



**To:** Public Works and Transportation Committee  
**From:** John Irving, P.Eng. MPA  
Director, Engineering  
**Re:** Odour Regulation in British Columbia

**Date:** February 15, 2018  
**File:** 10-6175-02-01/2018-  
Vol 01

**Staff Recommendation**

1. That a letter be sent to the BC Minister of Environment requesting that:
  - a) The definition of odour as an air contaminant be included in the BC Environmental Management Act and in the BC Organic Matter Recycling Regulation;
  - b) The BC Organic Matter Recycling Regulation include a specific Odour Management Regulation establishing criteria and standards related to concentration and frequency of odorant emissions from composting facilities and define performance criteria for composting facility operations;
  - c) They define a specific standard for how odours shall be measured, monitored, managed, treated, and discharged in a manner that minimizes impacts associated with odorous air contaminants.
  
2. That a letter be sent to Metro Vancouver requesting that:
  - a) Metro Vancouver update its bylaws and regulations related to composting facilities to establish criteria and standards with clear limits in terms of concentration and frequency for odorant emissions from composting facilities;
  - b) Metro Vancouver appropriately resource its permit procedures with criteria and standards for composting facility permits to bring facilities into compliance with industry best practices for Composting Facilities.



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REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Law	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

## Staff Report

### Origin

The City of Richmond has taken actions to address ongoing odour issues from Harvest Power's organics recycling facility in east Richmond since November 2015. Richmond's work contributed to the following outcomes: provincial changes to the Organic Matter Recycling Regulation; more public input opportunities during the permit renewal process; stringent requirements in the new permit; and, increased community awareness regarding the source of odours in Richmond and who to contact to share concerns.

This report is being brought forward for Council's consideration as it relates to the status of odour regulation in Metro Vancouver and across British Columbia.

This report supports Council's 2014-2018 Term Goal #6 Quality Infrastructure Networks:

*Continue diligence towards the development of infrastructure networks that are safe, sustainable, and address the challenges associated with aging systems, population growth, and environmental impact.*

*6.1. Safe and sustainable infrastructure.*

### Background

The BC Ministry of Environment and Climate Change Strategy regulates air quality in British Columbia through the BC Environmental Management Act. Regionally, the Province delegated this authority to Metro Vancouver within its regional district boundaries. Metro Vancouver uses the Air Quality Management Bylaw 1082 to regulate air quality and issue air emission permits.

Metro Vancouver receives more complaints about odour than any other type of air emission. Between 2011 and 2015, Metro Vancouver received an average of 1,700 odour complaints per year, which accounted for approximately 80% of all air quality complaints. This amount rose to 3,800 odour complaints in 2016 and 3,725 complaints in 2017.

In 2016, the City sent a letter to the Ministry of Environment requesting that odours be regulated. To date, odour in British Columbia remain unregulated.

### Analysis

The following is a summary of recent actions to address odour emissions in regulations. The below discussion also includes an overview of the best practices and measures adopted in other jurisdictions with highly positive results.

#### Metro Vancouver

The BC Environmental Management Act authorizes Metro Vancouver to establish prohibitions, regulations, fees, conditions, requirements and exemptions for operations, activities, industries, trades, businesses generating air contaminants through operations or works.

Metro Vancouver currently has an Odour Management Framework that includes plans (e.g. Integrated Air Quality and Greenhouse Gas Management Plan), guidelines (e.g. Air Quality Dispersion Modeling Guideline BC) and recommendations. The framework also includes the GVRD Air Quality Management Bylaw 1082, 2008 (the Bylaw).

The Bylaw currently does not explicitly define odour and does not stipulate odour in the definition for air contaminants. The Bylaw also does not currently require specific standards for composting facility odours. Rather, it prohibits the discharge of air contaminants by an industry, trade or business, unless the discharge is conducted in accordance with a Metro Vancouver emission regulation or air quality permit. Bylaw 1082 further prohibits any person from discharging, or allowing or causing the discharge of any air contaminant so as to cause pollution. Metro Vancouver has also not established sectorial regulations to address specific odorous air contaminants.

Stating that “managing odours has become an important priority for the region as the number of odour complaints from the public has increased,” Metro Vancouver has begun working with stakeholders to improve its framework for managing odorous air contaminants. Metro Vancouver’s Climate Action Committee recently received a report with recommendations for how odours can be addressed from a wide range of sources.

