

# A Proposed Emission Regulation for **Cannabis Production and Processing Operations** in Metro Vancouver

Discussion Paper with Adjusted Proposals

July 2021



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# INTRODUCTION

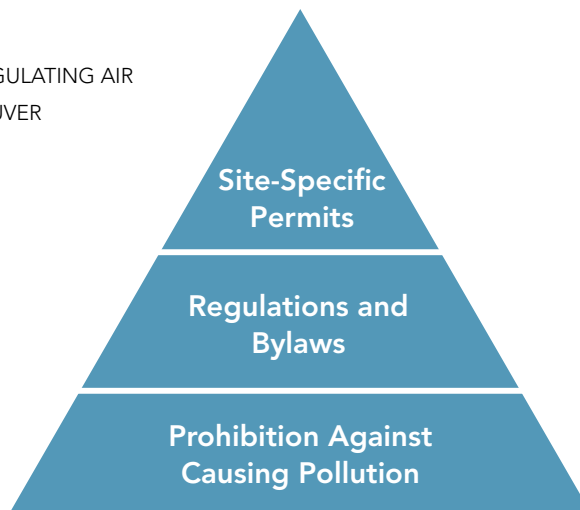
Metro Vancouver Regional District (MVRD, operating as Metro Vancouver) is responsible for managing and regulating air quality in the region under authority delegated from the provincial government in the *BC Environmental Management Act*. Metro Vancouver protects public health and the environment through a tiered approach (Figure 1) to managing the discharge of air contaminants that applies the use of site-specific permits, sectoral emission regulations, and provisions in the *Greater Vancouver Regional District (GVRD) Air Quality Management Bylaw No. 1082, 2008* (Bylaw 1082). Permits are required for activities and complex facilities with significant levels of emissions that may have the potential for high impacts on the environment and public health. Regulations apply air emissions control requirements to a group of facilities or activities that share similar characteristics. Facilities can choose to seek authorization of their emissions under an emission regulation, if they meet all the requirements, or under a permit. Bylaw 1082 prohibits any person from discharging air contaminants so as to cause pollution.

The legalization of recreational cannabis in October 2018 resulted in rapid expansion of licensed cannabis production and processing facilities in the Metro Vancouver region. In May 2019, the MVRD Board directed staff to proceed with Phase 1 consultation on proposals to regulate air emissions from cannabis production and processing operations.

During the summer and fall of 2019, Metro Vancouver consulted with a broad spectrum of stakeholders on regulatory proposals to control emissions from cannabis production and processing. A report titled “Summary of Feedback on Proposals to Regulate Emissions from Cannabis Production and Processing”, dated September 21, 2020, was presented to Metro Vancouver’s Climate Action Committee on October 16, 2020 including a framework for additional engagement. Based on the broad range of feedback received during Phase 1 consultation activities, additional engagement with key stakeholders took place from November 2020 through March 2021. The additional engagement allowed for focused discussions about the need to control volatile organic compound (VOC) emissions from cannabis production and processing, and optimal measures to do so, prior to detailed proposals for regulatory measures being developed for a second phase of consultation.

This discussion paper includes adjusted proposals for a potential emission regulation based on feedback from stakeholders received to date. An emission regulation for cannabis production and processing operations is expected to provide a streamlined mechanism to manage emissions from this sector and protect the environment and public health, while reducing odour impacts.

