environmental farm plan
*sustainably farmed*

INFOSHEET #8

# ON-FARM STORAGE, TREATMENT AND MANAGEMENT OF MANURE AND OTHER PRESCRIBED MATERIALS

## How to address concerns identified in Environmental Farm Plan Worksheet #8

Based on Environmental Farm Plan Workbook, 5th ed. 2025

**This infosheet outlines options to address concerns identified in your Environmental Farm Plan (EFP) as they relate to on-farm storage of livestock manure and other prescribed materials.**

For prescribed materials in a Source Water Protection Zone, you may need to take measures to reduce risk. **The Farm Source Water Protection Plan framework** and workbook can help you work through the Source Water Protection Framework and its application on your farm.

***For help with technical terms, please see the full glossary in your EFP Workbook.***

All options in this infosheet are classed as **Actions, Compensating Factors,** or **Monitoring**.

- **Actions** address the identified concern, and will change the EFP rating to (3) or (4) Best.
- **Compensating Factors** are alternatives that will adequately address the concern, but will not change the rating in the EFP worksheet.
- **Monitoring** is an alternative in special circumstances only. When and how monitoring can be used is explained in the infosheet.

In most cases, you'll need more information before choosing and implementing options. Sources for more information are noted at the end of this infosheet.

Sustainable Canadian Agricultural Partnership
OSCIA
Ontario
Canada

# LOCATION OF STORAGE OR OUTDOOR LIVESTOCK YARD

## 8-1. Distance from prescribed material (ASM or NASM) storage or outdoor livestock yard to nearest surface water

### BACKGROUND

Increasing the distance between the prescribed material storage or outdoor livestock yard and surface water, decreases the risk of contaminating surface water.

Sloping topography and heavy soil increase the risk of runoff reaching surface water.

See Section 63(3) of O. Reg 267/ 03 of the Nutrient Management Act, 2002, as amended.

**BEFORE:**
**The lack of separation distance and sloping topography made this old barnyard a risk for contaminating surface water.**

**AFTER:**
**The barn has been torn down and new housing built in a more suitable location.**

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Replace the prescribed material storage or outdoor livestock yard with one at a location that is greater than 75 m (250 ft.) from the surface water.

**OPTION 2 – COMPENSATING FACTOR**

Increase the flow path distance between surface water and prescribed materials storage or outdoor livestock yard:

- reshape land or build diversion to direct runoff away from the surface water to a location in the field or along a flow path where it will not likely reach the surface water
- allow permanent vegetation to grow in field and along flow path so that more nutrients can be absorbed
- ensure any land-forming changes will not cause or increase erosion on either your property or neighbouring lands – professional assistance to site and design berms is recommended when such work is being considered, particularly along larger watercourses
- check whether a permit is required to do work adjacent to surface water – contact your local Conservation Authority for more information
- note that the flow path length must be greater than 75 m (250 ft.)

**The Manure Management BMP book has a chapter on siting manure storage facilities.**


**See also:**

**Nutrient Management Act, 2002, O. Regulation 267/03, as amended, and associated protocols and guidance documents**

**OMAFA factsheet: Constructing a permanent solid nutrient storage facility for ASM**

**AgriSuite – Ontario's nutrient management planning and manure storage sizing software**

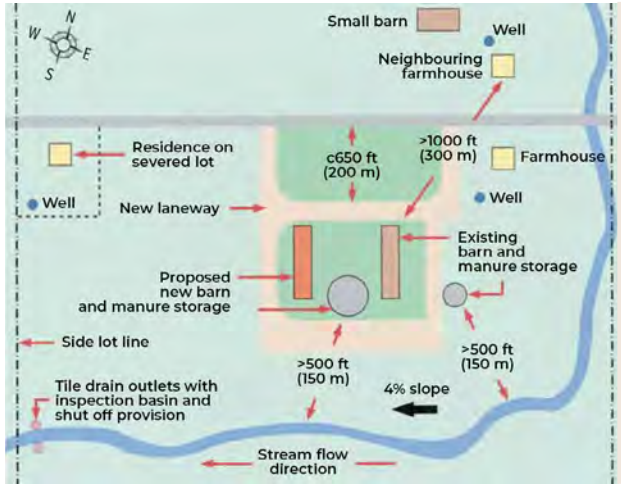
# 8-2. Distance from agricultural source material (e.g., manure) storage or the outdoor livestock yard to well(s)