Metro Vancouver recently published a Discussion Paper titled, “Regulating Emissions of Odorous Air Contaminants,” which includes issues related to odour from composting facilities. The paper also identified that best management practices, emission control works, enclosures and proactive strategies can be implemented during the design, construction and operation of composting facilities to reduce the generation of odorous air contaminants. For existing facilities, improvements to operating procedures and/or the introduction of pollution prevention and control works, may all assist in reducing the impacts of odorous air contaminant emissions.

Metro Vancouver is seeking preliminary input from stakeholders representing different perspectives on potential regulatory options to improve the management of odorous air contaminants. These options are not mutually exclusive, meaning one or more could be implemented. The options include the establishment of:

- **Outcome-based criteria:** Potential changes could include ambient air quality criteria for odorous air contaminants, complaint criteria, and criteria for on-site field observations for facilities with high odour potential that have been linked to recurring complaints.
- **Performance-based criteria:** Specific air contaminant emission limits at the source. Potential changes could include quantitative emission limits, and quantitative emission limits on individual odorous air contaminants.
- **Technology requirements:** Specify required equipment or control works for odour treatment, or best management practices for new or existing facilities.
- **Economic instruments:** incentives for reducing emissions and tools to recover administrative costs. Potential changes could include fees for the discharge of odorous air contaminants, and increasing existing fees for emissions of total reduced sulphur compounds and ammonia.

- **Bylaws:** Potential changes could include the addition of definitions to Bylaw 1082 and Bylaw 1083 to clarify provisions for regulating odorous air contaminants.

Metro Vancouver is planning workshops and meetings in the coming months to gather feedback on the odour management strategies discussed above. Industry stakeholders and member jurisdictions will be engaged.

### The Province of British Columbia

To date, British Columbia does not have a province-wide regulation specific to odour. Odorous air contaminants may be regulated under various regulations and codes or site-specific authorizations such as permits. Current regulations include the Environmental Management Act (EMA), the Organic Matter Recycling Regulation (OMRR) and the Waste Discharge Regulation (WDR), which are the principal pieces of legislation for air quality in BC. These regulations set conditions on how certain classes of activities may be undertaken, but they do not include specific air quality criteria for waste management or composting facility operations. The EMA currently does not include a specific odour definition. However, it is possible to surmise that odour is an air contaminant under paragraph “e” in the definition of “air contaminants,” which states “causes or is capable of causing material physical discomfort to a person.”

The Province manages odours from composting facilities outside Metro Vancouver’s jurisdiction under the BC OMRR, which was enacted in 2002 and amended in November of 2017 (BC Reg 243/2016). The OMRR currently does not include definitions of odour or air contaminants. In Part 5 of the OMRR titled “Composting Facility Requirements,” there are general requirements which include performance and emission criteria for composting facilities. The OMRR section 24, paragraph 2.d states that plans and specifications must include “an odour management plan which stipulates how air contaminants from the composting facility will be discharged in a manner that does not cause pollution,” but there are no specific outcome-based requirements or criteria for odour management in the facilities.

From 2005 through to 2017, the Province undertook reviews of the OMRR and issued Intention Papers (2006, 2011, 2016) with the intention of amending the OMRR to include criteria for Odour Management. However, the amendments of the OMRR have not included any standards or criteria for odour. Similarly, the Province received a report titled “Final Report Odour Management in British Columbia: Review and Recommendations” in 2005 to inform odour management approaches that would be effective in British Columbia, based on a review of successful odour management programs in other jurisdictions. It was found that there are ten different approaches that are used to manage odour, that include:

- Odour Management Regulation;
- Ambient concentration criteria for individual chemicals;
- Ambient concentration criteria for odour;
- Episode duration-frequency;
- Minimum separation distances;
- Odour intensity scales;
- Odour index;
- Complaint criteria;

- Quantitative emission criteria;
- Technology criteria.

To date and despite the Province's reviews developed in the last 13 years, the Province still has not directly regulated odour with clear criteria and standards.

### Other Jurisdictions

In 2017, Alberta Health released a report summarizing over 500 peer-reviewed epidemiology and experimental studies assessing odour and health outcomes in humans. The physiological responses reported in scientific papers include watering eyes, headaches, nausea, vomiting, loss of appetite, upset stomach, and throat irritation. Sleeplessness, stress and anxiety are also reported effects and if experienced for prolonged periods, can result in chronic health impacts. The main outcomes include health symptoms, physiological responses, annoyance, mood and psychological health, quality of life, cognition (task performance), athletic performance, and brain activity. In addition to these effects, residents are sometimes unable to enjoy their own property and outdoor activities, such as gardening and barbeques, and report having to close their windows and doors during hot weather.

