

Source Protection Planning Bulletin – Nutrient Management Instruments



December 2010

Introduction

The purpose of the *Clean Water Act, 2006* (“the Act” or “CWA”) is to protect Ontario’s existing and future drinking water sources, as part of an overall commitment to safeguard human health and the environment. A key focus of the legislation is the preparation of locally developed terms of reference, science-based assessment reports and source protection plans. For additional information on the CWA and how the terms of reference and assessment reports were developed, readers may refer to the Ministry of the Environment’s website www.Ontario.ca/cleanwater.

The source protection plans will consist of a range of policies that together, will reduce the risks posed by threats to water quality and quantity. This document is one in a series of planning bulletins intended to assist local source protection committees in preparing source protection plans and policies.

Purpose

This document provides source protection committee (SPC) members with information related to instruments **issued under the *Nutrient Management Act (Nutrient Management Strategies, Nutrient Management Plans, and Non Agricultural Source Material Plans)*** that are prescribed instruments under the CWA as tools to manage threats to drinking water. There are 7 additional bulletins that set out details about each of the instruments prescribed in the General Regulation - Ontario Regulation 287/07 (“the Regulation”) and a general Overview Bulletin about policy development as it relates to prescribed instruments. The bulletins will help SPC members understand the general scope of each of the prescribed instruments, the types of drinking water threats each instrument may have the mandate to address and how terms and conditions are used within the instrument to manage the threats.

Together the Act and its regulations (“the legislation”), in particular the General Regulation - Ontario Regulation 287/07 (“the Regulation”), establish a legal framework for drinking water source protection in Ontario. Amendments to the Regulation setting out some of these requirements took effect on July 1, 2010. All section references relate to the Regulation unless otherwise stated.

While every effort has been made to ensure the accuracy of the information in this document, it should not be construed as legal advice or relied on as a substitute for the legislation referenced.

General Information

The Nutrient Management Act provides authority to establish province-wide nutrient standards for two purposes:

- Provide for the management of materials containing nutrients in ways that will enhance the protection of the natural environment, and
- Provide a sustainable future for agricultural operations and rural development

The legislation sets out requirements and responsibilities for farmers, municipalities and others in the business of managing land-applied nutrients including a provincial authority to set and enforce standards, and provincial regulations which supersede municipal by-laws that deal with the same subject matter.

History

The Ontario government recognized that there was a growing conflict between some agricultural operations, in particular large livestock operations, and their rural neighbours. There were concerns expressed over odour and potential environmental impacts.

In recognition of the situation MOE and OMAFRA conducted public consultations in January and February 2000 to help the government to develop legislation to meet agricultural productivity, environmental and rural community needs.

The April 2000 Task Force Report on the consultations confirmed that the issues are indeed complex and that there was not a quick fix available. It concluded that the best solution appeared to be a combination of province-wide legislation regulating farm practices relative to manure and nutrient management; an education and awareness program; and a certification and/or licensing program for those in the business of applying nutrients. This document formed the basis of the Nutrient Management Act, 2002 and the subsequent regulation O. Reg. 267/03.

Purpose and Legislative/Regulatory Authority

Nutrients being used on farms are regulated under the Nutrient Management Act 2002 (NMA) and Ontario Regulation (the regulation) 267/03. The intent of the legislation is to create consistent, clear, enforceable province-wide legislation for the management of nutrients.

Where applicable, the Regulation requires different types of material to be regulated:

- **prescribed materials** (which includes both on and off farm material, agricultural source material (ASM) and non agricultural source material (NASM) that is applied to the land to assist in the growing of crops) to be managed in accordance with a Nutrient Management Strategy,

- **nutrients** (both on and off farm material plus commercial fertilizer and compost) to be applied to agricultural land in accordance with a Nutrient Management Plan, and
- **non agricultural source material (NASM)** (material that is generated off the farm such as sewage biosolids, pulp and paper biosolids and other material capable of being applied to land as a nutrient) to be stored and applied in accordance with a NASM Plan.

Note: An on-line course on the Nutrient Management Regulations and Protocols is available for anyone who wishes for more in-depth information.

<http://www.omafra.gov.on.ca/english/nm/cert/training.htm#3>

All regulatory references indicated in this bulletin are all taken from O. Reg. 267/03.

NMA Instruments

The nutrient management strategy is the plan for how to manage all the nutrients that are generated on the farm. It deals with the housing capacity of the barn relative to the size of the manure storage that would be needed. These documents, when required by the regulation are anticipated to manage drinking water threats associated with the storage of ASM and the management or handling of ASM generation due to grazing and pasturing.

The nutrient management plan is the document that sets out how much and where the nutrients will be applied on the land. These documents, when required by the regulation are anticipated to manage drinking water threats associated with the application of ASM to land.