## BACKGROUND

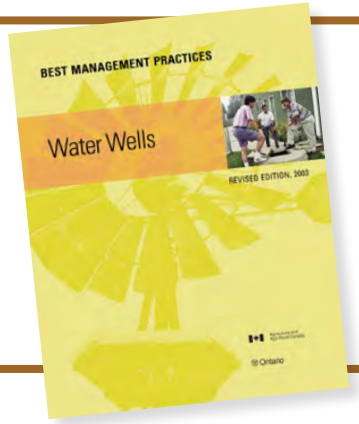
Increasing the distance between the prescribed material storage or outdoor livestock yard and well, will lower the chance of well water becoming contaminated by any storage that leaks to groundwater.

Similarly, increasing the distance between the water well and storage or outdoor livestock yard, will lower the chance that a spill could reach groundwater through the well head.

The soil type, depth to water table, and bedrock will also influence contamination potential.




**When choosing a site for livestock-related facilities, comply with separation distances to reduce risks to surface and groundwater. Relocate storage or outdoor livestock yard the required distance away from the well.**




**The Water Wells BMP book explains rural water well construction, maintenance, and troubleshooting. It looks at how to manage site factors and farm practices to protect well water quality.**

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Relocate storage or outdoor livestock yard the required distance away from the well:

- locate new storage downslope of well if possible
- the new storage location should change the final EFP distance rating to a (3) or (4) Best

Test well water for indicator bacteria at least three times a year, and once a year for other parameters (such as nitrate).

### OPTION 2 – ACTION

Drill a new water well the required distance from the storage:

- the new water well location should change the final EFP distance rating to a (3) or (4) Best

Make sure the old well is properly abandoned according to Regulation 903 (Section 21) under the Ontario Water Resources Act.

### OPTION 3 – MONITORING

For earthen, concrete or steel storages that have adequate storage capacity and are in good working condition (no leaks or cracks):

- test the well water for indicator bacteria at least three times a year and once a year for other parameters such as nitrate

Note that monitoring of well water is **NOT AN ADEQUATE OR LONG-TERM SOLUTION**. In the event a test reveals contamination of the well water, have an action plan in place to immediately identify and address the source of contamination.

**AgriSuite is a collection of free web-based decision support tools to help generate nutrient management strategies and plans (NMS&P) as well as non-agricultural source material (NASM) plans. It can identify risk factors for nitrogen movement to groundwater and provide minimum recommended separation distances from watercourses.**

# 8–3. Location of prescribed material storage or outdoor livestock yard adjacent to floodplain

## BACKGROUND

Restrictions apply when siting prescribed material storages or outdoor livestock yards within a floodplain.

See Section 63(4) of O. Reg. 267/03 of the Nutrient Management Act, 2002, as amended.

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Avoid a flood risk by relocating the storage or outdoor livestock yard away from a known or suspected floodplain:

- if it is possible that the existing storage or livestock yard is in a floodplain, contact your local municipality or the local Conservation Authority to determine if floodplain mapping is available – ensure that new construction is outside the regulated flood lines

### OPTION 2 – ACTION

Implement flood-proofing measures approved by the local Conservation Authority. Ensure:

- approvals are obtained from local Conservation Authority **PRIOR** to construction for proposed flood-proofing measures for new prescribed materials storage and yards
- the top elevation of the storage exceeds the flood lines
- the structure is designed to withstand a potential flood situation
- both the engineer and contractor retained to design and construct/modify the storage are aware of the flood-proofing measures required by the local Conservation Authority

