

**PROVINCE OF BRITISH COLUMBIA**  
**REGULATION OF THE MINISTER OF ENVIRONMENT AND**  
**MINISTER RESPONSIBLE FOR WATER STEWARDSHIP AND**  
**SUSTAINABLE COMMUNITIES**

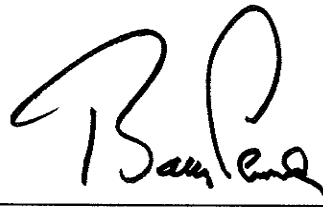
*Environmental Management Act*

M 169

I, Barry Penner, Minister of Environment and Minister Responsible for Water Stewardship and Sustainable Communities, order that, effective September 1, 2007,

- (a) the attached Code of Practice for Soil Amendments, except section 9 (6), and section 9 (7) insofar as it relates to section 9 (6), is made, and
- (b) the Table in Schedule 2 of the Waste Discharge Regulation, B.C. Reg 320/2004, is amended by adding "Code of Practice for Soil Amendments" to Column 2 of item 23 opposite "Soil Enhancement Using Wastes" in Column 1.

JUNE 18, 2007



Date

Minister of Environment and Minister  
Responsible for Water Stewardship and  
Sustainable Communities

*(This part is for administrative purposes only and is not part of the Order.)*

**Authority under which Order is made:**

Act and section: *Environmental Management Act*, S.B.C. 2003, c. 53, sections 22 and 139

Waste Discharge Regulation, B.C. Reg. 320/2004, section 11; oic 723/2004

R 370/2007/14

# CODE OF PRACTICE FOR SOIL AMENDMENTS

## PART 1 – DEFINITIONS

### Definitions

1 In this regulation:

“**application site**” means a parcel of land, or 2 or more contiguous parcels of land, to which soil amendments are, or are intended to be, applied under a land application plan;

“**average precipitation**”, for an area, means the most recently available average monthly precipitation figures published for the area by Environment Canada;

“**discharger**”, in relation to the application of soil amendments to an application site, means,

(a) if the owner of the facility that produced the soil amendments applies the soil amendments under contract with the registered owner of the application site, the facility owner, and

(b) otherwise, the registered owner of the application site;

“**domestic sewage**” has the same meaning as in the Municipal Sewage Regulation;

“**foreign matter**” means a contaminant that does not readily decompose, including, without limiting this, demolition waste, metal, glass, plastic, rubber, and leather, but does not include silt, sand, rocks, stones, or gravel, in pieces smaller than 2.5 centimetres in diameter, and other similar-sized minerals naturally occurring in soil;

“**land application plan**” means a plan that complies with section 8;

“**MPN**” means an estimate of the most probable number of living organisms in a sample, determined using the applicable method described in the *British Columbia Environmental Laboratory Manual: 2005 – for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples*, as amended from time to time (Victoria, 2005), published by the minister;

“**qualified professional**”, in relation to a duty or function under this code, means an individual who

(a) is registered in British Columbia with a professional organization, is acting under that organization’s code of ethics, and is subject to disciplinary action by that organization, and

(b) through suitable education, experience, accreditation and knowledge, may reasonably be relied on to provide advice within his or her area of expertise, which area of expertise is applicable to the duty or function;

“**soil amendment**” means

(a) fly ash derived from the burning of wood, other than wood that has been immersed in marine waters,

(b) residuals from the primary or secondary treatment of liquid waste produced after 1995 from a pulp or paper mill, including domestic sewage if it is mixed with those residual solids,

- (c) lime mud derived from pulp or paper mill processes or waste lime,
- (d) residuals from the treatment of water for domestic use or use in industrial processes, or
- (e) industrial residue of wood that has not been treated with glue, paint, a preservative or another substance harmful to humans, animals or plants;

“storage facility” means a storage facility described in section 3;

“storage site” means a site described in section 4;

“vector” means a carrier organism that is capable of transmitting a pathogen from one facility, waste source, product or organism to another facility, waste source, product or organism.

## PART 2 – SOIL AMENDMENTS STORAGE

### Storage methods

- 2 (1) If soil amendments described in paragraph (a), (b) or (d) of the definition in section 1 are stored before being applied to land under a land application plan, they must be stored
  - (a) in a storage facility in accordance with the requirements of section 3, or
  - (b) at a storage site in accordance with the requirements of section 4.
- (2) Soil amendments may be stored on a farm only if all of the soil amendments are scheduled to be used on that farm under a land application plan.