The NASM plan deals with material that is generated off the farm but is applied as a nutrient to the land. This could include material such as sewage biosolids, pulp and paper sludge or food processing wastes. The NASM plan details what the material is, how much and where the nutrients are to be applied to the land. If the farm stores the NASM on the farm, then the NASM plan must include details on the storage facilities as well. These documents, when required by the regulation are anticipated to manage drinking water threats associated with the application of processed organic waste (i.e., biosolids, treated) to land, the handling and storage of NASM and the application of NASM to land.

See Table 2 associated with the Overview Bulletin on Prescribed Instruments for more details.

Nutrient Management Strategies (NMS): Purpose and Phase In Triggers

The purpose of NMSs is to

- set out an environmentally acceptable method for managing all prescribed materials generated at an agricultural operation by ensuring that there is sufficient safe storage or a plan for where the nutrients will be land applied or transferred to another farm operation, and
- require any phased in operations to ensure that the nutrients are managed in accordance with its NMS (i.e., agricultural operations that meet the criteria in the regulation (as outlined below) are phased into the NMA and therefore are required to obtain a NMS).

A NMS is required by the Regulation if one of the following applies to the agricultural operation (i.e., the agricultural operation is phased in if any one of the following triggers set out in the regulation are met):

- The number of farm animals on a farm unit¹ is sufficient to generate 300 or more nutrient units² annually (Section 11.(3))
- An application for a building permit for livestock housing or a manure storage is submitted to the municipality, or in a unorganized territory, where livestock housing or manure storage is constructed (Section 11.(4) (a) and (b))
- A earthen permanent nutrient storage facility is constructed (Section 11.(4)(c))
- Off-farm anaerobic digestion material is received for treatment in a regulated mixed anaerobic digestion facility (Section 11.(4.1))

Nutrient Management Plans (NMP): Purpose and Phase In Triggers

The purpose of the NMP is

- Intended to optimize the relationship between land application of nutrients, farm management techniques and crop uptake of nutrients while minimizing the environmental impacts by identifying:
 - Land application timing and application rates
 - Type of nutrients applied
 - Details of land base or fields where nutrients will be applied
 - Risk factors – e.g., soil types, slopes

A NMP is required by the Regulation if one of the following applies (i.e. the agricultural operation is phased if any one of the following triggers set out in the regulation are met):

- On a farm unit where there are 300 nutrient units or more generated by the farm (Section 15.(2)(a)), or
- On a farm unit where any portion of the operation lies within 100 metres of a municipal well (Section 15.(3)).

¹ Farm Unit is defined as an area of land used for an agricultural operation, part of an agricultural operation or more than one agricultural operation constitutes a single farm unit for the purposes of this Regulation.....there are details related to farm units that are detailed in section 5 of O. Reg. 267/03.

² Nutrient units is defined in Section1.(1) of O. Reg. 267/03

Non- Agricultural Source Material (NASM) Plans: Purpose and Phase In Triggers

The purpose of the NASM Plan focuses on managing land application and storage of non agricultural source material on farm land (as of January 1, 2011).

A NASM Plan is required by the Regulation if one of the following applies (i.e. the agricultural operation is phased in if any one of the following triggers set out in the regulation are met):

- When land applying or storing Category 2 or 3 NASM³ after January 1, 2011 (Section 15.3(1))
- Those applying NASM under an existing Organic Soil Conditioning Site Certificate of Approval issued by the Ministry of the Environment do not require a NASM Plan until the Certificate of Approval expires or is revoked, but no later than January 1, 2016 (Section 15.3(2))

The Categories of NASM are broken into 3 groups:

- Category 1 – unprocessed plant based materials such as fruit and vegetable peels
- Category 2 – processed plant based material such as bakery washwater
- Category 3 – animal based materials such as meat and dairy washwater, sewage biosolids, and any material that is not listed in the other categories

For more information on categories of NASM see the links at the end of this bulletin.

Creation/Issuing of Instrument and Approvals

Note: The following section is written as the most recent amendments to Ontario Regulation 267/03 regarding NASM will apply after January 1, 2011. For information on how to deal with applications received prior to January 1, 2011, check with the Ministry of Agriculture, Food and Rural Affairs or the Ministry of the Environment.

Certification and Licensing Requirements

Nutrient Management Strategies (NMS) and Plans (NMP), and Non-Agricultural Source Material Plans (NASM Plans) must be prepared by a person who holds an appropriate

³ NASM material is divided into 3 levels of risk with Category 1 being material with minimal risk and Category 3 needing more oversight and approvals.

certificate issued by the Director at the Ministry of Agriculture, Food and Rural Affairs (OMAFRA).

To obtain a certificate, the preparer must attend one or more prescribed courses, pass an exam, prepare one or more strategies or plans for fictitious operations and pay a fee. In some cases persons with certification are consultants and in other cases the farmer will be certified to create the NMP, NMS or NASM Plan.