**In some cases, a Conservation Authority may conclude that environmental benefits arising from building the storage at a given site outweigh the flooding risk.**

**The Manure Management BMP book has a chapter on siting manure storage facilities.**

## 8–4. Distance from the prescribed material storage or the outdoor livestock yard to subsurface perforated plastic, clay or concrete drainage tile

### BACKGROUND

Subsurface drainage can act as a conduit for both clean and contaminated water between the material storage and surface water. Contaminated liquids from storage or outdoor livestock yard are less likely to move if there are no subsurface tile drainage systems near the storage.

See Section 63(2) and (5) of O. Reg. 267/03 of the Nutrient Management Act, 2002, as amended.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Remove all drainage tile located beneath and within 15 m (50 ft.) of the storage:

- refer to tile drainage maps or records to locate all known subsurface tiles – the task may require some trenching within 15 m (50 ft.) of the storage to find all subsurface drains
- divert all clean water around the storage (e.g., eavestrough water, upslope diversion water)

**OPTION 2 – ACTION**

Cut off and redirect all tile drainage located within 15 m (50 ft.) of storage or outdoor livestock yard through an observation and shut-off station:

- this is an option when drainage tiles are located beneath and near the storage and cannot be safely or easily removed

**OPTION 3 – ACTION**

Remove perforated drainage tile and replace with non-perforated tile in the area within 15 m (50 ft.) of the storage or outdoor livestock yard.

**Refer to tile drainage maps or records to locate all known subsurface tiles.**

# LIQUID PRESCRIBED MATERIAL STORAGE AND TREATMENT STRUCTURES

## 8–5. Design of liquid prescribed material storage or anaerobic digester

### BACKGROUND

Liquid permanent nutrient facilities  or anaerobic digestor (AD) tanks must be designed by a professional engineer. It is critical to inspect and maintain these structures. A major failure could potentially cause extensive environmental damage and present risk to human and/or animal safety. A minor failure (e.g., a leak) could cause continuous contamination of ground and surface water. Failures causing off-farm environmental contamination can have legal ramifications as well, in the Drainage Act, Environmental Protection Act, Water Resources Act, or Fisheries Act.

Through the Ontario Building Code, municipalities will require building permits for these structures.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Visually evaluate the existing storage for leaks, cracks, slumping and rodent damage:

- if your assessment reveals a concern, hire a qualified third party to make an independent assessment of the structure. If required, replace storage with a new structure meeting the design standards specified through the Nutrient Management Act, 2002, Ontario Regulation 267/03, as amended.

Document the repairs that were made by preparing or updating an approved nutrient management strategy.

**OPTION 2 – ACTION**

Replace storage structure or AD tank:

- size the new storage facility to match or exceed the capacity required under the Nutrient Management Regulation 267/03
- hire a professional engineer to design the facility to ensure the design meets the Ontario Building Code and the Nutrient Management Act, 2002, Ontario Regulation 267/03, as amended
- properly decommission any unused storages