### Storage facility

- 3 (1) Except for the period during which soil amendments may be stored at a storage site in accordance with section 4, soil amendments must be stored in a structure, including, without limiting this, a reservoir, lagoon, cistern, gutter, tank or bermed area, that
  - (a) is located at least 15 metres from any watercourse and 30 metres from any source of water used for domestic purposes, and
  - (b) has sufficient capacity to prevent, and is maintained in a manner that prevents, the escape of the soil amendments.
- (2) For the purposes of subsection (1), “structure” does not include a vehicle or any mobile equipment used for the transportation of soil amendments.

### Storage site

- 4 (1) Soil amendments may be stored temporarily at a storage site in order to be ready to be drawn upon for use as a fertilizer or soil conditioner, if the storage site is maintained in a manner that prevents the escape of the soil amendments.
- (2) Soil amendments may be stored under subsection (1) only for the following periods:
  - (a) if the storage site is at least 30 metres from any watercourse or any source of water used for domestic purposes, not more than 9 months, and
  - (b) otherwise, not more than 2 weeks.

**Rainy season storage using a storage site**

- 5 (1) This section applies
- (a) on Vancouver Island,
  - (b) in the Greater Vancouver Regional District,
  - (c) in the Fraser Valley Regional District, and
  - (d) in any other area of British Columbia for which the sum of the average precipitation for the months October to March inclusive exceeds 600 mm (24 inches).
- (2) Soil amendments described in paragraphs (a), (b) and (d) of the definition in section 1 that are stored at a storage site must be covered from October 1 to March 31 so that the rain is kept out.

**PART 3 – APPLICATION OF SOIL AMENDMENTS TO LAND**

**Application of soil amendments**

- 6 (1) Soil amendments must not be applied to an application site if the soil amendments contain
- (a) more than 1% foreign matter by dry weight,
  - (b) any sharp foreign matter, including glass or metal shards, in a size or shape that could cause injury,
  - (c) a substance set out in Column 1 of the table below in a concentration, expressed in µg/g of dry weight, exceeding the concentration set out opposite in Column 2.

Column 1 Substance	Column 2 Concentration (µg/g dry weight)
arsenic	75
cadmium	20
chromium	1 060
cobalt	150
copper	2 200
lead	500
mercury	5
molybdenum	20
nickel	180
selenium	14
zinc	1 850

- (2) Soil amendments must not be applied to an application site if the application is likely to cause the site to become a contaminated site.

- (3) Soil amendments must not be applied to an application site if the application site is a contaminated site and the application is likely to exacerbate the contamination of the site.
- (4) Soil amendments must be applied to an application site in a manner that prevents leachate or runoff escaping from the application site.

**If soil amendments contain domestic sewage**

- 7 (1) Soil amendments that are described in paragraph (b) of the definition in section 1 and include domestic sewage must not be applied to land unless the groundwater table at the time of application is at least 1 metre below the surface of the land.
- (2) Soil amendments referred to in subsection (1) must not be applied within
  - (a) 30 metres from a drinking water source, irrigation well, lake, river, stream, dwelling or boundary with land zoned for residential or recreation uses,
  - (b) 20 metres from a major public road, and
  - (c) 10 metres from a minor public road, other than a logging road.
- (3) If soil amendments referred to in subsection (1) having a fecal coliform density greater than or equal to 1 000 MPN per gram by dry weight of total solids are applied to an application site,
  - (a) the land owner must not allow planting on the application site of food crops of which only the parts growing above ground are harvested for human consumption for at least 18 months after the application,
  - (b) the land owner must not allow planting on the application site of food crops of which parts growing below ground are harvested for human consumption for at least 38 months after the application, and
  - (c) the discharger must ensure that a sign, at least one m<sup>2</sup> in size and legible to a person approaching the application site at each point of access, is posted for 38 months after the application of the soil amendments.
- (4) A sign required under subsection (3) (c) must set out all the following:
  - (a) a description of the application site;
  - (b) that residuals from the primary or secondary treatment of pulp or paper mill liquid waste with a fecal coliform density greater than or equal to 1 000 MPN per gram of total solids dry weight basis have been applied to the site and the date of that application;
  - (c) that the public should avoid
    - (i) entering the application site for 38 months after the application,
    - (ii) ingesting plant material grown on the application site within 18 months after the application if the part of the plant ingested grows above the surface of the land, and
    - (iii) ingesting plant material grown on the application site within 38 months after the application if the part of the plant ingested grows below the surface of the land;
  - (e) that domestic animals should not be permitted to graze on the application site for 60 days after the application;

- (f) the name and telephone number of a person who may be contacted for additional information.

