SOLID WASTE ASSOCIATION OF NORTH AMERICA

May 19, 2022

Dany Drouin
Director General
Plastic and Waste Management Directorate
Environment and Climate Change Canada
Waste Reduction and Management Division
351 St. Joseph Blvd., Place Vincent Massey
Gatineau, QC K1A 0H3

Submitted Via E-mail: ges-dechets-ghg-waste@ec.gc.ca

Dear Mr. Drouin

Re: SWANA Comments on *Reducing Canada's landfill methane emissions: Proposed regulatory framework*

The Solid Waste Association of North America (SWANA) would like to thank Environment and Climate Change Canada (ECCC) for providing the opportunity to submit comments in response to the document, "Reducing Canada's landfill methane emissions Proposed regulatory framework" (Framework).

SWANA is a not-for-profit professional association in the solid waste management field with more than 11,000 members from both the private and public sectors across North America. Our members strive to deliver collection, composting, recycling, and disposal services that are protective of the environment in a safe, science-based, and technologically advanced manner.

It is important that regulations developed to reduce landfill methane emissions in Canada are based upon sound science, achieve the intended goals of such regulation, and can be reasonably implemented by owners and operators. These comments are based upon those considerations.

Applicability based on quantity of municipal solid waste disposed

The applicability criteria for open landfills as proposed by ECCC is very stringent and would likely bring in many smaller landfills. This would result in a dramatic increase in capital and operating expenses for those sites, especially in comparison to their operating budgets.

ECCC must take this into account when the regulation is drafted to ensure that landfill owners (particularly small landfill owners) can afford to complete this work, even with the inclusion of GHG Offset Credit System funding.

SOLID WASTE ASSOCIATION OF NORTH AMERICA

These costs must also be considered in conjunction with the amount of landfill gas emissions reductions that would actually be achieved by bringing smaller sites into the regulatory scheme. A better understanding of those reductions at the proposed criteria level versus higher levels could demonstrate that substantial reductions are still possible even if fewer sites are regulated.

Methane generation assessment and threshold

SWANA has concerns that the ninety (90) days allowed for methane generation assessments is not a sufficient amount of time. There are a limited number of consultants and subject matter experts who can undertake such assessments and many municipalities do not have the internal expertise to carry out such work. The experts able to complete assessments are a limited resource and there simply may not be enough available in within the 90 days, particularly directly after the regulation comes into effect.

The proposed annual methane generation threshold of 664 tonnes per year is also extremely stringent, as noted in the Framework. It is adopted from regulations in British Columbia, Quebec, California, and Oregon, but it is unclear that such a threshold is appropriate Canada-wide. This amount does not account for different climatic variations, different regulatory environments at the provincial/territorial levels, variable diversion rate, and other important factors.

SWANA asks that ECCC review and evaluate other annual methane generation threshold levels. As with setting the quantity of municipal solid waste disposed, it is important to evaluate the amount of landfill gas emissions reductions that would actually be achieved at this level versus a higher one. Further justification of the proposed threshold is certainly necessary, beyond it simply the most stringent in North America.

Path-integrated methane concentrations/Surface methane concentrations

The Framework states that “in some cases, the landfill methane generation modeling may not accurately represent the scale of methane being generated and emitted at certain sites” and that a specific type of drone-based detection technique “holds promise to detect the same methane emission hotspots that may be measured using ground-based methods.”

SWANA recognizes the value and need for drone technology to automate monitoring tasks, such as initial screening for surface methane emissions. However, drone-based methane measurement needs to be further vetted before being used for regulatory applications at landfills. So far, limited research has been conducted to date using drones for accurately detecting methane emissions. Concentrations measured from the drone may or may not align with actual ground measurements. Additional field study and a larger body of work is necessary

to improve accuracy and reliability of these methods before it can be used for regulatory applicability and compliance determinations.

In February 2019, SCS Engineers (SCS) prepared a document entitled "Methods for Estimating, Measuring, and Monitoring Landfill Methane Emissions" for ECCC. At that time, SCS stated the following with respect to Infrared (IR) cameras:

"They are not in common use in the solid waste industry, and there are application specific challenges that may need to be overcome before widespread adoption, but the technology is demonstrated in principle by widespread use in the oil and gas industry."

SCS further states the following about optical technologies:

"*In addition to IR cameras, other optical technologies, such as hyperspectral imaging and thermal imaging, have application at landfills. Those applications are currently niche applications and are not used as methane monitoring, but they may have future application in monitoring programs*."

SCS closed the document by stating (emphasis added):

"SCS also believes that ***IR imaging is a promising technology that complements SEM. It is not as robustly demonstrated for landfill application as SEM, but it should be considered as an alternative or complement to SEM****. IR imaging has the potential to quickly identify high methane emission points on landfills that could potentially be missed by SEM, while SEM has the ability to quantify the concentration of methane accurately at such hot spots. They could work well in concert, but the combined costs may make them prohibitive for many individual sites."*

The regulation needs to be clear and remove any ambiguity with respect to the type(s) of modelling that will be accepted before landfill operators and owners begin investing in such technology and initiating assessments.

Whether drone (IR) or surface measurements are deemed acceptable, it is proposed that measurement is done at 5m high with a spacing of less than 15 m or at 5 cm with spacing less than 7.5 m respectively. This sampling grid is very tight and will add significant effort and operating cost for landfill owners. Demonstration should be made that such a sampling grid would provide a significant improvement in detection and lead to great emissions reductions. Otherwise, consideration should be given to increasing the spacing. As it stands, landfill owners will be required to work with consultants or hire additional staff, in addition to procuring new equipment at significant additional cost.

