

To: Warden and Members of County Council

From: Director of Public Works

Reducing Canada's Landfill Methane Emissions, Proposed Regulatory Framework, Environment and Climate Change Canada

RECOMMENDATION

- 1. That Oxford County Council receive Report No. PW 2023-31 entitled "Reducing Canada's Landfill Methane Emissions, Proposed Regulatory Framework, Environment and Climate Change Canada" as information.**

REPORT HIGHLIGHTS

- The purpose of this report is to provide Oxford County Council with staff comments submitted in response to Environment and Climate Change Canada's (ECCC) proposed regulatory framework for reducing methane emissions from landfills by mandating methane control systems and performance requirements.
- The new federal regulatory framework will not replace any existing provincial regulatory requirements or operating permits but will require increased monitoring frequency and performance requirements including surface emission and leak detection testing.
- The existing Landfill Gas Collection and Flaring System (LGCFS) at the Oxford County Waste Management Facility (OCWMF) will be subject to performance and compliance requirements within one year from the regulation coming into effect. The County's eight closed landfill sites will be exempt from the proposed regulatory requirements.
- ECCC expects to post the draft regulation for a 60-day public consultation period in February 2024.

Implementation Points

Staff submitted comments to ECCC on May 15, 2023, within the prescribed public comment period. Following County Council's receipt of this report, a copy of the resolution will be submitted to ECCC to accompany the County's submission comments.

Staff will also continue to follow ECCC's efforts in this area and will participate in any upcoming consultation sessions and report back to Council, as needed. The draft regulation is expected to be released for further comment in February 2024.

Financial Impact







No financial impacts will result from adopting the recommendation contained in this report.

It is recognized that increased operating costs may be observed to meet the requirements in the final regulation.

Communications

Report No. PW 2023-31 will be circulated to Area Municipalities for information and to Future Oxford and the Zero Waste Oxford and Smart Energy Oxford sub-committees.

Strategic Plan (2020-2022)

					
WORKS WELL TOGETHER	WELL CONNECTED	SHAPES THE FUTURE	INFORMS & ENGAGES	PERFORMS & DELIVERS	POSITIVE IMPACT
		3.i.			

DISCUSSION

Background

On April 18, 2023, ECCC posted ‘*Reducing Canada’s Landfill Methane Emissions, Proposed Regulatory Framework*’ (Attachment 1), for public consultation until May 19, 2023. The purpose was to receive input from stakeholders on developing the regulatory framework under the *Canadian Environmental Protection Act, 1999* (CEPA) to reduce landfill methane emissions.

The proposed regulatory framework follows the discussion paper, ‘*Reducing Methane Emissions from Canada’s Municipal Solid Waste Landfills*’, published by ECCC in January 2022 for public consultation (refer to Report No. [PW 2022-23](#)). The development of a federal regulatory framework to reduce landfill methane emissions is part of the Government of Canada’s climate action plan, *Strengthened Climate Plan – A Healthy Environment and a Healthy Economy* to reduce greenhouse gas (GHG) emissions in support of international initiatives and global GHG emission reduction targets.

Potential requirements under the proposed regulation for landfills receiving municipal solid waste include implementation of a landfill methane control approach through enhanced monitoring and corrective action plans, as well as annual reporting for both open and closed landfill sites that meet waste quantity and methane generation/emission thresholds. The regulation would apply to closed landfills that accepted waste after January 1, 2009 and have more than 450,000 tonnes of waste in place, as well as open landfills that have more than 100,000 tonnes of waste in place or accept more than 10,000 tonnes of waste per year.

The open landfill at the Oxford County Management Facility (OCWMF) exceeds the threshold criteria and would be subject to the proposed regulatory requirements, whereas the eight closed landfill sites owned by the County would be exempt from the regulation since they did not receive waste after 1986.

Methane emissions are currently controlled at the OCWMF through an LGCFS that was implemented in 2010 in accordance with provincial regulatory requirements. The LGCFS was installed in 2010 and operates under an Environmental Compliance Approval (ECA) that was issued by the Ministry of Environment, Conservation and Parks (MECP) and includes conditions for regular system monitoring and annual reporting to the MECP.