**Gaseous Fuel Code** – **administered by Technical Safety Standards Authority (TSSA)**
**www.tssa.org**

**Ontario Electrical Safety Code** – **administered by Electrical Safety Authority (ESA)**
**www.esasafe.com**

**Ontario Building Code**

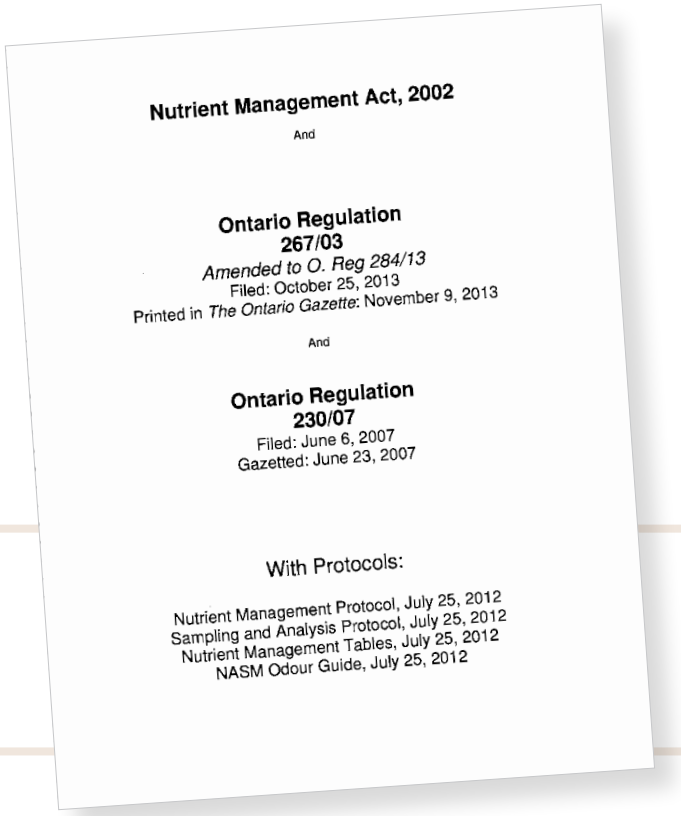
# 8–6. Liquid nutrient (e.g., liquid manure) transfer system (from barn to storage or from storage to storage)

## BACKGROUND

If a transfer system fails, a liquid tank could empty – causing significant environmental damage and/or creating a human and animal health hazard.

Some livestock farms have long-term liquid storage tanks located at an elevation higher than the barn floor or gutter. If these farms do not have transfer pipes with an air break, they must have a transfer system that relies on a valve to prevent backflow.

If your farm is in this category, you should review the equipment available and operating procedures used to prevent backflow.



Nutrient Management Act, 2002

And

Ontario Regulation
267/03
*Amended to O. Reg 284/13*
Filed: October 25, 2013
Printed in *The Ontario Gazette*: November 9, 2013

And

Ontario Regulation
230/07
Filed: June 6, 2007
Gazetted: June 23, 2007

With Protocols:

Nutrient Management Protocol, July 25, 2012
Sampling and Analysis Protocol, July 25, 2012
Nutrient Management Tables, July 25, 2012
NASM Odour Guide, July 25, 2012

## WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Ensure transfer system meets O.Reg. 267/03 construction standards for transfer systems.

Routinely inspect for leaks or cracks.

Note that for liquid manure transfer systems regulated by the Nutrient Management Act, 2002, the regulation states a second check valve is required for compliance.

**OPTION 2 – ACTION**

Ensure transfer system meets O.Reg. 267/03 construction standards for transfer systems.

Routinely inspect for leaks or cracks.

Install an “air gap” in line if long-term storage is located higher than gutter or transfer storage.

**OPTION 3 – ACTION**

Ensure transfer system meets O.Reg. 267/03 construction standards for transfer systems.

Routinely inspect for leaks or cracks.

Install a second valve in transfer line and install an alarm system to give warning if tank is about to overflow.

**To view the Nutrient Management Act, 2002, Ontario Regulation 267/03, go to:**
**www.e-laws.gov.on.ca/html/regs/english/elaws_regs_030267_e.htm**

## 8–7. Liquid manure storage cover

### BACKGROUND

Methane is produced from a liquid manure storage by anaerobic bacteria that break down volatile solids in the material. This methane is emitted from the manure storage and is a key contributor to climate change.

Covering your manure storage with an impermeable cover to capture the gas and then flaring any collected gas can significantly reduce these methane emissions. This approach is currently more common in other jurisdictions.

In some systems, such as anaerobic digesters, anaerobic bacteria are encouraged to produce methane by heating and mixing the stored material. The methane generated is captured and used as in energy production (i.e., electricity, renewable natural gas, or heat). By generating renewable energy this approach also reduces the use of fossil fuels.

