

## DEPARTMENT OF ENVIRONMENT AND LOCAL GOVERNMENT

### Guidelines for the Site Selection, Operation and Approval of Composting Facilities in New Brunswick

#### Rationale

For decades, environmental regulators and industrial sectors have been challenged by issues and concerns related to the management of organic wastes. Large volumes of nutrient containing ashes, sludges, manures, fish and animal wastes and bio-solids have been buried or disposed of in landfills.

Today, these materials are recognized for their nutrient value and are seen as valuable feedstocks for the production of compost and manufactured soils. This sector is removing thousands of tonnes of former wastes from the environment by incorporating them into the production of value-added products.

The use of compost and manufactured topsoil can rejuvenate agricultural soils, increase crop yield and reduce reliance on chemical fertilizer. The use of manufactured topsoil reduces the need to extract topsoil from prime agricultural land and from flood plains, which in turn prevents unwanted erosion and sedimentation of watercourses. The future of the composting industry and its positive environmental benefits make composting an integral part of the drive toward environmental sustainability.

#### Objective

The purpose of this document is to clarify when an approval to operate under the *Water Quality Regulation – Clean Environment Act* is required for a Composting Facility in New Brunswick, provide siting requirements necessary to minimize the potential environmental impacts associated with its operation and give the information required by the Department of Environment and Local Government (Department) in order to issue an Approval to Operate.

## Definitions

In this guideline:

“Abattoir” means a slaughterhouse and any place where cattle, sheep, swine, poultry or other animals are killed for use as food.

“Abattoir Waste and Carcasses” means any remains (including offal) from an animal or rejected carcasses generated in the operation of an abattoir or on-farm.

“Abattoir Waste & Carcass Disposal Guidelines” means the New Brunswick Abattoir Waste and Carcass Disposal Guidelines, June 2014. This document was developed and approved by the members of the Industry-Government committee on abattoir waste disposal established in 2009. Government was represented by the Department of Health, the Department of Environment and Local Government, and the Department of Agriculture, Aquaculture and Fisheries.

“Biosolids” means stabilized sewage sludge with a solids content greater than 15% resulting from a wastewater treatment process or septage treatment process. The material has been sufficiently treated to reduce pathogen densities and vector attraction to allow the sludge to be composted.

“Compost” means a product consisting primarily of decayed organic matter that is predominantly used for fertilizing and conditioning land. The compost is produced through the controlled biological oxidation and decomposition of organic matter.

“Compost Facility” means a facility that is engaged in the controlled biological decomposition of organic matter in the quantities and composition described under Class 11 to 13, to produce compost. This does not include back yard composting or on-farm composting as defined in this guideline or Minor Composting Facility as defined in the Abattoir Waste & Carcass Disposal Guidelines.

“Professional Engineer (P.Eng.)” means a person with appropriate qualifications as per the requirements of the Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB) and the NB Engineering and Geoscience Professions Act.

“Class 11 Compost Facility” means a composting facility processing domestic solid waste or domestic wastewater biosolids.

“Class 12 Compost Facility” means a composting facility processing organic matter other than domestic solid waste or domestic wastewater biosolids, producing quantities of 3000 cubic metres (m<sup>3</sup>) or more of finished product per year.

“Class 13 Compost Facility” means a composting facility processing organic matter, excluding municipal solid waste, human biosolids, and Abattoir Waste and Carcasses

and producing less than 3000 cubic metres (m<sup>3</sup>) of finished product per year. (Typically, Class 13 facilities are exempt from the requirements to retain a Professional Engineer and from installing monitoring wells).

“Compost Facility Owner” means the holder of an Approval to operate a compost facility.

“Organic Matter” means material derived from plant or animal origin. The material may be at different stages of decomposition. Organic matter may include soil and other ingredients if they are shown to be beneficial to the compost process.

