Government of Newfoundland and Labrador
Department of Environment and Climate Change
Pollution Prevention Division

Guidance Document

Title: **Environmental Standards for Compost Facilities**

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SUBJECT

Environmental standards for compost facilities. This version supersedes version GD-PPD-048.4.

OBJECTIVE

The objective of this guidance document is to define the environmental standards for site selection, design, construction, operation and decommissioning of compost facilities in the province. This guidance document does not apply to backyard composting, or small scale composting activities that process 250 metric tonnes or less of feedstock per year.

The document also provides guidance on the requirements to obtain an approval to construct and operate a compost facility. More detailed information may be required depending upon the proposed feedstock(s), and restrictions may also be imposed on the end use of the compost for example, in the case of biosolids composting. Final assessment of applications for the construction and operation of a composting facility will be made on a case by case basis.

BACKGROUND

The organic component of municipal solid waste (MSW) represents at least 30% of the total waste stream that could be diverted to a managed composting facility for the production of a beneficial soil amendment. Composting the organic component of MSW significantly reduces the volume of waste that would normally be disposed of at landfill, which improves landfill leachate quality and reduces greenhouse gas production.

In addition to the organics in MSW, some commercial and industrial sources of organic waste also make excellent feedstock for compost production. Examples of such feedstock include: fish processing waste, bark and sawmill waste, biosolids such as animal manure, leaf and yard waste, and untreated paper and wood waste. Biosolids from sewage sludge stabilization may also be considered for composting however, there would be restrictions on end use when this feedstock is utilized. There are some unacceptable feedstock materials that will be prohibited from use in composting. For example, materials with high heavy metal concentrations, or pathogenic bacteria that cannot be killed during the composting procedure.

Compost provides beneficial organic soil amendment, which depending upon the quality may be used in various agriculture, landscaping, horticulture, erosion control, and impacted site remediation projects.

DEFINITIONS

Act	means the Environmental Protection Act, SNL2002 CHAPTER E 14.2 (as amended);
Acceptable waste	refers to the waste streams that have been approved by the Department for processing at the compost facility; not all waste streams are acceptable at all compost facilitates;
Active area	means any area used for transfer, storage, disposal, separation, processing or treatment of compostable material including the tipping area, the active compost area and the curing pad;
Active compost area	the area of a composting facility where the thermophilic phase of the composting process occurs;
Adverse effect	an effect that impairs or damages the environment and includes an adverse effect to human health;
Approval	a certificate of approval under the Environmental Protection Act, SNL2002 CHAPTER E-14.2;
Biosolids	organic wastewater solids that can be reused after suitable sewage sludge treatment processes leading to sludge stabilization such as anaerobic digestion and composting;
Buffer zone	the area between the property line of a compost facility and the active compost area, receiving area and curing area;
Compost	organic matter that has been decomposed by aerobic and microbial action to produce a stable, soil amendment; solid mature product resulting from composting;
Composting	managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase;
Compost Facility	an operation that processes organic matter in order to produce compost for use or sale as a soil amendment whether in bulk or bagged format;
Department	means the Department of Environment and Climate Change or its successors;
Feedstock	raw materials including organic matter that are intended to be processed into compost;

In-vessel composting	a composting method in which composting materials are contained in a reactor vessel or building which utilizes forced ventilation of air for treatment of air for odour reduction; the purpose is to maintain optimal conditions for composting;
Leachate	is a liquid that seeps from decomposing organic material;
Leaf and yard waste	vegetative matter resulting from gardening, horticulture, landscaping or land clearing operations, and includes materials such as tree and shrub trimmings, plant remains, grass clippings and chipped trees;
Minister	unless otherwise indicated, means the Minister of Environment and Climate Change or its successors;
Open windrow composting	means composting in which compostable organic material is open to the atmosphere during the composting process. It also includes windrow composting in a building where there is no treatment of ventilation of air for odour reduction;
Owner and/or operator	a person who owns, or is responsible for, or has the charge, management, or control of a compost facility. A person includes, but is not limited to, a council, firm, committee, regional service board, franchise holder, company, or individual;
Residual waste	all waste other than compostable organic matter that requires disposal;
Service NL	means the Department of Digital Government and Service NL or its successors who act on behalf of the Department of Environment and Climate Change;
Storage and storing	means the holding of a substance for a temporary period at the end of which is intended to be processed, used, transported, treated or disposed;
Thermophilic phase	biological phase in the composting process characterized by the presence of micro-organisms which grow optimally in a temperature range of 45^{o}C to 75^{o}C;
Tipping area	an impermeable surface where feedstock is unloaded;
Unstable area	any location that is susceptible to natural or human-induced events or forces capable of impairing the structural integrity or subject to ground shifting;
Vector	a carrier organism that is capable of transmitting a pathogen from one facility or waste source to another source, facility,

	product or organism. They include, but are not limited to, rodents, insects and birds;
Windrow	elongated piles of triangular or trapezoidal cross section that are turned in order to aerate and blend compostable material.