FIGURE 1: TIERED APPROACH TO REGULATING AIR CONTAMINANTS IN METRO VANCOUVER



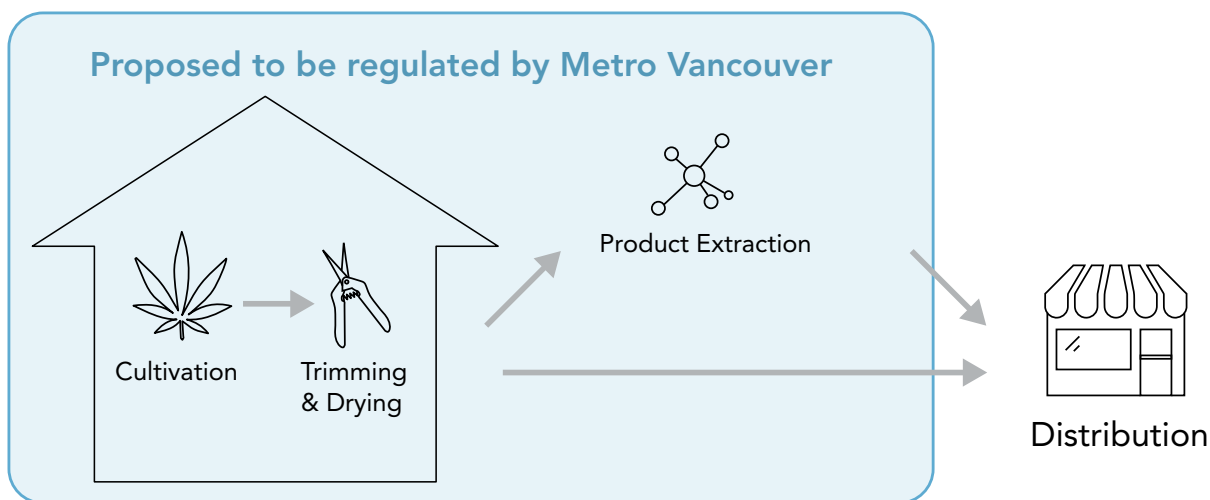
The following sections outline adjusted regulatory proposals to control air emissions from cannabis production and processing operations.

## PURPOSE

This discussion paper describes the adjusted proposals to regulate the discharge of air contaminants from the cultivation, harvesting and handling of cannabis plants and from extraction facilities. Facilities that would be subject to the potential emission regulation include operations conducting indoor cultivation, cultivation by several individuals in cooperatives, cannabis processing

operations such as drying, trimming and harvesting of cannabis plant material and cannabis oil and active ingredient extraction facilities. Outdoor cultivation, personal growing of cannabis plants under the *BC Cannabis Control and Licensing Act* and the federal *Cannabis Act*, and cultivation under the federal *Industrial Hemp Regulations* will not be covered under the proposed regulation.

FIGURE 2: SCOPE OF POTENTIAL REGULATION



This discussion paper may be of interest to:

- Businesses that produce and process cannabis, extraction facilities, as well as associations representing these parties;
- Consultants, manufacturers, and suppliers that provide services such as air emission control;
- Businesses involved in the design and construction of cannabis production, processing or extraction operations;
- Holders of a Health Canada licence to produce or process cannabis in the Metro Vancouver region;
- Metro Vancouver's member jurisdictions;
- Agricultural industry;
- Public health experts;
- Members of the public affected by emissions from cannabis production, processing or extraction operations; and
- Other interested parties affected by potential regulatory proposals related to cannabis production, processing and extraction operations or by air quality in the Metro Vancouver region.

The proposed consultation program will allow Metro Vancouver to inform interested parties and the public of the adjusted proposals for regulating emissions from facilities that produce and process cannabis, and to receive feedback. Representatives of interested parties and the public will be invited to provide feedback until November 30, 2021.

## DEFINING THE PROBLEM

The legalization of recreational use of cannabis in October 2018 led to the rapid expansion of indoor commercial cannabis production in the Metro Vancouver region and caused concerns about the potential resulting impacts to the environment and public health. In the Metro Vancouver region, a number of greenhouses formerly used for vegetable production have been retrofitted for cannabis production, yet were not designed or constructed to collect and treat air contaminants. Metro Vancouver as well as member municipalities have received complaints about odorous emissions from cannabis production operations.

Information from other jurisdictions in which cannabis is produced suggests that cannabis production has the potential to cause negative air quality impacts if the following emissions are not adequately controlled:

- Air contaminants emitted during cannabis production, processing and extraction include volatile organic compounds (VOC) that may contribute to the formation of harmful ground-level ozone and fine particulate matter through reactions with other substances and sunlight in the lower

atmosphere. Emissions most notably occur during the flowering, harvesting, drying and trimming phases, during which high levels of a group of VOC called terpenes can be produced. Terpenes are known for their strong odour and involvement in the production of ground-level ozone and fine particulate matter.

- The power production equipment needed to meet the requirements for heating, lighting and suitable growing environment for the indoor production of cannabis generates emissions of nitrogen oxides and may emit particulate matter, depending on the fuel.