## **Applicability**

Although any Compost Facility could require an approval to operate if it is causing adverse effects on the environment, an approval to operate is generally not required for these situations:

- **Back Yard Composting** involving the composting of food waste or yard waste, or both, at a site where (a) the food waste or yard waste is generated by the residents of a residential dwelling unit, and (b) the annual production of compost does not exceed 15 cubic metres (m<sup>3</sup>) per year ;
- **On-farm composting** involving the composting of animal manure in a balanced recipe with wood or crop residue as long as annual production does not exceed 1,500 cubic metres (m<sup>3</sup>) annually. The facility must have enough agricultural land base to accommodate the nutrient supply of the finished compost over a two-year period. Agricultural producers may sell compost at the farm gate;
- Compost facilities composting Abattoir Waste and Carcasses that is a **Minor Composting Facility** as defined in the Abattoir Waste & Carcass Disposal Guidelines. But those facilities should be operated in accordance with the Abattoir Waste & Carcass Disposal Guidelines.

An approval to operate is to be obtained from the Department for any other Compost Facility operating in New Brunswick.

These guidelines apply to new composting facilities. Existing facilities will not be required to be upgraded to meet these guidelines except if there are some significant modifications to the facility. Some requirements from these guidelines may be required for existing facilities, on a case-by-case basis, if it is determined that the environment is impacted by those facilities.

## Site Selection

A number of criteria have been established to assist with locating compost facilities, considering typical environmental and land use requirements in New Brunswick.

### **Separation Distances**

Separation distances between composting facilities and adjacent land users are necessary in order to minimize potential conflicts between non-compatible land uses, to minimize odour-related problems and to ensure the integrity of groundwater systems. The setback distances apply to Class 11, 12 and 13 facilities. Setback distances may be adjusted, based on site-specific conditions and based on a rationale acceptable to the regulator. Deviations from the guidelines will be considered by the Department of Environment and Local government based on the type of material to be composted, specific composting site conditions, operational procedures, etc. The applicant may be required to submit additional information in support of any request to deviate from the guidelines.

**Table 1: Setback distances from receptors**

<b>Receptor</b>	<b>Class 11/12 (metres)</b>	<b>Class 13 (metres)</b>
Water supply wells	300	150
Residences	300	300
Commercial, Industrial or Institutional buildings and sensitive areas used as parks, campgrounds, tourist attractions, etc	300	150
Watercourses (from the bank or the ordinary high water mark)	150	100
Wetlands	100	30
Right-of-way boundary of public highways	50	30
International/Provincial Borders	500	500
Any other adjacent properties	50	30
Flood Plains	60	30

For compost facilities composting Abattoir Waste and Carcasses, if there is any disparity between this guideline and the Abattoir Waste & Carcass Disposal Guidelines, the most stringent setback applies.

Additionally, a composting facility shall not be located in an area subject to flooding, within a protected area as designated by Regulation 2001-83 of the *Clean Water Act* for drinking water supply watersheds or within a protected area as designated by Regulation 2000-47 of the *Clean Water Act* for drinking water supply wellfields.

### ***Other Site Selection Considerations***

Other factors which shall be considered during site selection include:

- Being within compatible land uses,
- Providing sufficient overburden to be 1 m above bedrock and the seasonal high ground water table,
- Located on ground that is not excessively sloped to prevent erosion but sufficiently sloped to promote proper surface drainage,
- Providing an all weather access road,
- Providing controlled access to the site, and
- Providing a treed buffer between the site and receptors.

## **Application Requirements**

### ***Application form***

The proponent is to submit a completed application form (copy attached) with all supporting documentation to the Department of the Environment and Local Government Authorization Branch four weeks prior to requiring approval for the Site.

Applications submitted with insufficient information may encounter processing delays. Site approval is based on an assessment of all components of the application.

### ***Compliance with other by-laws, acts or regulations***

The issuance of an approval to operate does not relieve the Approval Holder from compliance with other by-laws, federal or provincial acts or regulations, or any guidelines issued pursuant to regulations.

## **Supporting Documentation**

The Design of Class 11 and 12 composting facilities must involve a Professional Engineer: All design documentation must be signed and sealed by a member of the New Brunswick Association of Professional Engineers and Geoscientists. Although it is not required for Class 13 composting facilities, proponents may need to get professional advice for some of the design features.