LEGISLATION

The legislative authority for the establishment, development and operation of a compost facility is the Environmental Protection Act SNL 2002 Chapter E-14.2**,** otherwise herein known as the Act.

Section 16 of the Act states:

> A person shall not
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> (a) release waste upon land whether or not that land is developed or covered by water or release waste in a building or structure unless that waste is disposed of in a receptacle or container placed or located specifically for the purposes of collection of that waste and in accordance with this or another Act of the province; or
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> (b) use facilities or equipment for the collection, handling, treatment, transportation, storing, processing, use and disposal of waste that is not part of a waste disposal site or a waste management system for which an approval is issued.

The Canadian Council of Ministers of the Environment (CCME) Guidelines for Compost Quality shall apply to compost produced at all facilities unless other compost product criteria are approved in writing by the Department.

https://www.ccme.ca/en/resources/waste/organics.html

The Fertilizers Act as administered by the Canadian Food Inspection Agency shall apply to compost that is bagged for marketing.

https://lois-laws.justice.gc.ca/eng/acts/F-10/page-1.html

CERTIFICATE OF APPROVAL PROCESS

Proponents of compost facilities should first consult with the Environmental Assessment Division of the Department to determine whether registration for environmental assessment is required. If the project is required to be registered under the Environmental Assessment Regulations, the application for an approval will not be reviewed until it has been released from the environmental assessment process.

Compost facilities proposing to process more than 250 but less than 1000 metric tonnes of feedstock per year are required to contact the Department prior to operating so that their proposal can be reviewed. While a Certificate of Approval may not be required for these facilities, compliance with the provisions of this guidance document is required.

Compost facilities that process 1000 metric tonnes or more of feedstock per year are required to obtain separate construction and operating Certificates of Approvals from the Department.

An application for an approval to construct a compost facility must be submitted to the Department at least 6 months in advance of the proposed construction date.

Where applicable, applications for an approval to construct a compost facility must include a letter from the municipality where the facility is to be located stating that the Town has consulted its development plan and confirms that the project type is a permitted use for the land use zone, and also meets planning restrictions and such other by-laws that may exist.

Information and requirements to obtain a Certificate of Approval to Construct/Operate a compost facility include:

a) The proposed site location;
b) facility design, including details of the proposed composting process;
c) feedstock and bulking agents procurement, storage and handling, and quality control practices;
d) odour and leachate control systems;
e) personnel and training requirements;
f) compost sampling schedule;
g) end use for compost;
h) payment of the applicable fee; and
i) financial assurance and insurance.

Applicable fee(s) are in accordance with the Fees for Approval/Review of Waste Management/Remediation Proposals policy and reflect the resources allocated to complete the Certificate of Approval.

Compost facilities that process 1000 metric tonnes or more of feedstock per year are required to hold a valid Operating Certificate of Approval in order to receive feedstock and conduct composting operations. The owner/operator shall provide documentation to the Department indicating that:

- the site has been constructed as per the approved design;
- all facilities and systems are in place and functional;
- all permits and other regulatory requirements are met; and
- all environmental controls are in place.

SITE LOCATION AND BUFFERS

Proponents shall take into consideration the following restrictions/buffers when selecting a suitable site for composting.

Compost facilities shall not be sited:

- in environmentally sensitive areas such as parks, nature reserves, wildlife migration corridors, and others;
- within a 100 year flood plain or in any area which has greater than 1% chance of flooding in any year;
- within areas where the seasonally high water table is less than 1 meter from the surface;
- within a protected water supply area, or a protected well field;
- within 150 meters (m) from any drinking water supply, well or surface water;
- within 50 m from the nearest body of water, watercourse, river, stream, lake, pond, marsh, bog, swamp, wetland, tidal flat, ocean or similar area (as defined by the Water Resources Act); or
- within 100 m of an unstable area.

Proposed developments within established Provincial park buffer zones must be reviewed and approved by the Department of Tourism, Culture, Industry and Innovation prior to development. Buffer zones are 1 km around camping and day use parks, 1 km around the Main River Waterway and Eagle River Waterway Parks, and 50 meters around the NL T'Railway Provincial Park.