A number of technologies are available to control VOC but these may not all be suitable for cannabis production operations in the Metro Vancouver region. This discussion paper focuses on regulatory proposals for managing VOC emissions from the cannabis production and processing sector through a potential emission regulation, whereas emissions from power production equipment are managed through site specific permits or other existing emission regulations.

## GUIDING PRINCIPLES

A regulation to address emissions from cannabis production operations in Metro Vancouver would aim to:

- Emphasize prevention and control of emissions through best management practices and continuous improvement;
- Set efficient and effective requirements that will protect the public and enable the operation of environmentally responsible facilities;
- Follow a 'discharger pay' principle;
- Minimize emissions of volatile organic compounds which can contribute to the formation of ground-level ozone and fine particulate matter, and lead to odour impacts;
- Address concerns expressed by members of the public about impacts from emissions of cannabis production operations, although impacts associated with odorous emissions may not be entirely eliminated; and
- Align with the management plans and strategies adopted by the Metro Vancouver Regional District Board including:
  - the Integrated Air Quality and Greenhouse Gas Management Plan,
  - the Regional Ground-Level Ozone Strategy, and
  - the Odour Management Policy Development Plan.



## WORKING WITHIN THE LEGISLATION

With the adoption of Bill C-45 (the *Cannabis Act*), recreational marijuana became legal in Canada on October 17, 2018. Federal, provincial and local governments, including Metro Vancouver and its member jurisdictions, have roles in the regulation of legal cannabis production and processing.

The federal government is responsible for establishing and maintaining the national framework for regulating the production of cannabis, which includes setting standards for health and safety, and for licensing production and processing facilities. Regulations under the *Cannabis Act* allow cannabis production in enclosed indoor facilities, in greenhouses, and outdoors, provided that security requirements can be met. The new regulations brought into force in 2018 state that if produced in a building, “the building must be equipped with a system that filters air to prevent the escape of odours”. All processing activities must be conducted indoors.

Provinces and territories are responsible for determining how cannabis is distributed and sold within their jurisdictions, and can restrict consumption and possession. The *BC Cannabis Control and Licensing Act* describes requirements and restrictions developed to support public safety, including limits on production for personal use. In addition, the provincial government amended the *BC Agricultural Land Reserve Use, Subdivision and Procedure Regulation* on July 13, 2018. The amendment clarified that the lawful production of cannabis cannot be prohibited in the Agricultural Land Reserve (ALR) if cultivation takes place in an open field, a structure with a soil base, or an existing structure or structure under construction by July 13, 2018 for the purpose of growing crops. Since cannabis production in the ALR is designated as “farm use”, the BC Farm Industry Review Board may hear complaints from persons aggrieved by odour, noise, dust or other disturbances arising from cannabis production in the ALR, under the *Farm Practices Protection (Right to Farm) Act*.

Under Section 31 of the *BC Environmental Management Act* (EMA), Metro Vancouver has delegated authority for air pollution control and air quality management within the Metro Vancouver region, including industrial and agricultural lands.

EMA states that the Metro Vancouver Board “may, by bylaw, prohibit, regulate and otherwise control and prevent the discharge of air contaminants”. EMA defines air contaminants, which are generally substances in the air that are capable of impacting health, environment, property, and in some cases, the normal conduct of business. Under *GVRD Air Quality Management Bylaw No. 1082, 2008* (Bylaw 1082), Metro Vancouver exercises its air quality regulatory authority with a system of permits that apply to individual facilities, and emission regulations that apply to types of operations and activities with similar characteristics. For example, Metro Vancouver regulates air emissions from agricultural sources within the region through permits and regulations such as the *GVRD Agricultural Boilers Emission Regulation Bylaw No. 1098, 2008*.

Bylaw 1082 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 permit. The release of air contaminants, including VOC, has the potential to cause air pollution if present in a way that substantially alters or impairs the usefulness of the environment. Bylaw 1082 prohibits any person from discharging, or allowing or causing the discharge of any air contaminant so as to cause pollution. Metro Vancouver can set emission regulations for emissions of air contaminants in the region that are more stringent compared to other parts of the province.

Metro Vancouver’s member jurisdictions are responsible for land-use zoning and business licensing, which can impose conditions on the location and conduct of cannabis production and processing to the extent allowed under provincial legislation such as the *Community Charter* and the *BC Agricultural Land Reserve Use, Subdivision and Procedure Regulation*.

