



Ontario Ministry of Agriculture, Food and Rural Affairs

Nutrient Management

NASM and the Nutrient Management Act:

*An overview of Nutrient Management
Regulations & Program Implementation*

**Building Trust & Partnership Between Biosolids
Generating and Receiving Communities**

December 13, 2006

What is NASM?

- ◆ ‘Non-Agricultural Source Material’
- ◆ Any material that a municipality or industry intends to apply to agricultural land as a nutrient.
- ◆ Must meet strict regulated quality criteria under Environmental Protection Act (EPA) & Nutrient Management Act (NMA)
- ◆ Under EPA, considered a ‘waste’
- ◆ Under the NMA, considered a beneficial ‘nutrient’

Objectives of Nutrient Management Legislation

- ◆ Key component of Ontario's Clean Water Strategy intended to:
 - Reduce environmental impacts from nutrients generated by regulated farms and non-agricultural sources
 - Improve soil fertility
 - Balance nutrient loading to land when applying nutrients from ag and non-ag sources
 - Ensure economic viability and sustainability of agricultural operations and rural development

Definition of 'Non Agricultural Source Material (NASM)' under the NM legislation

Any of the following materials, other than a commercial fertilizer or compost that meets the guidelines entitled *Interim Guidelines for the Production and Use of Aerobic Compost in Ontario* prepared by the Ministry of the Environment, as long as the materials are intended to be applied to land as nutrients:

1. **Pulp and paper biosolids**
2. **Sewage Biosolids**
3. **Any other material that is not from an agricultural source that is capable of being applied to land as a nutrient**

Current Regulatory Framework

- ◆ Regulated under EPA, Regulation 347
 - requires Certificates of Approval (C of A) for generation, processing, storage, transport & land application

- ◆ Regulated under OWRA, s. 53
 - Requires C of A for sewage works (generation) & land application, in certain circumstances

- ◆ Regulated under NMA, Regulation 267
 - “generator” phase-in by date, requirement for a Nutrient Management Strategy
 - mandatory requirements at all land application sites
 - additional requirements on phased-in farms that require a approved Nutrient Management Plan

Generator Phase-In Dates

Type of NASM Operation	Phase-in Date
Sewage biosolids (large)	January 1, 2005
Sewage biosolids (medium)	December 31, 2008
Food processing by-products/residuals (all)	December 31, 2008
Sewage biosolids (small)	December 31, 2009
Pulp and paper biosolids (all)	December 31, 2009

Nutrient Management Strategy

- ◆ *Generators* of agricultural nutrients and non-agricultural nutrients must prepare a strategy which considers:
 - Quantity and quality of nutrients produced
 - Storage
 - Use

Other NMA Requirements

- ◆ All application sites: 20 m setback from surface water, no use of high trajectory guns, no winter application of sewage biosolids
- ◆ Phased-in farms with an NMP: liquid loading restrictions, requirement for 30 cm of unsaturated soil at surface of land
- ◆ Licensing & certification requirements for Brokers, Land Application Businesses & Technicians

Other NMA Requirements

- ◆ If farm unit is phased-in under NMA and NASM is applied on their land:
 - It requires an NMS and may require an approved NMP
 - must include NASM in NMP development
 - under EPA, it requires a C of A
- ◆ NOTE: The use of a NASM on a farm does NOT trigger a requirement for an NMS (however, farms using NASM do require C of A)

NASM Land Application - Current

Application Site Criteria

- ✓ soil hydrologic group NMA
- ✓ field slope within 150 m of a water course
- ✓ 20 m setback from surface water
- ✓ regulated metal concentrations in the soil
- ✓ setbacks from wells
- ✓ depth to bedrock and groundwater
- ✓ setbacks from residences EPA
- ✓ organic soils prohibited from use
- ✓ soil pH & phosphorus

NASM Land Application - Current

Application rates are based on many factors including:

- ◆ individual site characteristics of land
- ◆ cropping information (crop rotation and yields, tillage practices)
- ◆ NASM nutrient solids and metal content
- ◆ land application practices

Where to from here?

- ◆ On-going research
- ◆ A newly proposed legal framework to strengthen education and environmental control, while at the same time simplifying requirements and streamlining approvals

On-going Research

◆ Non-Beneficial constituents:

- Movement down through soil – AAFC
- Fate & Persistence – Agriculture and Agri-Food Canada (AAFC) / Trent University
- Crop Uptake – AAFC
- Environmental Impacts – Ryerson University

Proposed Legal Framework

- ◆ Amend NM regulation to include new NASM Framework and also requirements for specified on-farm treatment technologies and practices.
- ◆ Remove corresponding requirements through amendments to regulations made under the *EPA* and the *OWRA*

NASM Land Application - Proposed

Application Site Criteria

- ✓ soil hydrologic group
- ✓ field slope within 150 m of a water course
- ✓ 20 m setback from surface water
- ✓ regulated metal concentrations in the soil
- ✓ setbacks from wells
- ✓ depth to bedrock and groundwater
- ✓ setbacks from residences
- ✓ organic soils prohibited from use
- ✓ soil pH & phosphorus

NMA
NMA

EPA

Proposed Legal Framework

- ◆ Introduce a **risk-based standards** and **graduated approvals** system under the *NMA* that addresses higher risk materials while maintaining safeguards for all materials through regulatory requirements
- ◆ Every generator of NASM applied to agricultural land will be required to have a nutrient management strategy that will account for and characterize the material according to set standards
- ◆ Every farm operation receiving NASM will be required to have a nutrient management plan,
- ◆ All strategies will have to be prepared by a certified individual
- ◆ NASM still must be transported by a certified broker, and land applied by licensed businesses and technicians

What a Graduated Approval System might look like (Draft example only)

NASM Groups	Example	NMA Instruments
Group 1	Vegetable culls Vegetable washwaters	Registered NMS Registered NMP
Group 2	Bakery waste Vegetable residuals <small>(Chemically Treated)</small>	Registered NMS Registered NMP
Group 3	Grease trap waste Meat, egg and dairy residuals <small>(Protein Based)</small>	Approved NMS Registered NMP
Group 4	Pulp and paper biosolids	Approved NMS Approved NMP
Group 5	Sewage biosolids	Approved NMS Approved NMP
Group 6	Mixtures of NASM materials	Approved NMS Approved NMP

Summary

- ◆ Business as usual for generators (except large sewage treatment plants) of sewage biosolids until the new extended dates for strategies and plans are in effect
- ◆ In the interim the *EPA* will govern land application (with some *NMA* exceptions)
- ◆ Applying *NASM* to large farms (300+ NUs) or to farm land within 100 m of a municipal well, will trigger *NMA* requirements
- ◆ Current Guidelines (MOE and OMAFRA, 1996) remain in effect - no decision made to replace with updated version that adopts *NMA* standards and requirements
- ◆ In future all farms that receive *NASM* will have to have a Nutrient Management Plan (NMP) – earliest date will be Dec. 31, 2008

Bottom Line

- Agricultural land application of NASM is a sustainable practice.
- There are risks (off site movement of nutrients, pathogens, soil compaction) but Risks can be minimized with proper land application management.
- NASM can be used to supplement a crop fertility program –nutrients
- Research will provide continuous improvements