As part of the County's 2022-2032 Renewable Energy Action Plan (Report No. [PW 2022-37](#)), a feasibility study is being undertaken to assess utilizing biogas (methane) currently being sent to flare at the OCWMF. High-level estimates based on biogas flare consumption detailed in the OCWMF's 2021 LGCFS annual report, provide the indication of renewable energy potential. It is recognized that the OCWMF is currently a net-zero energy site and currently does not have any natural gas pipeline site connection; therefore, utilization of the energy may be an issue given these considerations as well as potential regulatory challenges related to the offsite energy distribution. The study will confirm the feasibility of landfill methane gas generation and utilization potential for future consideration of alternative energy recovery project applications.

The proposed Federal regulatory requirements will not replace any existing provincial or territorial regulatory requirements or operating permits but would increase monitoring frequency required by most provincial regulations. The proposed regulation will also require the use of drone-based monitoring of surface methane concentrations in areas where intermediate and final cover is in place (i.e. excludes active filling areas) and remedial action if threshold concentrations are exceeded.

Landfill owners, like Oxford County, who are currently operating an engineered methane control system would be required to comply with performance standards within one year of the proposed regulations coming into force.

The County's LGCFS is currently operated and maintained under contract with Comcor Environmental. As such, many of the requirements outlined in the proposed regulatory framework are already being undertaken. Anticipated changes to the County's current monitoring program to comply with Federal regulatory requirements would include:

- Increased monitoring frequency for specified parameters;
- Surface monitoring using drone-based technology;
- Methane leak detection and control and associated corrective action; and
- Upgrades to the existing LGCFS to optimize methane removal (wellfield expansion, subsurface collection piping).

Comcor Environmental was recently successful in receiving federal grant funding to undertake pilot testing to assess the use and reliability of drone technology for landfill methane emission detection and will be using the OCWMF as one of its test sites. This grant funding was provided by ECCC and it is expected that the study results will be used to inform surface monitoring parameters as part of the proposed regulatory framework.

Landfill Gas Emissions

As noted in Report No. PW 2022-23, the County's LGCFS system consists of 18 vertical extraction wells and a mechanical pumping system that draws gas to the flare for combustion. The estimated total methane gas generated annually at the OCWMF is in the order of 3,900 tonnes and as a result, a methane generation assessment will be required under the proposed federal regulatory framework.

The volume of methane collected at the OCWMF has generally been low due to historical landfilling operations. Limiting factors include a large open tipping face and use of temporary surface mounted gas collection piping that is prone to leaking where final cover has not been completed. Remedial measures taken to date include development of a Landfill Fill Plan to maximize vertical capacity which will allow for placement of final cover and subsurface installation of permanent gas extraction piping as well as potential well field expansion.

In addition, staff have recently completed a number of environmental investigations and established regular monitoring programs for methane emissions at the eight County-owned closed landfill sites. The on-going collection and monitoring of methane gas at the OCWMF open landfill have been paralleled with work activities which are expanding landfill cover and limiting the extent of the open active landfill face. These activities will serve to further reduce landfill gas emissions.

Comments

Staff have submitted comments (Attachment 2) in response to ECCC's proposed regulatory framework and generally support the development of federal regulations that will mandate implementation and/or optimization of methane control approaches to reduce landfill methane emissions.

The County's submission comments did raise awareness with the proposed timelines to meet performance and compliance requirements, noting that municipalities will need time to assess and plan for resourcing within annual budgets.

Staff recommended alignment with provincial regulatory requirements to avoid redundancy and to streamline reporting requirements. Staff also commented on the mandatory requirement for the use of drone-based technology to conduct surface monitoring as this is an emerging technology with limited service providers.

ECCC has held several informational webinars to assist stakeholders in understanding how this initiative will affect municipal open and closed landfill sites. ECCC intends to release the draft regulations in February 2024 for a 60-day comment period at which time staff will prepare comments for County Council's endorsement.

Conclusion

Staff support the Federal initiative to reduce methane emissions from landfills through the proposed regulatory framework as part of Canada's climate action plan to meet global greenhouse gas emission reduction targets by 2050. Implementation/optimization of landfill methane control systems will reduce emissions and potentially increase methane capture rates that could be utilized for beneficial reuse as an alternative energy source.

SIGNATURES

Report Author:

Original signed by

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Departmental Approval:

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Approved for submission:

Original signed by

Benjamin R. Addley
Chief Administrative Officer

ATTACHMENTS

Attachment 1 Reducing Canada's Landfill Methane Emissions, Proposed Regulatory Framework, Environment and Climate Change Canada, April 19, 2023

Attachment 2 Oxford County Submission Comments: Reducing Canada's Landfill Methane Emissions Proposed Regulatory Framework, Environment and Climate Change Canada, May 15, 2023