# PROPOSED REGULATORY APPROACH

The objective of introducing an emission regulation for cannabis production and processing operations is to set efficient and effective requirements that will protect the public and enable the operation of environmentally responsible facilities. Facilities can choose to seek authorization of their emissions under an emission regulation, if they meet all the requirements, or under a permit.

## Proposed Requirements in an Emission Regulation

Proposed regulatory requirements to manage VOC emissions from cannabis production and processing facilities fall under five categories:

1. Emission Management Plan
2. Emission Control Requirements
3. Complaints Response Plan
4. Required Records and Reporting
5. Minimum Distance Requirements

### 1. Emission Management Plan

All facilities must prepare and implement an emission management plan that meets the following requirements:

- a. The emission management plan must include a description of all sources of VOC emissions and controls;
- b. The emission management plan must enable the facility to meet the emission control requirements in the regulation;
- c. For facilities with growing area greater than 200 m<sup>2</sup>, emission management plan must be prepared by a qualified professional (QP) and submitted to the Metro Vancouver District Director for approval;

- d. The emission management plan must specify the number of activated carbon filters, sizes, mass of activated carbon, air flow rates and replacement frequency of activated carbon. For facilities with growing area greater than 200 m<sup>2</sup>, a QP must determine these parameters;
- e. For facilities with growing area greater than 200 m<sup>2</sup>, a QP must confirm the replacement frequency and specification of activated carbon once the facility is in operation by conducting at least three Butane Activity tests (ASTM D5742), separated by at least six weeks and analyzing a minimum of three representative activated carbon filters or samples per test; and
- f. Based on relevant information, such as information included in an inspection report, the District Director may require a review of plans by a QP and/or monitoring.

### 2. Emission Control Requirements

VOC emissions must be controlled according to the following requirements:

- a. VOC emissions must be captured and treated with activated carbon filters to the maximum extent feasible at all times, based on industry best practice assessed periodically. VOC emission controls must achieve the following control efficiencies for estimated emissions:
  - i. Greater than 95% control efficiency for trim rooms and drying rooms;
  - ii. For greenhouses that use natural ventilation in growing areas and were operational before March 31, 2021, greater than 70% control efficiency for growing areas until July 1, 2031, and greater than 95% control efficiency thereafter; and
  - iii. Greater than 95% control efficiency for other enclosed areas/facilities, including extraction facilities and on-site waste management amenities.



- b. All VOC sources must be enclosed in a structure equipped with operating emission controls;
- c. Activated carbon must be replaced, at a pre-determined frequency, before a significant decline in activated carbon performance is expected. For facilities with growing area greater than 200 m<sup>2</sup>, based on data from Butane Activity tests (ASTM 5742);
- d. Activated carbon filters must be operated and maintained per manufacturer's specifications and, for facilities with growing area greater than 200 m<sup>2</sup>, according to QP guidance;
- e. All doorways in structures must be equipped with rapidly closing double-door systems that provide a barrier to the escape of air contaminants;
- f. All cannabis waste management activities, including composting and waste solvent storage, must be enclosed in structures when conducted on a property where cannabis is produced or processed; and
- g. Extraction facilities using solvent extraction must use a solvent recovery system consistent with industry best practices.
- d. The process to publicize facility contact information for complaints;
- e. Based on relevant information, such as information included in an inspection report, the District Director may require a review of a Complaints Response Plan; and
- f. If an officer detects the presence of air contaminants that are odorous beyond the property boundary, upon notification, facility operators must:
  - i. Investigate potential causes; and
  - ii. Identify and implement remedial actions to ensure compliance with the facility's Emission Management Plan and the Emission Control Requirements.

### 3. Complaints and Officer Observation Response Plan

All facilities must prepare and implement a complaints response plan that includes:

- a. Contact information of person(s) responsible for receiving, recording and responding to complaints and notifying Metro Vancouver;
- b. The process to record and investigate complaints and potential causes;
- c. The process for identifying and implementing remedial actions to ensure compliance with the facility's Emission Management Plan and the Emission Control Requirements;

### 4. Required Records and Reporting

All facilities must keep records and report information to the District Director as described below:

- a. Keep records of the mass of activated carbon used/discarded, dates of replacement of activated carbon, complaints received and remedial actions taken, changes to control works, number of plants, strains and growing area.
- b. Make records available to an officer for inspection; and
- c. Annual reporting of mass of activated carbon used and discarded, dates of replacement of activated carbon, complaints, responses, and any remedial actions taken.