Low methane content in recovered landfill gas

SWANA recommends that the time period for which closed landfills must demonstrate average annual methane concentrations less than 25% by volume be reduced from 5 years to 2 years. It is highly unlikely that a closed landfill would exceed that concentration after this time period. This is well-demonstrated in the landfill gas production curves from many different landfill sites, as well as operational data. A decrease in the time period would have the same results and provide significant savings to the site.

Implementation of a landfill methane control approach

Providing one to two years to implement most control approaches following an exceedance (especially one that is unforeseen) is unreasonable, especially depending on the scope of the methane control system to be designed and constructed. As previously mentioned, there are a limited number of experts in this field that are capable of providing the services to design and construct the required systems/upgrades.

SWANA recommends ECCC consider alternatives to the proposed timeline. This could include a longer implementation period for all sites, an implementation period based on the type, complexity and cost of the system, a staged approach based on annual emissions, or some other scheme. A one-size-fits-all timeline would not be appropriate or practicable.

In addition, ECCC needs to give consideration to Canadian Standards Association (CSA) Code B149.6-2020 – Code for Digester Gas, Landfill Gas and Biogas Generation and Utilization. In provinces where it is enforced, it adds additional approval and operating requirements.

Performance Standard – Surface methane emission limits

Greater clarity is required in describing an exceedance(s). For example, is one (1) exceedance in a twelve (12) month period sufficient to trigger the implementation of a methane control system, is it three (3) exceedances over a twenty-four-month period, etc.

It is also not clear why the ECCC has selected averages of an area of 4,500 m^2, which is quite small for many landfills. This will result in a large number of zones at landfill sites. ECCC should instead consider a site wide assessment or larger zones, especially in relation to larger waste sites.

It is also not clear that if an exceedance is identified in one zone a site-wide response is necessary to be in compliance. The Framework simply states (emphasis added):

"Landfills that exceed the methane generation threshold of 664 tonnes per year, and are not exempt based on surface methane monitoring results, ***would be required to implement a landfill methane control approach that meets the performance standard*** *described below."*

ECCC must clarify if the landfill methane control is limited to the zone with the exceedance or is applicable site wide. SWANA recommends that the control approach be limited to the area (not the zone) with the exceedance.

Operation

SWANA recommends that that additional time be provided to close the valve in the event of landfill gas recovery equipment (i.e., blowers), destruction device or treatment system shut-down. Clarification is also necessary as to what specific valves should be closed. Most valves on the positive side of the blower are automated and will close once conditions in the flares no longer meet the minimum operating requirements. If any landfill gas systems exist with manual valves, it will require additional effort on the part of the landfill owners to respond and close the valve and one hour will not be sufficient.

Additionally, it is recommended that the proposal specifically exempt flares that operate in only a backup capacity from methane destruction testing.

Requirement for methane monitoring and corrective action plan

The proposed regulation will result in substantial financial impacts to landfill owners, especially if regulatory thresholds are exceeded. ECCC needs to help mitigate or assist in covering the capital and/or operating costs associated. Cost mitigation options may include ECCC paying for assessments, setting up funding programs, establishing methane credits similar to carbon credits, and so on. If the cost is solely on landfill owners to implement, the regulation will be financially challenging, especially for owners of smaller or closed landfills who have limited or no funding available to undertake the required work.

Monitoring landfill gas recovery systems

The framework document states that “Landfills would be required to develop site-specific action thresholds”. SWANA requests that ECCC clarify this requirement, as it is unclear if landfill operators will determine these thresholds or some other entity.

ECCC is giving consideration to requiring continuous monitoring at the wellhead for larger landfills. The additional capital cost of automated valves at each extraction well in addition to the operating costs (~$400/wellhead/month) based on current pricing in the industry is cost prohibitive.

In areas of the landfill under interim and final cover, significant changes in gas quality over a short period of time are infrequent. Weekly, if not monthly, monitoring is adequate in most cases unless an issue is identified. Larger landfills can also have more than 100 wells that would be impacted by this requirement which would significantly affect the cost of operating a system

and, in the end, likely not to accomplish much given that the operator already strives to maximise the capture of gas and has developed operational practices to do so. It should be noted that larger landfills (especially those that are converting gas to energy or RNG) have a vested interest in operating their systems as efficiently as possible.

Monitoring engineered biocover/biosystems

There is little information currently available within the industry to verify or validate the performance of biocover/biosystems on a larger scale. More research is required, and the inclusion of monitoring requirements in the regulation may not be warranted at this time.

Monitoring to identify methane leaks

SWANA questions the need for monthly inspections to identify methane leaks when surface/drone-based monitoring is completed 3X per year. The requirements identified in this section are typically part of an Operations, Design and Operations Manual or other, similar document.

SWANA also recommends that one exceedance should not result in a return to triannual monitoring and some other standard be considered.

SWANA has serious concerns with third-party measurements triggering corrective action. As worded, this statement would allow anyone to provide information to ECCC that would then be used to enforce corrective actions, which is not acceptable. Only data from a qualified person (as defined in Regulation) using properly calibrated equipment should be considered when enforcing corrective action. Further, the landfill owner must be aware of the measurements being taken and has permitted the qualified person(s) to access the site and collect data.

Further, providing such powers to third parties could act as a disincentive for landfill sites to participate in research projects associated with landfill emissions going forward.

Notifications, record keeping and annual reporting

SWANA recommends that the annual reporting requirements be combined and aligned with existing provincial reporting requirements to avoid the need for duplicative reporting.

…

SWANA again thanks ECC for the opportunity to comment on the Framework. Should you have any questions about these comments, please contact Jesse Maxwell, Senior Manager, Advocacy & Safety for SWANA, at jmaxwell@swana.org.