Instruments Issued and Approvals Required

In some situations the prepared instruments under the NMA are required to be approved by the Director at the OMAFRA and in other cases these instruments are to be kept on file at the agricultural operation at all times. In all cases these documents are prepared in accordance with the certification requirement and using the province's Protocols and regulatory requirements to prepare the instruments.

Nutrient Management Strategies

An agricultural operation must manage prescribed materials in accordance with a Nutrient Management Strategy when phased in according to the triggers outlined above.

OMAFRA Director approval is needed for all NMSs for agricultural operations where the following applies:

- The person who owns or controls the land applies for a building permit in respect to livestock housing or a manure storage, or in an unorganized territory, where livestock housing or manure storage is constructed (Section 27.(1) (a))
- The person who owns or controls the land constructs a permanent earthen nutrient storage facility (Section 27.(1)(b))
- The person who owns or controls the land treats materials through mixed anaerobic digestion in a regulated mixed anaerobic digestion facility (Section 27. (1) (b.1))
- Any portion of the land on the farm unit lies within 100 metres of a municipal well. (Section 27. (1) (c)).

There are some farm units where a NMS must be prepared but it is kept on the farm and not submitted for approval. In these cases the operation must submit material to OMAFRA in order to be registered. One example of when a registration of the operation is required would be when an NMS is required by the regulation not because of new construction but because there are 300 or more nutrient units on the farm unit (see Section 32.(1) of O. Reg. 267/03).

Nutrient Management Plans

An agricultural operation must manage and land apply nutrients in accordance with a Nutrient Management Plan if phased in according to the triggers outlined above.

- As of January 1, 2011 there are no OMAFRA Director approvals required for NMPs but the plans must be kept at the operation or readily accessible on a 24 hour a day basis.

NASM Plans

NASM is divided into 3 Categories that are set out in Schedule 4 of O. Reg. 267/03. Schedule 4 provides a complete list but generally Category 1 includes plant based material, Category 2 includes processed material and Category 3 includes sewage biosolids and other materials with a potential for pathogens.

An agricultural operation must apply and store Category 2 or Category 3 non-agricultural source material in accordance with a NASM Plan, **unless**

- A certificate of approval or provisional certificate of approval under Part V of the Environmental Protection Act (EPA) that authorizes the application of the material is in force, **or**
- A Nutrient Management Plan, approved by the Director, is in force and authorizes the application of the material.
- The exceptions to the requirement for a NASM Plan are transitional provisions and will cease by January 1, 2016.

A NASM Plan requires Director approval from OMAFRA if one of the following applies:

- Land application of Category 3 NASM or Category 2 with high metals (Section 27. (4)(a)(i));
- Storage of Category 2 or Category 3 NASM (Section 27. (4)(a)(ii));or
- The Director gives notice that an approval is needed in accordance with section 27.1 (Section 27. (4) (b)). This would occur in cases where there is a concern that the agricultural operation may cause an adverse effect.

Additional Requirements

Any person engaged in the business of applying prescribed materials to land on a farm unit for which there is a NMP or NASM Plan in force, must hold a prescribed materials application business licence (in the case of an individual) or has in the employ a person who holds a licence (in the case of a corporation).

- To obtain a licence, the person must attend a course specified by the Director, pass an exam and pay a fee.

Any person who applies nutrients to land on a farm unit for which there is a NMP or NASM Plan in force must hold a nutrient application technician's licence

- To obtain a licence, the person must attend a course specified by the Director, pass an exam and pay a fee.

Contents of NMA Instruments

A **completed NMS** must include requirements set out in the Regulation as well as:

- farm unit information and identifier numbers
- description of the operation
- farm unit declaration form including details on the location of each farm property, assessment roll number, generator or not, name
- agreements as specified in the regulation, i.e broker agreement, nutrient transfer agreement
- farm unit sketch
- list of prescribed materials generated – manure/nutrient information (including type and analysis)
- information on a regulated mixed anaerobic digestion (“AD”) facility
- destinations of nutrients generated
- storage information – yearly amount, days of storage, amount remaining including storage sizing calculation
- contingency plan that meets the requirements as set out in Part 12 of the Nutrient Management Protocol
- sign-off form

A **completed NMP** must include requirements set out in the Regulation as well as:

- Analysis of nutrient content or nutrient values
- Field sketch information
 - total tillable area for each field.
 - total tillable area available for nutrient application. Note: this is determined by subtracting the area not available for nutrient application due to required setbacks from the total tillable area for each field.
 - percentage of maximum sustained slope near the surface water if the field is within 150 metres of surface water.
 - statement as to whether the field is tile drained.
 - predominant soil series and soil texture for the field.
 - statement regarding the presence or absence of known wells within regulated distances of the field boundaries.
 - statement as to whether surface water is adjacent to, or contained within, the field.
- Cropping practices - The following information is required for each field in the NMP:
 - crop rotation for the duration of the NMP;
 - expected planting and harvest dates;
 - expected crop yields for the duration of the NMP; and
 - previous years' crops.

