

# Nutrient Management Act, 2002

## Understanding When Farms Require an NMS, NMP or NASM Plan

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### Factsheet

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(replaces OMAFRA Factsheet 10-035 of the same name)

#### INTRODUCTION

Under the regulations of the *Nutrient Management Act, 2002* (NMA), a farmer may be required to have one or more of three documents:

- a nutrient management strategy (NMS)
- a nutrient management plan (NMP)
- a non-agricultural source material plan (NASM plan)

Because most of the requirements of the NMA apply to farmers when they are required to have one of these documents, understanding when a farm is required to have one or more of these documents is a key component of complying with the regulations.

The NMA has two basic principles: environmental protection and a sustainable future for agriculture operations and rural development. NMS, NMP and NASM plans recognize the balance between these principles and attempt to help producers successfully manage the nutrients under their control.

This factsheet explains what is included in each of these documents and when a farmer is required to have an NMS, NMP or NASM plan.

#### REQUIREMENTS FOR ALL FARMS

Most provisions of the Regulation do not apply to farm units that generate five or fewer nutrient units of manure annually. However, all farm units, regardless of size, are currently subject to the following provisions of the Regulation:

- High trajectory guns are banned for the land application of:
  - non-agricultural source materials with 99% or less moisture content
  - manure with 99% or less moisture content

- Spreading material from a regulated mixed anaerobic digester must adhere to land application standards (s. 98.11 and 98.12).
- Vegetated filter strip systems for runoff must be properly designed, operated and maintained (Part IX.2).
- If the farm operation receives off-farm anaerobic digestion (AD) material for treatment through an AD system regulated under the Act, the farm operation must have an approved NMS.
- Storing or applying NASM on any farm must be done in accordance with the regulations.

#### OVERVIEW OF THREE NUTRIENT MANAGEMENT DOCUMENTS

- An NMS documents nutrient management matters such as manure generation from livestock, manure type and quantity, adequate storage capacity and acceptable runoff management. For example, an NMS is required for farms of more than five nutrient units (NUs) that are constructing or expanding a livestock barn or manure storage facility.
- An NMP outlines nutrient applications in farm fields, crop rotation, tillage, projected yields and other management approaches to optimize the utilization of nutrients by the crops.
- A NASM plan is similar to an NMP in that it addresses field application of nutrients, but this document also covers nutrients from off-farm sources such as sewage biosolids or food-processing washwater and residuals; a NASM plan will also include any on-farm storage facilities that could be used to store NASM.

Table 1 outlines the common items and unique features for each document.

**Table 1.** Comparison of nutrient management documents

<b>Nutrient Management Strategy (NMS)</b> Generating nutrients	<b>Nutrient Management Plan (NMP)</b> Applying nutrients	<b>Non-Agricultural Source Material Plan (NASM)</b> Applying NASM and other nutrients on agricultural land; storing NASM on-farm
Description of the agricultural operation		
Location(s) of the farm operation (lot, concession, roll number, etc.)		
Contact information for the farm operator		
<b>Contingency Plan</b>		
<ul style="list-style-type: none"> <li>• Farm unit map(s) showing location(s) and specific details about barns, barnyards, generating sites, storage sites and sensitive features such as wells and surface water.</li> <li>• Amount of manure generated and volumes of other prescribed materials such as runoff or milkhouse washwater</li> <li>• Agreements with brokers or with operators of other phased-in farm unit operations accepting manure or agricultural source material (ASM) that was generated at your operation</li> <li>• Number and type of animals</li> <li>• List of storage facilities and capacities</li> <li>• Runoff management</li> <li>• Temporary field storages sites for manure</li> <li>• Limited information on destination(s) for manure and prescribed materials generated (i.e., land base available for application or transferring manure off the farm unit to other operations)</li> </ul>	<ul style="list-style-type: none"> <li>• Amount of manure and other agricultural source materials (ASM) to be applied along with other nutrients. <b>Note:</b> If category 2 or 3 NASM are to be applied, a separate NASM plan must be prepared.</li> <li>• Agreements with brokers or other people providing additional manure or other ASM materials to be land-applied on your farm unit</li> </ul>	<ul style="list-style-type: none"> <li>• List of sources of NASM</li> <li>• Nutrient analysis of the NASM material(s)</li> <li>• On-farm storages for NASM regulated under Ontario Regulation 267/03</li> <li>• Documentation to show that NASM meets beneficial use criteria for application on agricultural land</li> </ul>
	<ul style="list-style-type: none"> <li>• Nutrient information (application rates, nutrient analysis, timing, surface application vs. incorporated vs. injected, agronomic and crop removal balances for nitrogen and phosphorous, etc.)</li> </ul>	
	<ul style="list-style-type: none"> <li>• Field properties (acreage, presence of surface water, tile drains, soil analysis, soil series, slope, etc.) and field sketch</li> </ul>	
	<ul style="list-style-type: none"> <li>• Cropping practices, crop rotation and yields</li> </ul>	
	<ul style="list-style-type: none"> <li>• Land base information</li> </ul>	
	<ul style="list-style-type: none"> <li>• Field maps showing acreage and specific details about sensitive features such as surface water, tile inlets and outlets, wells, presence of tile drains</li> </ul>	