**Requirement for a land application plan**

- 8
- (1) If more than 5 m<sup>3</sup> of soil amendments will be applied to an application site in a year, before applying the soil amendments the discharger must have a plan prepared in accordance with this section.
  - (2) A plan required under subsection (1) must
    - (a) be prepared and signed by a qualified professional, and
    - (b) provide all the following information:
      - (i) the full name and address of the facility where the soil amendments are produced;
      - (ii) the name, address and telephone number of an individual who is located at or near the application site and is the local contact for the discharger;
      - (iii) the full name and address of the qualified professional preparing the plan;
      - (iv) the name of the registered owner of the application site and the written authorization of that registered owner, or the agent of that registered owner, for that application of the soil amendments;
      - (v) the street address and legal description of the application site;
      - (vi) the latitude and longitude, and a description of the boundaries, of the application site;
      - (vii) a map or plan showing the location of the application site;
      - (viii) the intended dates for each application of soil amendments to the application site in the year;
      - (ix) conditions, specific to the application site, that may adversely impact the effective application or storage of the soil amendments or the beneficial use of the soil amendments, including, without limiting this, the gradient, drainage issues and type of groundcover;
      - (x) a physical description of the constituents, including foreign matter, of the soil amendments;
      - (xi) the street address and legal description of each storage facility and storage site where soil amendments intended to be applied to the application site will be stored;
      - (xii) a map or plan showing the location of those storage facilities and storage sites.
  - (3) A plan required under subsection (1) must provide
    - (a) the following information in relation to the soil amendments to be applied:
      - (i) moisture content expressed as a percentage of total weight;
      - (ii) the concentration of each substance set out in the table in section 6 expressed in µg/g of dry weight;
      - (iii) Total Kjeldahl Nitrogen (TKN) expressed in µg/g of dry weight;

- (iv) ammonia plus ammonium and nitrate nitrogen expressed in  $\mu\text{g/g}$  of dry weight;
  - (v) plant-available phosphorus and potassium expressed in  $\mu\text{g/g}$  of dry weight;
  - (vi) if the soil amendments are those described in paragraph (b) of the definition in section 1 and include domestic sewage, the fecal coliform density expressed as MPN per gram by dry weight of total solids;
  - (vii) pH and electrical conductivity;
  - (viii) the application rate for the year, in dry tonnes per hectare, required to obtain the necessary fertilizer nutrient levels or soil conditioner levels to establish or sustain the intended crops or other vegetation on the land and minimize the potential for adverse environmental impacts, and
- (b) the following information about the soil at the application site:
- (i) a calculation of soil conditioner or crop nutrient requirements;
  - (ii) the pH and electrical conductivity before the first application of soil amendments and the projected pH and electrical conductivity before each subsequent application of soil amendments;
  - (iii) the concentration of each substance set out in the table in section 6, expressed in  $\mu\text{g/g}$  of dry weight, before the first application of the soil amendments and the projected concentrations, expressed in  $\mu\text{g/g}$  of dry weight, of each of those substances before each subsequent application of soil amendments.
- (4) A plan required under subsection (1) must set out the following management methods or processes:
- (a) management methods or processes to reduce or prevent the transmission of pathogens by vectors;
  - (b) the management methods that will be implemented at the storage facilities and storage sites at which the soil conditioners are stored to prevent the formation of leachate;
  - (c) if the fecal coliform density reported under subsection (3) (a) (i) is greater than or equal to 1 000 MPN per gram by dry weight of total solids, the management processes that will be implemented to prevent the spread of disease;
  - (d) the management methods or processes that will be implemented to address specific site conditions identified under subsection (2) (b) (ix);
  - (e) if the proposed application rates exceed the annual soil conditioning or crop nutrient requirements,
    - (i) a process for monitoring the composition of the soil on land to which soil amendments have been applied, and
    - (ii) a statement of the potential changes in the soil and vegetation quality the proposed application rates will cause.

## Notice of application of soil amendments

9 (1) In this section:

“**drinking water source**” has the same meaning as in section 1 of the *Drinking Water Protection Act*;

“**medical health officer**”, in relation to land, means the medical health officer appointed under the *Health Act* for the area in which the land is located;

“**watershed**” means a watershed from which water flows into a drinking water source.