Proposed compost facilities near an airport should consult Transport Canada for guidance.

The proponent should consult the Fire Commissioner's office, or the municipal fire department to determine if a fire break is required, and if so obtain confirmation that it is appropriately sized.

The facility shall maintain a 15 m natural or landscaped screening buffer from the property boundaries and the active area for a composting facility shall be a minimum of 100 m away from the Right of Way boundary of a public road.

Access roads for the compost facility shall be accessible year round by all vehicles accessing the facility.

As climate change is expected to result in more precipitation and more frequent extreme weather events that may result in increased flooding, consideration should be given to precipitation projections and impacts on drainage and erosion when choosing a potential location.

SEPARATION DISTANCES

In addition to the above site location distances and buffers, the following process specific separation distances apply:

- **Leaf and yard waste compost facilities** processing greater than 250 tonnes but less than 10,000 tonnes of feedstock per year shall have the following separation distances:
    - 30 m from the active composting area to the nearest property boundary; and
    - 100 m from the active composting area to the nearest residential dwelling, recreational cottage, tourism operator/overnight accommodation, outfitting lodge, commercial, industrial, or institutional building.

- **Open windrow composting facilities** shall have the following separations distances:
    - 100 m from the active composting area to the nearest property boundary; and
    - 500 m from the active composting area to the nearest residential dwelling, recreational cottage, tourism operator/overnight accommodation, outfitting lodge, commercial, industrial, or institutional building; or
    - 1000 m from the nearest residential dwelling, recreational cottage, tourism operator/overnight accommodation, outfitting lodge, commercial, industrial, or institutional building when the feedstock is more than 1000 tonnes of food waste annually, or 10,000 tonnes total feedstock annually.

- **In-vessel composting facilities** shall have the following separation distances:
    - 500 m from the nearest residential dwelling, recreational cottage, tourism operator/overnight accommodation, outfitting lodge, or institutional building; and
    - 250 m from the nearest commercial or industrial building.

The Department may require increased separation distances to ensure adequate environmental controls and depending upon local conditions and the nature and size of the proposed composting facility.

GENERAL REQUIREMENTS

Composting facilities shall strive to incorporate all incoming feedstock into the composting process the same day that it is delivered to the site. Any feedstock not incorporated into the composting process when it arrives, other than leaf and yard waste, shall be stored in an enclosed area to prevent odorous emissions.

The facility shall have constant supervision during the operational hours.

The compost facility shall only accept feedstock it is approved for, as indicated on its certificate of approval. Any other waste shall be directed to a waste management facility that is approved to accept the waste.

Signs shall be placed at the entrance to the site, indicating the name of the facility, hours of operation and an emergency contact.

COMPOST FACILITY DESIGN AND CONTROL MEASURES

The receiving and tipping area, active composting area, and the curing area shall all be underlain by an impermeable surface, of concrete, asphalt or other material as approved by the Department. All drainage from these areas shall be collected by a leachate collection system and either returned to the composting process, or treated prior to release to the environment.

The impermeable surfaces shall be curbed, and graded sufficiently to direct leachate for recirculation or collection.

The receiving and tipping area shall be appropriately sized to accommodate a minimum of two (2) days of incoming organic waste, without restricting truck or equipment movement.

The leachate collection system shall be designed to collect, monitor, control, store and/or treat all leachate.

Facilities proposing to treat leachate for release into the environment, will be required to have a monitoring program approved by the Department and must meet the requirements of the Environmental Control Water and Sewage Regulations, 2003 (as amended).

The person responsible may be required to construct and maintain a groundwater monitoring program to monitor leachate in areas that are hydrogeologically sensitive, for example areas with high numbers of groundwater users, high permeability or areas with unconfined aquifers.

Compost facilities shall provide the Department a detailed management plan for the control of odours from the facility. The management plan should include details of “housekeeping” practices, schedules for aerating/turning the compost pile(s), schedules for feedstock deliveries, details of storage facilities, installation of biofilters, etc.

Control of nuisance vectors such as insects, rodents, animals and birds shall be taken into consideration with regards to facility design and operation. A detailed vector management plan shall be submitted to the Department.

OPERATION AND MAINTENANCE

An operations and maintenance manual shall be developed and maintained on site, and be available for use by staff and be made available to the Department or Service NL upon request.

As a minimum, the manual shall contain the following:

a) a site drawing and specifications for the compost facility;
b) a copy of the construction and operating certificates of approval, including the terms and conditions of operation;
c) a complete description of all operational practices and procedures;
d) an odour management plan;
e) a vector management plan;
f) compost testing/sampling regime;
g) a leachate monitoring plan, if required; and
h) contingency/emergency plans.