### 5. Minimum Distance Requirement

New facilities must be located more than 200 metres from land zoned for residential use, hospitals, schools, daycares, playgrounds and community care facilities.

In addition to requirements under the potential regulation to control emissions from cannabis production and processing, boilers and heaters used by a facility would need to comply with the applicable regulations. For facilities with a capacity of 50 MW or less, boilers can register under the *GVRD Agricultural Boilers Emission Regulation Bylaw No. 1098, 2008* for facilities in the Agricultural Land Reserve, or under the *GVRD Boilers and Process Heaters Emission Regulation Bylaw No. 1087, 2008*, as amended, for facilities not in the Agricultural Land Reserve.

Metro Vancouver regulates emissions from reciprocating engines through permits. Facilities

using reciprocating engines as a power source, but that would otherwise meet the requirements of the potential regulation, could choose to apply for a permit authorizing emissions from the entire facility or from the reciprocating engine only.

If the facility is not able to comply with all of the emission regulation requirements, or if the facility employs unique technologies in its emission controls that are not authorized in the regulation, the facility may seek authorization for air discharges through the Metro Vancouver permitting process.

## Administration of the Emission Regulation

Metro Vancouver's regulatory system includes a system of user fees which are intended to provide recovery of the costs of developing and administering permits and regulations, following a 'discharger pay' principle. The costs associated with administering the emission regulation are intended to be covered by registration and annual fees.

The proposed registration fee of \$2,000 would cover the cost of the registration process, the review of application and an initial inspection. The annual fee for facilities operating under the potential regulation would be a composite comprising a fixed fee portion of \$250 and an additional variable air contaminant emissions fee portion calculated using the emission fee per tonne of photoreactive VOC established in the *GVRD Air Quality Management Fees Regulation Bylaw No. 1083, 2008*, as amended. This variable fee portion could be determined using estimated facility-wide controlled emissions. Calculations of estimated emissions from growing areas of the facility must be consistent with the calculation of the midpoint estimate for VOC emissions presented in Table 3 of Metro Vancouver's [Cannabis Cultivation Emissions Estimate Methodology and Sensitivity Analysis, November 13, 2019](#). Metro Vancouver would revise the growing area emission factor based on available scientific information on a regular basis. Emissions from processing areas can be estimated based on

measured concentrations or concentrations provided by Metro Vancouver, flow rates and control efficiency. Any alternate method for estimating VOC emissions proposed by a registered facility would need to be approved by Metro Vancouver's District Director under the *Environmental Management Act*.

The potential regulation would also specify supplemental increases based on inflation that would occur on an annual or other fixed schedule to reflect increases in administration costs. The fees would come into effect upon implementation of the emission regulation.

Definitions would also be included in the emission regulation to ensure a common understanding of applicable terminology.

## Providing Comments on the Potential Regulatory Initiative

Metro Vancouver is seeking input on the adjusted proposals to regulate air emissions from cannabis production and processing from stakeholders representing different perspectives, and will consider all input in the development of a potential emission regulation. The MVRD Board will receive a summary of the input received.

Metro Vancouver welcomes feedback with respect to the regulatory proposals outlined in this discussion paper. Metro Vancouver will carefully consider all feedback when considering potential proposals for managing emissions from cannabis production operations in the region.

Metro Vancouver staff and contractors will treat comments received with confidentiality; please note that comments you provide and information that identifies you as the source of those comments may be publicly available if a freedom of information (FOI) request is made under the *Freedom of Information and Protection of Privacy Act*. If you have any questions or comments regarding the consultation process, please call 604-432-6200.

Metro Vancouver invites you to provide feedback on this discussion paper by November 30, 2021 to [AQBylaw@metrovancover.org](mailto:AQBylaw@metrovancover.org). Feedback will be considered until the MVRD Board adopts an emission regulation bylaw for managing emissions from cannabis production operations.

Thank you for taking the time to consider and provide input on adjusted regulatory proposals for cannabis production operations in Metro Vancouver.