- (2) At least 30 days before a proposed application to land of more than 5 m<sup>3</sup> of soil amendments, the discharger must give notice
- (a) to a director,
  - (b) if the land has an agricultural land use as defined in the Contaminated Sites Regulation, or is in a watershed, to the medical health officer, and
  - (c) if the land is within an agricultural land reserve as defined in the *Agricultural Land Commission Act*, to the Provincial Agricultural Land Commission.
- (3) Notice under subsection (2) must be given in the form set out in Schedule 1 and contain all the information required by that form.
- (4) If within 30 days of receiving notice under subsection (2) (a) the director requests from the discharger additional information, the discharger
- (a) must provide that additional information to the director and the medical health officer, and
  - (b) must not apply the soil amendments to the application site for at least 30 days after providing that additional information.
- (5) If the information provided to the director under subsection (2) (a) or (4) satisfies the director that site-specific standards or management practices respecting the application of the soil amendments to the application site are necessary to protect human health or the environment, within 30 days after the later of receiving notice under subsection (2) (a) and receiving information under subsection (4), the director may require the discharger to comply with site-specific standards or management practices specified by the director.
- (6) Within 30 days after receiving a notice under subsection (2) (b) or additional information under subsection (4) (a), if applicable, the medical health officer may provide written directions to the discharger
- (a) prohibiting the application of the soil amendments to the application site, or
  - (b) imposing conditions on the application of the soil amendments to the application site.
- (7) The time limits in subsections (5) and (6) may be amended by agreement between the director and the discharger or the director, the discharger and the medical health officer, as applicable.



### **Certification of qualified professional**

- 10** After each application of soil amendments to an application site, the discharger must obtain the certification of a qualified professional that the application was carried out in accordance with the land application plan.

### **Sampling and analysis**

- 11** (1) A discharger must ensure that sampling and analysis of soil amendments described in paragraphs (a) and (b) of the definition in section 1 are carried out by a qualified professional when the earlier of the following occurs:
- (a) 1 000 tonnes dry weight of soil amendments are produced at the facility, or
  - (b) 1 year has passed since the facility started to produce the soil amendments or 1 year has passed since the last sampling and analysis, as applicable.
- (2) A director may require more frequent sampling and analysis than is required under subsection (1) if the director considers this necessary or advisable in the circumstances.
- (3) An analysis under this section must be made in accordance with the *British Columbia Environmental Laboratory Manual: 2005 — for the Analysis of Water, Wastewater, Sediment, Biological Materials and Discrete Ambient Air Samples*, as amended from time to time (Victoria, 2005), published by the minister, or by suitable alternative procedures authorized by a director.

### **Record keeping**

- 12** (1) A discharger must
- (a) retain the results of the sampling and analysis required under section 11 for 36 months after production of the soil amendments,
  - (b) make those results available for inspection by an officer, and
  - (c) on request, provide a copy of those results to a director or an official under the *Agricultural Land Commission Act*.
- (2) A discharger must
- (a) retain a land application plan, and each certification obtained under section 10 in relation to the application plan, for 36 months after the application of soil amendments under it,
  - (b) make the land application plan and certifications available for inspection by an officer, and
  - (c) on request, provide a copy of the plan and certifications to a director or an official under the *Agricultural Land Commission Act*.

**SCHEDULE 1**

**NOTIFICATION OF APPLICATION OF SOIL AMENDMENTS TO LAND**

*[section 9 (2)]*

- (a) full legal name and address of the discharger (or if discharger is the land owner, name and address of facility)  
.....  
.....
- (b) name of the local contact and local address for the discharger  
.....  
.....
- (c) street address and legal description of the application site  
.....  
.....
- (d) registered owner of the application site  
.....  
.....
- (e) name of the qualified professional who prepared the land application plan  
.....
- (f) application site is
  - (i) in the Agricultural Land Reserve (ALR)? Yes ..... No .....
  - (ii) in a watershed of a drinking water source under the Drinking Water Protection Regulation, B.C. Reg. 200/2003? Yes ..... No .....
  - (iii) Agricultural land? Yes ..... No .....
- (g) If ALR or agricultural land, will it be used
  - (i) to grow edible crops of which only the parts growing above ground are harvested?  
Yes ..... No .....
  - (ii) to grow edible crops of which the parts growing below ground are harvested?  
Yes ..... No .....
  - (iii) for tree crops? Yes ..... No .....
  - (iv) for livestock grazing? Yes ..... No .....
  - (v) for forage crops? Yes ..... No .....
- (h) any previous waste management permit number for applying soil amendments to the same application site, if known  
.....
- (i) number of years that soil amendments have been applied to the application site  
.....
- (j) description of the soil amendment to be applied (sample analysis and amount)  
.....

(k) intended dates for each application to the application site in the year to which the land application plan relates:

.....

(l) application rate

.....

(m) the concentration in the receiving soil of each substance set out in the table in section 6

.....

.....

(n) attached map and/or plan identifying the bounds of the application site.

(o) attached written authorization of the registered owner or lessee of the application site for the application of the soil amendments.

I certify that the information provided in this form is correct and complete.

\_\_\_\_\_  
Print name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Telephone number

\_\_\_\_\_  
Date