- Nutrient application - for each prescribed material the NMP must identify the following for the entire duration of the NMP:
 - prescribed material type and form;
 - expected application date;
 - expected application method;
 - expected timing for incorporation; and
 - expected application frequency;
- Nutrient application rates based on many factors including:
 - the characteristics of the land and cropping and nutrient information set out in the NMP;
 - the overall nutrient balance using the agronomic and crop removal balances;
 - the number of times that nutrients will be applied in the year in order to demonstrate the maximum rate per application of nutrients; and
 - the total amount that is expected to be applied in the year as the maximum annual nutrient application rate.
- Land base information – demonstration that there is a sufficient land base for all the nutrients identified for land application on the farm unit
- Soil sampling and analysis according to the regulation requirements

A **completed NASM Plan** must include requirements set out in the Regulation as well as:

- a list of the sources of NASM
- analysis of applicable parameters such as nutrient content or nutrient values, tests for metals, pathogens and other parameters
- establishment of beneficial use of the NASM
- determination of maximum application rate as determined by the limits set in the Nutrient Management Protocol
- NASM application area information including sufficient information to locate the property (i.e. lot and concession, 911 address, tax roll assessment number , property identification number)
- cropping practices
- nutrient application, rate and timing
- land base information
- list of nutrient storages if used for NASM including locations, type of storage (temporary/permanent), description of permanent storage facilities (storage tanks, lagoons) and storage capacity.

Limitations of Instruments

Only farms that are phased into the regulation are subject to NMA instruments – depending on investment in farm infrastructure, size, and types of nutrients generated and applied to land.

Small farms with very few livestock and cash crop farms are not required to obtain NMA instruments unless NASM is land applied or stored on the farm.

While all livestock farms phased into the Regulation require a NMS for the general management of nutrients, fewer farms require a NMP for land application.

Level of approval of NMS varies according to whether or not construction is occurring on the farm. NMPs will no longer be approved after January 1, 2011. NASM plans are approved based on the quality of the material.

In all cases the NMPs, NMSs and NASM plans are required to be prepared by a trained individual and the documents kept on the farm for implementation by the farmers and must be available for review by compliance officers.

Compliance Program

The Ministry of the Environment (MOE) is responsible for inspections and enforcement. The ministry conducts proactive inspections of farms phased in to the NMA to assess compliance with NMSs, NMPs, and NASM Plans.

In addition, the ministry responds to environmental incidents on farms including complaint response, spill response, and advice or mediation relating to legislated and regulatory requirements.

MOE's Agricultural Environmental Officers work directly with farm owners and operators to achieve compliance. Agricultural Environmental Officers are Provincial Officers with the authority and responsibility to conduct inspections and have received specialized agricultural training.

If an adverse effect occurs, the *Environmental Protection Act* and the *Ontario Water Resources Act* may also apply.

Best Management Practices for Agricultural Operations

OMAFRA has a long history of assisting the farm community with the best management practices for their farms both for productivity and environmental protection. The most comprehensive is the Environmental Farm Plans (EFP). EFPs are assessments voluntarily prepared by farm operators to increase their environmental awareness in up to 23 different areas on their farm. Through the EFP local workshop process, farmers will highlight their farm's environmental strengths identify areas of environmental concern, and set action plans with time tables to improve environmental conditions.

These 23 areas of the farm which is the focus of the EFP include some activities that are identified as prescribed drinking water threats under the CWA and managed by NMA instruments such as pesticide handling and storage, storage of manure (i.e.,

ASM), and livestock yards and outdoor confinement areas. Additionally the EFP provides an assessment and action plan associated with activities that are not managed through instruments under the NMA such as storage of organic chemicals (i.e., petroleum products) and water efficiency.

In developing the provincial Risk Management Measures Catalogue, best management practices that are incorporated into action plans from the EFP are being evaluated and will be included where they are effective in managing risks to drinking water. For more information on the EFP Program please visit the OMAFRA website at: <http://www.omafra.gov.on.ca/english/environment/efp/efp.htm>.

Example Nutrient Management Instruments

Example Instruments are found in attachments to this document with the following titles:

- Example NM Instrument approval letter NMS.pdf
- Example NM instrument intro to approval.pdf
- Example NM Instrument record of approval NMS.pdf
- Example NMS and NMP.pdf

Where to Get Additional Information

- <http://www.omafra.gov.on.ca/english/agops/index.html>
- <http://www.ene.gov.on.ca/en/land/nutrientmanagement/index.php>
- <http://www.omafra.gov.on.ca/english/nm/nasm.html>
- <http://www.ene.gov.on.ca/en/land/nasm/index.php>