### ***Scaled Drawing***

Every composting facility shall submit a scaled drawing depicting the layout of the facility on the property. The scaled drawing for all Class 11 and 12 facilities is to be approved and stamped by a Professional Engineer. The drawing shall include:

- the location of all pads/areas (receiving, composting, curing, etc.)
- surface water runoff management features such as ditches, sedimentation ponds and effluent treatment facilities
- the location of monitoring wells (Class 11 and 12 only)
- the distance to each of the receptors identified in this document under Siting Standards

- surface water monitoring locations (if applicable)
- surface slope direction
- petroleum storage tanks
- the treed buffer zone (if applicable)
- the property lines
- the PID numbers of the facility and adjacent properties
- the access road
- the access gates
- the weigh scale (if any)
- the groundwater flow direction (class 11 and 12 only)
- the buildings footprints (if any)
- the North Arrow
- prevailing wind direction

### ***Site Operations Plan***

Every composting facility requires a written Site Operations Plan. The plan shall include:

- Composting Methods, technology used and equipment requirements
- A description of the types and volumes of materials to be composted on an annual basis, source of raw materials and bulking agents, it should be noted that feedstock characterization is required for all Class 11 and 12 facilities that accept materials from an industrial/commercial process
- A description of the Proponent's knowledge and experience on composting including any certification or training received\*
- Intended end use of the compost

\*Operators are highly encouraged to have an operator who is trained to operate a composting facility. Such training is available through organizations such as the Compost Council of Canada.

### ***Contingency Plan***

Every composting facility must have a Contingency Plan prior to commencing operations. The contingency plan presents the planned responses to unforeseen events, such as fires, floods, spills, contamination of surface or groundwater, odour emissions, etc. In cases where monitoring results or laboratory analysis show that the facility is not in compliance with the terms of the Approval, such results are to be reported by the owner or his/her representative to the nearest Department's Regional Office, within 48 hours of being made aware of the non-compliance.

A spill or release of a contaminant into the environment is to be reported immediately to the nearest Department's Regional Office.

In the event of a spill or release of contaminant to the environment, appropriate remedial measures are to be implemented, as per the contingency plan.

### ***Composting Pads Design***

All Composting Facilities are required to submit the Composting Pads Design. The Composting Pads Design for Class 11 and 12 Compost Facilities should be prepared by a Professional Engineer.

For the purpose of this document, composting pad refers to all surfaces underlying outdoor areas used for material handling, processing or storage operations and includes feedstock receiving area pads, the composting area pad and the curing area pad.

The Composting Pads Design shall include the maximum volumes that each pad can accept which shall include the calculation details on how they were determined. It should be noted that material maximum height will depend on composting methods and equipment used (i.e. the size of the windrows and spacing with the turned-windrow composting method will be largely determined by the size of the windrow turner or loader size).

In order to ensure that the groundwater and surface water are protected, any new composting facility is required to have composting pads with the following features:

- with surfaces having a permeability not greater than  $1 \times 10^{-7}$  cm/s
- have a wear surface that provides a year-round working surface capable of withstanding regular heavy equipment use and material movement.
- designed to provide adequate containment and drainage to prevent ponding of leachate or runoff from leaving the site while preventing surface water from outside the pad in coming in contact with the materials.

Asphalt or concrete pavement pads are acceptable. In the absence of such pads, other methods or systems to protect the groundwater and surface water by meeting or exceeding the above-mentioned features should be recommended by a Professional Engineer and approved by the Department.

If a composting facility is to be located in areas where the seasonal high groundwater table is less than one meter from the ground or where the minimal depth to bedrock is less than one metre, further hydrogeological studies will have to be done and additional environmental protection measures will have to be incorporated into the design recommended by a Professional Engineer.

### ***Test Pit Results***

Every composting facility is required to submit test pit results showing that the proposed site provides sufficient overburden to be 1 m above bedrock and the seasonal high ground water table.

### ***Groundwater Monitoring Plan (Class 11 and 12 only)***

A Groundwater monitoring plan is required at all Class 11 and 12 facilities. The number and locations of groundwater monitoring stations to be utilized to ensure groundwater protection is to be recommended by the Professional Engineer but a minimum of three wells is required. The wells have to be properly constructed and tested prior to operating the site, in order to establish a baseline of groundwater quality. Water levels have to be recorded when samples are being taken. Also, if there are some potable wells within 500 meters to the site, with the well owner consent, those surrounding potable wells should also be sampled prior to operating the site and the results included in the baseline of groundwater quality. Refusals by the well owners should be documented.