## NUTRIENT UNITS (NU)

In the Regulation, a nutrient unit is defined as “the amount of nutrients that give the fertilizer replacement value of the lower of 43 kg of nitrogen or 55 kg of phosphate as nutrient as established by reference to the Nutrient Management Protocol.”

Nutrient units are calculated by referring to Table 1, *Nutrient Unit Livestock Information*, in the Nutrient Management Tables, which lists various species and sizes of animals, and the number of each it takes to generate one NU. See [www.omafra.gov.on.ca/english/nm/regs/nmpro/nmtab01-15.htm](http://www.omafra.gov.on.ca/english/nm/regs/nmpro/nmtab01-15.htm).

Table 2, right, shows some examples of nutrient unit calculations.

**Table 2.** Nutrient unit calculations

<b>Livestock</b>	<b>Nutrient unit conversion factor</b>	<b>Nutrient Units</b>
100 beef backgrounders	3	33
10 medium frame horses	1	10
<b>Total Nutrient Units</b>		<b>43</b>

Source: Table 1 from the *Nutrient Management Tables*.

## **FARMS REQUIRED TO HAVE A NUTRIENT MANAGEMENT STRATEGY (NMS)**

The Regulations concerning manure storage capacity, runoff management from livestock yards and the siting and construction requirements for manure storages come into effect when a farm operation is “phased-in,” that is, required to have a nutrient management strategy (NMS).

Nutrient management strategies are either approved by OMAFRA or kept on file at the farm, and the farm operation is registered.

OMAFRA approval of the NMS is required:

- to obtain a building permit for any construction associated with manure storage or animal housing
- prior to beginning construction or expansion of a manure storage facility made of earth (i.e., earthen lagoon),
- for farms that have had an NMS previously and are located within 100 m of a municipal well
- for farms receiving off-farm material for treatment through an anaerobic digester (AD), if the AD system is a regulated, mixed-AD system under the NMA regulations
- when a change in ownership or control of a farm operation with a previously approved NMS adversely affects the capacity to implement the existing NMS

If your agricultural operation requires an NMS that does not require OMAFRA approval, register the operation in accordance with Part 9 of the Nutrient Management (NM) Protocol.

An agricultural operation registered under the NM Protocol is still required to have and follow an NMS prepared by a certified person. The NMS must be kept on file at the farm. See [www.omafra.gov.on.ca/english/nm/regs/nmpro/nmpro09-12.htm](http://www.omafra.gov.on.ca/english/nm/regs/nmpro/nmpro09-12.htm) for more details on requirement information.

An NMS prepared because of conditions on a phased-in farm not planning construction usually results in the farm operation registering under Part 9 of the NM Protocol. On such farms, the last three scenarios listed above require OMAFRA approval of the NMS.

In contrast, construction will require the operation to have an OMAFRA-approved NMS prior to building a livestock barn or manure storage facility. With these types of construction projects, approval of the NMS before construction helps ensure that manure management issues are addressed early in the planning process. As such, issues such as adequate manure storage capacity, acceptable runoff management, proper setbacks to wells, surface water and other sensitive features can be factored into the business plan for the new or expanded facility from the start.

