

**TELL BC ENVIRONMENT, LANDS AND PARKS WHERE TO GO.  
YOU CAN IMPROVE THE LAND RECLAMATION COMPONENT OF THE  
COMPOST AND BIOSOLIDS RECYCLING REGULATION.**

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**ABSTRACT**

BC's proposed new Municipal Organic Matter Regulation includes a section for the safe use of composted municipal solid waste and biosolids. Advice provided by those who attend the reclamation symposium will be used to improve the proposed regulation. High-quality, pathogen-free composts and biosolids are considered to be equivalent to standard fertilisers and soil amendments and are exempted from this regulation. The regulation contains management and monitoring requirements for lower quality municipal organic matter to ensure that it is used beneficially, and not merely disposed of with possible negative impacts on the environment.

**INTRODUCTION**

This paper contains sections of BC Environment, Lands and Park's proposed new Municipal Organic Matter Recycling Regulation. At the time of this presentation the regulation is in draft form. Advice from stakeholders will be used by BC Environment to improve and finalise this regulation. If you are reading this paper after the 20th Annual Mine Reclamation Symposium and wish to comment on the following proposals, please contact BC Environment at the above address.

**COMPONENTS OF THE REGULATION**

Definitions

The draft regulation defines land reclamation as follows.

Land reclamation means the restoration to land of productivity which has been impaired through processes such as erosion, mining or land clearing, or other activities conducted by people.

#### Exemptions from the regulation

The following types of compost or topsoil derived in part from compost or biosolids are exempt from the regulation and can be used for the purposes of reclamation without a permit issued under the Waste Management Act:

##### Exemption —Type Y compost

Type Y is compost made from yard trimmings alone. Yard trimmings means vegetative matter resulting from gardening, horticulture, landscaping or land clearing operations, including materials such as tree and shrub trimmings, plant remains, grass clippings, trees and stumps, but does not include demolition waste, contaminated organic matter or significant amounts of animal feces.

##### Exemption -- Type A compost

Type A is compost is made from source-separated municipal solid waste, yard trimmings, and/or biosolids and is stabilised. If biosolids are used pathogens have been destroyed and vector attraction and odour has been suitably reduced. Foreign matter constitutes less than or equal to 1% by weight and the trace element concentration are the best achievable as listed in the regulation.

##### Exemption —Topsoil

Topsoil that is derived from municipal solid waste or biosolids and is applied to land must only be manufactured from the following classes of product.

Type Y compost

Type A compost

Retail-type compost or biosolids with pathogens destroyed

Agricultural-type biosolids with pathogens destroyed

Topsoil derived from composted municipal solid waste or biosolids must not exceed the trace element concentrations listed in Table 1.

Also for topsoil, the following criteria must be met:

- (i) TKN < 0.6%
- (ii) the C/N ratio must > 15:1
- (iii) organic matter content must not exceed 10% dry weight

### **REGULATORY REQUIREMENTS FOR NON-EXEMPTED PRODUCTS**

Retail-type compost and biosolids and Agricultural-type biosolids are not exempted from the requirements of this regulation.

Retail-type biosolids and Agricultural-type biosolids must be managed according to the following requirements:

- a) In areas of more than 66 centimetres of average annual precipitation, retail-type compost biosolids and agricultural-type biosolids may only be applied once in excess of the agronomic rate for nitrogen for local vegetation.
- b) In areas of less than 66 centimetres of average annual precipitation, retail-type biosolids and agricultural-type biosolids may only be applied twice in excess of the agronomic rate for nitrogen for local vegetation with at least five years between applications.

For the purpose of land reclamation the following criteria must be met.

- a) A professional agrologist or forester registered in B.C. must determine the application rate for purposes of reclamation for retail-type compost and biosolids and agricultural-type biosolids.

- b) No application of retail-type biosolids and agricultural-type biosolids for purposes of land reclamation shall exceed 100 tonnes per hectare in one year without a permit or approval under the Act.
- c) A certified land application specialist is required to land apply retail-grade biosolids and agricultural-type biosolids for purposes of land reclamation.
- d) Retail-type biosolids and agricultural-type biosolids must not be applied when the ground is saturated, snow covered/ frozen, or during periods of rain.
- e) For reclamation sites of up to 40 hectares at least one down gradient ground water well must be drilled before land application begins.
- f) For each additional 20 hectares at least one down gradient ground water well must be drilled before land application begins.
- g) Ground water wells used to monitor NO<sub>3</sub>-N must be closer to the reclamation site than ground water wells used as a source of potable water.
- h) Each well must be sampled for NO<sub>3</sub>-N at the following frequency:
  - i. At least three times during a six month period prior to application,
  - ii. Monthly for a twelve month period after application has begun.
- i) The use of retail-type compost or biosolids and agricultural-type biosolids for purposes of land reclamation or fertilisation must not continue if at any time NO<sub>3</sub>-N levels under (ii) above exceed those determined under (i) above.

## **BUFFER ZONES**

Retail-type and agricultural-type compost and biosolids must be applied in compliance with set buffer zones.

### Examples of surface water buffer zones

The buffer zones set out in Table 2 apply to all sites where retail-type and agricultural-type biosolids with less than 15% solids are applied.

There are three buffer zone distances (x/y/z) established for each set of conditions:

- i. Agricultural-type biosolids that do not conform with Class A pathogen reduction must be applied to land in compliance with the buffer zone distance x.
- ii. Agricultural-type biosolids that conform with Class A for pathogen reduction must be applied to land in compliance with the buffer zone distance y.
- iii. Retail-type biosolids must be applied to land in compliance with the buffer zone distance z.

Municipal Solid Waste compost and biosolids that do not meet the quality criteria for retail-type and agricultural-grade products or is not managed according to the requirements of this regulation must only be used for land reclamation through an authorisation issued under the Act.

## **CONCLUSION**

The BC Ministry of Environment, Lands and Parks, is actively encouraging the use of high-quality biosolids and compost on land. Application limits to land to reclaim damaged topsoil should be based on the nutrient and organic matter requirements for a successful self-sustaining vegetative cover.

**Table 1: Topsoil trace element standards**

Trace Element	Quantity (mg/kg)
Arsenic	14.0
Cadmium	1.6
Chromium	120.0
Cobalt	20.0
Copper	100.0
Mercury	0.5
Molybdenum	4.0
Nickel	32.0
Lead	60.0
Selenium	1.6
Zinc	220.0

**Table 2: Required buffer width in metres**

Application Method	Ground Surface Cover	Slope Effect Suitability Rating	Large, continually, flowing river			Lake or small tributary			Ditch or seasonal tributary		
			x	y	z	x	y	z	x	y	z
Surface	Bare Soil (Agricultural-type biosolids with class B pathogen levels must be injected or incorporated)	P/F G/E	-	40	20	-	40	20	-	10	5
			-	20	10	-	20	10	-	10	5
Surface	Permanent vegetative cover	P/F G/E	-	20	10	-	20	10	-	10	5
			-	15	5	-	15	5	-	5	2
Injected or incorporated	Bare soil	P/F G/E	20	15	5	30	15	10	10	5	2
			15	10	2	20	10	5	10	5	2