Another approach to reducing manure storage emission is to cover a liquid storage with straw. Applying and maintaining a thick layer of straw over the manure effectively reduces the amount of methane released during storage, reducing greenhouse gas emissions.

**Straw chopper installing a permeable straw cover on a liquid manure storage.**

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Construct an anaerobic digester. The methane (biogas) that is generated will be used for energy generation (e.g., electricity, renewable natural gas, or heat). An anaerobic digester requires significant investment. Usually, contracts for off-farm energy sales are needed to make the project economical.

**OPTION 2 – ACTION**

Install an impermeable cover on the liquid manure storage. Ensure that the accumulated gas is fed into a flare system with a methane gas meter.

This approach may have significant initial capital investments.

**OPTION 3 – ACTION**

Create a straw cover that is at least 6 inches deep. Use a straw chopper or blower to evenly distribute the straw over the surface of the outdoor liquid manure storage.

Regularly maintain the straw cover. Straw covers typically last up to 6 months and may need to be replenished or replaced.

# 8–8. Volume of washwater and manure entering liquid agricultural source material storage

## BACKGROUND

Reducing the volume of washwater and manure entering the storage reduces environmental risk and operating costs associated with manure handling.

## WHAT CAN YOU DO?

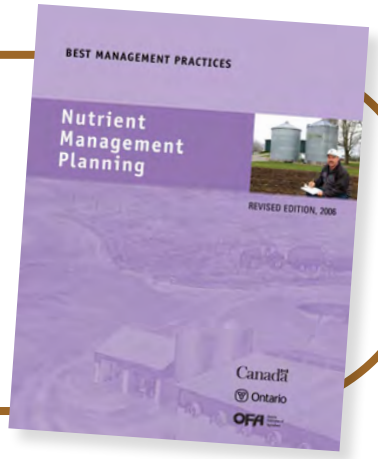
### OPTION 1 – ACTION

At least two of the following measures are required for this option to be acceptable.

1. Reduce use of washwater in barn:
   - use recaptured washwater to wash floors instead of clean water
2. Reduce or eliminate leakage from drinkers:
   - consider installation of wet/dry feeders in swine finishing barn
   - avoid plugging of drinkers (install filters, new style drinkers etc.)
   - maintain drinkers on a regular basis
3. Increase efficiency of feed usage:
   - use a proper nutritional balance of feed components
   - test feed for nutritional content
   - avoid spoilage and wasting of feed products

**Reducing the volume of liquids that must be stored will mean savings in handling, transportation and application costs.**

**With the Nutrient Management Planning BMP book, learn how to inventory nutrient sources, interpret results, plan application, keep records, monitor and make adjustments.**




To view the Nutrient Management Act, 2002, Ontario Regulation 267/03, go to: www.e-laws.gov.on.ca/html/regs/english/elaws_regs_030267_e.htm

# 8–9. Capacity of liquid agricultural material storage

## BACKGROUND

Having sufficient capacity to store liquid agricultural source material gives you greater flexibility for scheduling spreading in an environmentally acceptable manner.

Recent climate models have shown that the intensity and frequency of precipitation has been affected due to climate change. Changes in the intensity of precipitation, combined with changes in the intervals between precipitation events, can lead to overall increase in precipitation total. It is important to account this potential increase while sizing the storge facilities.

**The Nutrient Management Act, 2002, Ontario Regulation 267/03**, as amended, sets minimum storage requirements for all liquid agricultural material storages constructed.

**Adequate storage of material provides a larger window of opportunity to spread in an environmentally acceptable manner.**

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Build additional manure storage to increase storage capacity to 240 days or more.