Once a farm is required to have an NMS, it must be renewed every 5 years, assuming the operation continues to generate manure (i.e., continues to have livestock or poultry), or whenever one of the other triggers are met.

The box on the next page shows the differences between phased-in farms with and without planned construction and what is required of them by the NMA.

**A. PHASED-IN FARMS  
(no construction planned)**

**Definition**

- expanding  $\geq 300$  NU (i.e. livestock numbers increasing to  $\geq 300$  NU using existing facilities)
- existing  $\geq 300$  NU
- previously phased-in operations that:
  - are required to renew NMS after 5 years
  - have had change in ownership or control that adversely affects capacity to implement the NMS
  - were considered new under s. 11(1) of the regulation between September 30, 2003, and December 31, 2005

**Requirements**

- Get an OMAFRA-approved NMS if:
  - farm is phased-in as above and any part of farm unit is within 100 m of municipal well
  - the agricultural operation treats materials through a mixed anaerobic digestion (AD) facility or
  - have had a change in ownership or control of an operation with a pre-existing approved NMS that adversely affects the ability to implement NMS
- If none of these apply, keep the NMS on file at the farm and register the farm with OMAFRA under Part 9 of the NM Protocol.
- Manage manure and other nutrients (e.g., run-off and washwater) according to the NMS,
- Document the annual review and update of the NMS by February 15 and keep it with the NMS.

**B. PHASED-IN FARMS  
(construction planned)**

**Definition**

- $>5$  NU and ANY building permit for livestock barn and/or manure storage facility (In territories without municipal organization, an OMAFRA-approved NMS is required prior to starting construction, even though a building permit is not required.)
- $>5$  NU and planned construction of earthen storage
- planned construction of a regulated mixed anaerobic digester

**Requirements**

- Get an OMAFRA-approved NMS.
- Adhere to construction and siting requirements.
- Manage manure, AD digestate and other nutrients (e.g., run-off and washwater) according to NMS (including construction and siting).
- Document the annual review and update of the NMS by February 15 and keep it with the NMS.

## FARMS REQUIRED TO HAVE A NUTRIENT MANAGEMENT PLAN (NMP)

Other than the provisions that apply to all farms (see *Requirements for All Farms*), the remainder of the regulations concerning land application of manure and other agricultural source material (ASM) such as runoff come into effect on a farm when it is required to have a nutrient management plan (NMP). It is important to note that a farm can only be required to have an NMP if it is also required to have an NMS first.

A farm is required to have an NMP when:

- livestock numbers are equal to or greater than 300 NU, or
- a phased-in farm unit is located within 100 m of a municipal well

The NMP outlines cropping practices, field management and land application of manure and other nutrients according to accepted agronomic practices. It can help the farmer optimize the value of the manure and other nutrients in the cropping program while minimizing the risks to surface and groundwater resources.

Even if the Regulation does not require a farming operation to have an NMP, by undergoing the NMP process, a farmer can find opportunities to better utilize the nutrients from manure and other materials and save money on fertilizer purchases.

## FARMS REQUIRED TO HAVE A NON-AGRICULTURAL SOURCE MATERIALS (NASM) PLAN

Some farms receive materials for land application that originate from non-agricultural sources. These off-farm materials are known as non-agricultural source materials (NASM). Examples of NASM include sewage biosolids, pulp and paper biosolids and residual materials from food processors.

NASM are divided into three categories based on the characteristics of the material. Each category has specific regulatory requirements.

For farms applying up to 20 t/ha of Category 1 NASM, no NASM plan is required. For a complete list of materials in each category, see [www.ontario.ca/laws](http://www.ontario.ca/laws) and search for “O. Reg 267/03.”

Table 3 highlights the three categories of NASM and the approval requirements for NASM plans. The full tables with the NASM categories are located in Schedule 4 at the end of the Regulations.