Contingency plans shall identify all reasonably foreseen emergencies, including but not limited to, fire, explosion, leachate leakage or spill, equipment failure and shall describe appropriate responses to prevent an adverse effect on the surrounding environment. The contingency plan must include the Provincial Environmental Emergency Reporting number (709) 772-2083 or 1-800-563-9089, include positions, names, contact information of responsible staff members, and be updated regularly to reflect any changes in staffing or operations.

Staff shall have appropriate training to address routine operations, complaints and emergency situations. At least one staff member shall be certified as a compost facility operator through the Compost Council of Canada, the Solid Waste Association of North America (SWANA), or other equivalent program.

FINANCIAL ASSURANCE AND INSURANCE

The Department requires that commercially operated composting facilities post financial surety and proof of Environmental Impairment Liability Insurance. The amount of the surety and insurance will depend on the nature and size of the compost operation, and estimated costs to rehabilitate the site should operations be suspended or ceased.

REPORTING AND RECORDS

The type and frequency of monitoring, recording, and reporting requirements shall be listed in the terms and conditions of the Approval. Records shall be kept for a minimum of two (2) years, and made available for inspection by the Department when requested.

An annual report will be required to be provided to the Department. The details will be set out in the terms and conditions of the Approval.

The facility shall record all complaints when they are received. Each complaint and response shall be recorded and records maintained for a period of three years. The entry shall include:

a) a description of the complaint and the date and time that it was received, and who received the complaint;
b) the name of complainant and contact information;
c) a description of atmospheric conditions at the time of the occurrence (including wind speed and direction, temperature, humidity, etc.); and
d) the response to the complaint.

Records of complaints and responses shall be made available to the Department upon request**.**

COMPOST CLASSIFICATION

All compost will be classified in accordance with the criteria in the CCME Guidelines for Compost Quality, latest edition.

The minimum testing for compost quality shall be completed for every 1000 tonnes of compost produced, or every three months, whichever occurs first. Sampling of the compost shall be done in accordance with the CCME Guidelines for Compost Quality. Any laboratories used must be accredited as per the Department's Accredited Laboratory Policy.

With the exception of biosolids compost, compost which meets the criteria for Category A in the CCME guidelines may be used in accordance with the uses stated in the CCME guidelines for Category A.

With the exception of biosolids compost, compost which meets the criteria for Category B in the CCME guidelines may be used on forest lands, landfills, highway medians and land reclamation projects. This compost cannot be used on food crops.

If the testing results show that the compost is neither a Category A or a Category B compost then it cannot be sold or used, and must be disposed of at an approved waste management facility.

Acceptable end uses for biosolids compost shall be specified in the Certificate of Approval to operate.

DECOMMISSIONING

A preliminary decommissioning plan shall be submitted to the Department within one year of commencing operations and modified as needed depending on operations expansion. A copy shall be filed with the Department.

REFERENCES

Activities Designation Regulation of the Environmental Protection Enhancement Act (AR211/96), Government of Alberta

Canadian Council of Ministers of the Environment, Guidelines for Compost Quality, 2005, PN 1340. ISBN 1-896997-60-0

Code of Practice for Compost Facilities, Alberta Environmental Protection

Compost Facility Resource Handbook: Guidance for Washington State #97-502. November 1998

Environment Canada Technical Document on MSW Organics processing, 2013

Guidelines for Site Selection, Operation and Approval of Composting Facilities in New Brunswick, Municipal Services Section of the New Brunswick Department of the Environment, February 2000

Municipal Decision Maker's Guide to Solid Waste Management, Chapter 7 - Composting, United States Environmental Protection Agency, Second Edition August 1995

Newfoundland and Labrador Waste Management Strategy, Government of Newfoundland and Labrador, Department of the Environment, April 2002

Nova Scotia Department of Environment and Labour Compost Facility Guidelines, Nova Scotia Department of Environment and Labour

Recycling and Composting of Municipal Waste (Ontario Regulation 104/94 of the Environment Act), Government of Ontario

Siting and Operating a Compost Facility, New Brunswick Department of the Environment and Local Government

Solid Waste Management Regulations (Section 102 of the Environment Act), Government of Nova Scotia

Waste Control Regulation of the Environmental Protection and Enhancement Act (AR 192/96),

Government of Alberta

Waste Disposal for Small Communities, Government of Alberta, Department of the Environment, 1989

Waste Management Act - Production and Use of Compost Regulation, Government of British Columbia, January 1994