As it relates to regulations, in different jurisdictions across Canada and internationally, odour issues are addressed through a range of mechanisms, including odour regulations, policies, and guidance documents. Most provinces define air contaminants in their legislation, and some provinces explicitly include odour within the definition (Ontario, Quebec, Prince Edward Island, Newfoundland and Labrador). Other odour management frameworks from across the United States, Europe, Australia, and Germany describe the approaches taken to address odour management in those jurisdictions.

Highlights include:

- Ontario included odour as a contaminant in the Interpretation (definition) of the Environmental Protection Act. Ontario also uses "Best Management Practices for Industrial Sources of Odour" that include procedures to prevent odours.
- Alberta included "Environmental protection orders re odour" in the Environmental Protection and Enhancement Act.
- Quebec has defined odour as a contaminant in the Environmental Definition Act.
- Ontario and the cities of Montreal and Boucherville in Quebec use odour concentration guidelines measured in odour units.
- Manitoba and Saskatchewan use odour units to assess potential impacts from new facilities during the design phase, but not as an enforcement tool to verify compliance when the facility is operating.
- In the Bay Area Air Quality Management District, California, USA, the BAAQMD odour management framework consists of a nuisance law, quantitative ambient concentration limits for individual chemicals and odour, complaint criteria, and quantitative emission criteria.

- King County, Washington, USA: The King County Department of Natural Resources and Parks Wastewater Treatment Division has an Odour Prevention Policy that defines odour prevention levels and includes recommendations for retrofitting existing facilities and for designing new facilities.
- New South Wales, Australia has a very comprehensive policy for assessing and managing odour from stationary sources. It includes an over-arching nuisance law, odour performance criteria, a three-level system of odour impact assessment, avoidance and mitigation strategies, negotiation between stakeholders, performance monitoring and complaint management, and regulation and enforcement options.
- Germany has a unique approach to managing odours that incorporates all of the Frequency, Intensity, Duration, Offensiveness, Location (FIDOL) factors. Several other approaches are also used to manage odours in Germany including an odour nuisance law, minimum separation distances (used primarily for agricultural and waste sources), an odour intensity scale, and quantitative emission criteria. The German odour management program is considered to be successful.
- Canada's Ministry of Environment published Environment Canada's "Technical Document on Municipal Solid Waste Organics Processing" report. The document covers a wide range of topics on composting processes including processing technologies, facility design, odour control, and compost quality.

The best practices of odour management adopted in other jurisdictions have common elements that have contributed to the highly positive results throughout the last 13 years:

- Environmental legislation includes the definition of odour as an air contaminant;
- Specific guidelines or standards exist for odour management with specific emission limits including gases and odorants from composting facilities;
- There is specified criteria regarding how odours and odorous air contaminants can be monitored, managed, treated, and discharged;
- There are technical standards and best practices of operation of composting plants and/or waste management plants.

Based on the findings above, staff believe there are opportunities to request that new or amended legislation be introduced regionally and provincially to address odours from composting facilities. The following recommendations are offered for Council's endorsement:

1. That a letter be sent to the BC Minister of Environment requesting that:

- The definition of odour as an air contaminant be included in the Environmental Management Act and in the Organic Matter Recycling Regulation;
- The Organic Matter Recycling Regulation include a specific Odour Management Regulation establishing criteria and standards with clear limits in terms of concentration and frequency for odorant emissions from composting facilities and define performance criteria for composting facility operations;
- They define specific standards for how odours shall be monitored, managed, treated, and discharged in a manner that minimizes the impacts associated with odorous air contaminants.

2. That a letter be sent to Metro Vancouver expressing the City's expectations that:
- Metro Vancouver update its Odour Management Bylaw for composting facilities establishing criteria and standards with clear limits in terms of concentration and frequency for odorant emissions by composting facilities;
  - Metro Vancouver appropriately resource its permit procedures with criteria and standards for composting facility permits to bring facilities into compliance with industry best practices for Composting Facilities.

The recommendations will contribute to the City's objective of eliminating odour issues from composting facilities.

**Financial Impact**

None.

**Conclusion**

This report highlights key regulatory actions that can be undertaken to support the City's objective to eliminate odours from composting facilities in Richmond and Metro Vancouver.



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