedance limit of 25 ppmv adds additional operational burden and cost to operators. A 2014 study that was submitted in response to a proposed EPA rulemaking noted the following:

> *The Integrated SEM requirements under the CA LMR are estimated to increase field time by 25% to 75%, depending on whether the landfill does separate or combined Instantaneous and Integrated SEM, and the methodology used to develop the integrated emissions estimate. Landfills that conduct Instantaneous and Integrated SEM separately must undertake two separate traverses of the entire landfill, which doubles the time required to conduct the monitoring. Moreover, even at the landfills that perform both requirements at the same time, additional time is required to conduct the monitoring.*
>
> *EPA's cost analysis (see Table 5, 79 Fed. Reg. 41823) indicates that adopting the CA LMR approach in the proposed NSPS would increase monitoring costs by more than seven times (from a total annual cost of $42,300 to $362,900). However, the results of this analysis found that the additional effort and resources only detected exceedances at an additional 1.3% of grids monitored, while increasing gas collection at only one of 72 landfills.*

Additionally, WM asks ECCC to confirm that any such exceedance of the surface emission concentration that is eliminated within six months, as set forth at 18(3), shall not be considered a "violation" subject to enforcement. And finally, as noted above in the context of component monitoring, WM asks ECCC to reduce the minimum 90-day separation between surface emission monitoring events to 60 days; and to reduce the minimum waiting period after a precipitation event to 36, rather 72 hours. These changes will alleviate difficulties relating to weather-related delays and scheduling of third-party vendors.

Timing for Implementation and funding support for operators

WM recommends that ECCC move the implementation date for methane modeling under the Waste Sector Methane Rule back from June 1, 2025, to June 1, 2026. This additional year would allow for landfill operators to fully understand the evaluation model and implement it under favourable conditions. The additional time would allow for landfills to make proper readings and work with ECCC to ensure the data is credible and in line with the department's expectations. Under the proposed deadline, operators would have less than a year to apply the model, with the majority of that time being in the winter months. In addition, the final regulation has not yet been posted, nor has the model been finalized, leaving a problematically ambiguous operational expectation on operators.

Additionally, the compliance timelines in the proposal are ambitious. In WM's experience, planning (engineering), permitting, procuring, and installing new methane capture infrastructure can take longer than three years. In Alberta, for example, there are currently no such requirements on methane capture. As such, a longer period of transition is necessary to allow the time to implement an efficient landfill gas collection system for existing sites required to install gas collection and control systems subject to the earliest of such deadlines.

In the spirit of the regulation, and with the assumption that other operators will want to comply within the ambitious timeframes that ECCC will be mandating, WM reinforces the need for funding support to help operators accelerate investments required to achieve these milestones. WM is aware that there are currently several funding program options available through various departments and government agencies. These programs are not dedicated to helping landfills explicitly for this purpose, and many are depleted of capital. In addition, the funding programs available through organizations like the Federation of Canadian Municipalities and its Green Municipal Fund are not available to private operators. More dedicated funding programs offered directly through ECCC would also work to incentivize landfills to not only upgrade their current infrastructure but leverage the most modern and efficient solutions to accelerate the environmental benefits required to help Canada reach and even beat its current methane reduction targets.

Conclusion

WM appreciates the opportunity to comment on the proposed Waste Sector Methane Rule draft regulation. In summary, it is our view that the regulatory proposal follows too closely to the California model and that ECCC should work closer with Canadian-based operators to adjust state requirements for this country's unique landscape. The assumptions made on increased cost to landfill operators based on the proposed requirements need to be reviewed carefully by ECCC. WM's estimates put the cost per landfill at a number significantly higher than the $53,000-$58,000 per-site estimate referenced in the regulatory preamble.

In terms of a future pan-Canadian model, the Quebec example works well, and we have identified some areas where this can be enhanced. Partnership between industry and government is required to collectively meet the objectives outlined in Canada's international methane reduction commitment, and in view of this cooperative exercise, WM recommends providing more time for compliance and to support operators with direct funding options. WM looks forward to continuing to work with ECCC in the formation of the final regulation, and we welcome any questions or feedback on this document.

WM appreciates the opportunity you have given us to comment on this proposed regulation and we are grateful for your interest in our remarks.

Best regards,

Martin Dussault
Public Affairs Director for Canada
WM