### ***Leachate and Surface Water Management Plan***

Every composting facility is required to submit a Leachate and Surface Water Management Plan. For all Class 11 and Class 12 compost facilities, the plan shall be prepared by a Professional Engineer.

The site must be graded such that any leachate and surface water contaminated with leachate, compost or waste is directed to a retention pond for treatment or for return to the process. The retention pond should be sized such that it can safely store 110% of the stormwater runoff from all active areas of the site for a precipitation event based on the intensity of a 24 hour duration event with a 25 year return period.

If effluent is discharged into a receiving body of water, one sampling station upstream and one downstream, in addition to one of the effluent discharge, need to be established.

All discharge from composting facilities must not exceed the CCME guidelines for the protection of aquatic life, or any other criteria outlined in the Approval. Naturally occurring background levels in the receiving stream will be considered when assessing any potential impacts.

### ***Odour Prevention and Control Plan***

All facilities shall provide detailed management techniques for the control of odours from the composting process. Here is a list of key factors to minimize the risk of odours at composting facilities:

- location considering prevailing wind direction and topography;
- adequate separation distances from the nearest receptors;
- incorporating materials into the composting process as soon as possible;
- odour control technologies;



- receiving area in enclosed structures that may be equipped with proper odour control technologies;
- avoiding highly odorous material as a feedstock material;
- good site management / operator training;
- etc.

Depending on the type of material to be composted, specific composting site conditions and operational procedures, Class 11 and 12 Composting Facilities may be required to incorporate an air dispersion modelling to predict the resulting odour concentrations at sensitive receptors under worst-case meteorological conditions, given the local topography and prevailing wind direction. An air dispersion modelling should be prepared by a Professional Engineer.

### ***Landowner Agreement***

A copy of the long term written agreement with the landowner is to be included with the application. This is not required if the landowner is the proponent

### ***Land use confirmation***

A written copy of the zoning confirmation is to be obtained from the Regional Service Commission, or any other local, regional or municipal planning authority, and included with the application.

## **Operation**

During the application process, proponents may wish to consult the Sector Standard for Composting Facilities for typical conditions associated with the operation of Composting Facility. It should be noted that other conditions may be added to the Approval if deemed necessary by the Approval Engineer. It should also be noted that the Approval Holder shall pay an annual fee for the Approval to Operate in the amount that will vary depending on the class of the approval and as specified in the *Fees for Industrial Approvals Regulation 93-201* filed under *the Clean Water Act*.

## APPLICATION FORM FOR A COMPOST FACILITY

### CLIENT INFORMATION

Legal Name or Corporate Entity: \_\_\_\_\_

Client Mailing Address – including postal station address, Civic address (if applicable),  
and postal code: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Title: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Cell Phone: \_\_\_\_\_

E-mail: \_\_\_\_\_

### PROJECT DESCRIPTION

Site Location: \_\_\_\_\_

PID #: \_\_\_\_\_

Type and volumes of materials to be composted:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Estimated volume, in cubic meters (m<sup>3</sup>) of finished compost that will be produced on an  
annual basis: \_\_\_\_\_

### SUPPORTING DOCUMENTATION

Here is a list of supporting documentation that shall accompany the application (Please  
see the Guidelines for the Site Selection, Operation and Approval of Composting Facilities  
in New Brunswick for more information):

- Scaled Drawing
- Site Operations Plan
- Contingency Plan

Compost pads design  
Test Pit Results  
Groundwater Monitoring Plan (class 11 and 12 only)  
Leachate and Surface Water Management Plan  
Odour Management Plan  
Agreement with site landowner (not necessary if landowner is the proponent)  
Zoning Confirmation

**CERTIFICATION**

I understand it is an offence to make a false, misleading, or incomplete statement in this application, and **incomplete forms will not be processed.**

I hereby certify that the information submitted is correct.

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**Name of Applicant (Please Print)**

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Signature of applicant

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Date