Category	Plan Requirement
1	<p>Category 1 NASM are generally unprocessed, plant-based materials and include things like leaf and yard waste that has not been composted.</p> <p>A NASM plan is not required if application does not exceed a 20 t/ha (wet weight basis) application rate and follows land application standards in Part VI of the Regulation.</p>
2	<p>Category 2 NASM includes processed plant-based materials such as organic waste or washwater from a brewery or distillery.</p> <p>For land application of materials with metal content rated as “CM1,” develop a NASM plan and register it with OMAFRA.</p> <p>Any on-farm storage of Category 2 NASM or material with a metal content rated “CM2” requires an approved NASM plan.</p>
3	<p>Category 3 NASM includes sewage biosolids or washwater from an abattoir or dairy processing facility.</p> <p>Have an approved NASM plan for all activities with Category 3 NASM on the farm.</p>

**NOTE:** In the regulation, NASM are categorized as CM1 or CM2 based on the concentration of metals.

A NASM plan is similar to an NMP because both documents deal with the land application of nutrients and both documents address the protection of sensitive features such as watercourses and wells. The NASM plan, however, includes application rate limitations based on the analysis of the materials and the soils receiving the materials. The application rate of all nutrient sources can be limited by:

- nutrients – nitrogen and phosphorus
- a suite of 11 metals
- other requirements, such as limits on fats, oil and grease, boron or sodium

In addition, where an NMP would include all the agricultural fields in a farm unit, a NASM plan can be limited to one or more fields where the NASM is going to be applied and the NASM storage area on the farm.

A certified NASM plan developer must complete the NASM plan. See *Preparation of NMS, NMP and NASM Plans* for more information.

A NASM plan must be completed for the land application of Category 2 and Category 3 materials. NASM plans require approval by OMAFRA if they involve:

- land application of Category 2 NASM with a metal content rated as “CM2”
- land application of Category 3 NASM
- storage of any Category 2 or Category 3 NASM

For a complete overview of NASM requirements, see [www.ontario.ca/nasm-omafra](http://www.ontario.ca/nasm-omafra).

### FARM UNIT

In preparing an NMS, an NMP or a NASM plan, the name and contact information for the farm operator must be identified, along with the location information for all of the properties in the farm unit including lot, concession, name of the municipality and the roll number.

Those who farm on more than one property (i.e., more than one deed) can include additional properties in the farm unit. Choices include:

- preparing an NMS or NMP for only the “generating” property (i.e., where the livestock facilities are located)
- preparing an NMS or NMP for the generating property plus additional properties that are either owned or rented

If preparing an NMS to build a manure storage facility or barn for livestock housing, as a minimum, the property where the construction is to occur must be included in the farm unit.

The farm unit in a NASM plan includes the contact information for the farmer and the location information for any property where NASM will be received, both for land application or for storage. If nutrients (i.e., manure) are not generated on the property, the farm unit is limited to the NASM storage facility(ies) on the property and the field(s) where the NASM is to be applied and not necessarily the entire property.

### PREPARATION OF NMS, NMP AND NASM PLANS

If the farmer opts to hire a consultant to prepare any of these documents, some time is saved because the consultant can usually start quickly and the farmer will benefit from the consultant’s professional experience. When working with any potential service provider, farmers are encouraged to ask about the price for this service and ask for professional references and timelines when the consultant expects to have a completed document.

All certificates require completion of a course. The Agricultural Operation Strategy or Plan Development Certificate and the NASM Plan Development Certificate also require completing assignments and passing an exam.

Table 4 summarizes the certification requirements for individuals preparing an NMS, NMP or NASM plan.

Options for Preparation	Certificate Requirement
NMS or NMP prepared by farmer	Agricultural Operation Planning Certificate
NMS or NMP prepared by certified consultant	Agricultural Operation Strategy or Plan Development Certificate
NASM plan prepared by certified consultant	NASM Plan Development Certificate

**NOTE:** For more information on certification, visit [nutrientmanagement.ca](http://nutrientmanagement.ca). The site also includes information for certified consultants.

## **CONCLUSION**

In addition to being a regulatory requirement for some farms, an NMS, NMP or NASM plan can help a farmer chart a course for the future that optimizes the use of nutrients on the farm while protecting nearby water resources. The NMS addresses issues in and around the barn such as the amount of manure generated, adequate storage capacity and acceptable runoff management. The NMP documents the application of the nutrients in the fields that safeguard nearby water resources such as wells and surface water, while maximizing the use of nutrients by the crops. Similar to an NMP, NASM plans are required for some non-agricultural source materials that are applied to agricultural fields. A NASM plan documents the same protective practices and safeguards covered by an NMP.

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