### OPTION 2 – ACTION

Prepare a nutrient management plan, showing that present storage capacity is adequate:

- developing a nutrient management strategy/plan will help you ensure and demonstrate that you have sufficient storage to avoid winter spreading

### OPTION 3 – ACTION

Reduce input to existing storage:

- cover the storage – eliminating direct rainfall allows for more available capacity
- reduce the volume of clean water or manure-contaminated water entry to storage (see options in 8–12 and 8–13 in this infosheet)
- build a separate system to handle milking centre washwater (e.g., sediment tank and treatment trench)
- prevent snow from drifting into storage

### OPTION 4 – ACTION

Arrange for a licensed manure broker to store and transport your manure off-farm:

- ensure the manure broker has sufficient storage available (240 days or more) to handle the volume of manure you are wanting to transfer off-farm
- you will need written documentation of this activity if your farm requires a nutrient management strategy/plan under **Ontario Regulation 267/03** or local bylaw

**Read these OMAFA factsheets:**

- **Constructing a permanent concrete or steel liquid nutrient storage facility for agricultural source materials**
- **Constructing a permanent solid nutrient storage facility for agricultural source materials**
- **Constructing an earthen liquid nutrient storage facility for agricultural source materials**
- **Storage of liquid manure**

# 8-10. Frequency of liquid manure removal

## BACKGROUND

Manure is a major source of greenhouse gas emissions in agriculture, particularly methane ($CH_4$). Methane is produced when liquid manure is stored in oxygen-poor (anaerobic) conditions, which promote the activity of methane-producing microbes.

One effective strategy to reduce methane emissions is by emptying the liquid manure storage more frequently. By decreasing the storage time, the manure spends less time in anaerobic conditions, leading to a reduction in overall methane production.

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Increase the frequency of liquid manure removal:

- empty the liquid manure storage two or more times per year, during spring, summer or fall season
- modify your nutrient management plan to accommodate the increased frequency of manure application, ensuring that nutrient levels remain balanced and compliant with regulations
- acquire or upgrade equipment to handle more frequent manure applications
- develop a detailed schedule for manure application that aligns with crop rotations

**Empty the liquid manure storage two or more times per year, during spring, summer or fall season.**

# 8–11. Liquid prescribed material storage and anaerobic digestor safety

## BACKGROUND

Liquid storages are a potential safety hazard as entering a storage can cause injury or death from inhaling gases or drowning. Proper safety measures are required to address these hazards. Storages must be constructed and operated to current safety standards as described in the Ontario Building Code.

Even if the farm no longer functions as a livestock enterprise, there can be existing storages filled or partially filled with liquids. These storages have the same safety concerns.

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

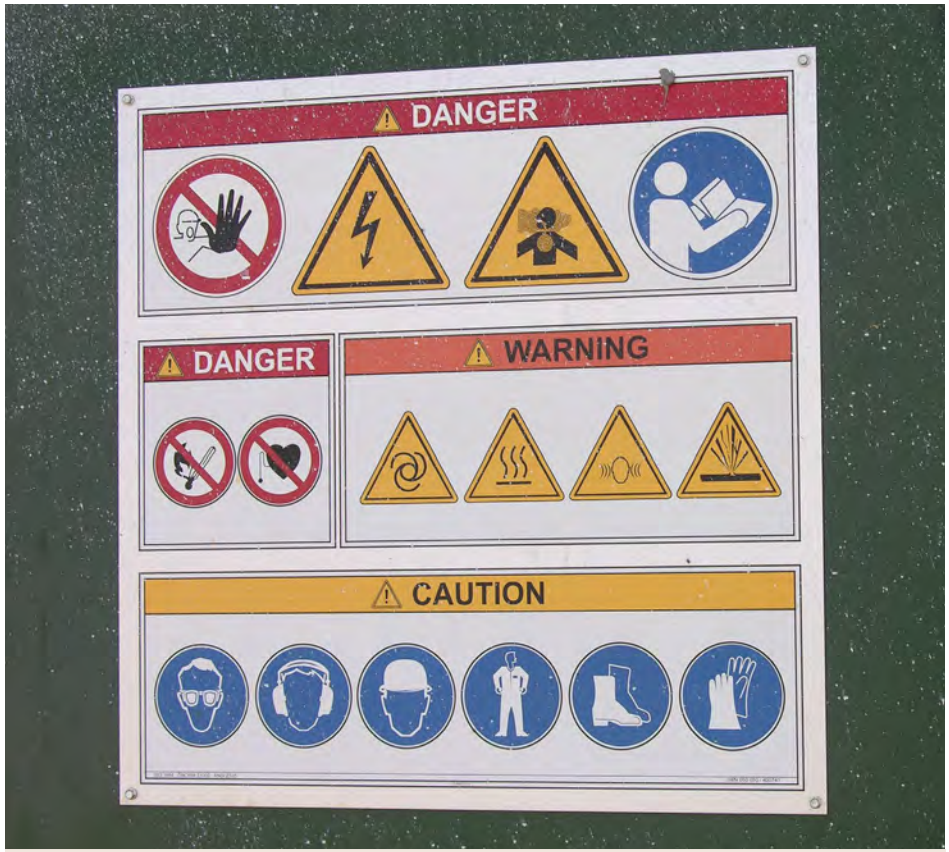
Implement all required safety measures:

- install safety fencing or barrier (see Safety Fencing in EFP glossary)
- post “Hazardous Gas” “No Entry” signs at all access points
- remove ladder from storage
- install safety railing or grate on all manure hopper openings greater than 100 mm (4 in.)
- install valve or gas trap in transfer line between tank and barn
- upgrade electrical equipment to meet current Electrical Safety Code

### OPTION 2 – ACTION

Decommission unused storages:

- Refer to **Decommissioning and/or recommissioning existing nutrient storage facilities**




Warning signs must be posted.

**WARNING:** Lethal concentrations of hazardous gases can be found in confined spaces such as liquid storages. Never assume that the environment near a liquid storage is safe.

Read the OMAFA factsheet: **Hazardous gases on agricultural operations**

# SOLID PRESCRIBED MATERIAL STORAGE OR LIVESTOCK YARD

## 8-12. Storage capacity of permanent solid prescribed material (e.g., solid manure) storages

### BACKGROUND

Generally, solid storage needs to have capacity of 240 days to avoid spreading in winter and wet weather.

**Eliminating direct rain and snowfall will prevent runoff.**

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Increase storage capacity to 240 days or more. Install an additional manure storage:

- if cropping cycles, soil conditions, or your management choices as outlined in your nutrient management plan limit manure application frequencies to only the spring or summer months, manure storage capacity may need to be between 240 and 365 days

**OPTION 2 – ACTION**

Prepare a nutrient management plan:

- a nutrient management plan/strategy will determine minimum days of storage required

**OPTION 3 – ACTION**

Arrange for a licensed manure broker to store and transport your manure off-farm:

- obtain a written agreement from the broker if your farm requires a nutrient management strategy/plan

**OPTION 4 – COMPENSATING FACTOR**

Use temporary field storage until you can provide adequate permanent storage capacity:

- follow temporary field storage rules as outlined in **O. Reg. 267/03**, as amended. See Section 8–15 in this infosheet

## 8-13. Floor of permanent solid prescribed material storage or livestock yard

### BACKGROUND

For the storage of solid prescribed materials (e.g., manure) or a livestock yard, the flooring must be impermeable to liquids. This prevents the downward movement of contaminants to the groundwater.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Construct an impermeable floor for the storage or the livestock yard (e.g., concrete or pavement).

**Use concrete, pavement or other impermeable material for the floor of the storage or livestock yard.**

**A properly designed eavestrough system will direct clean water away from storage or yard areas.**

## 8-14. Preventing clean water from entering permanent solid prescribed material storage or yard area

### BACKGROUND

Preventing water from entering the storage or yard area will reduce the amount of contaminated water that must be handled, and the added operating costs associated with handling the unwanted water.

Control of clean water entry is one of the lowest-cost components in any manure management system.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Prevent any roof water or upslope water from entering storage or yard area:

- install properly sized eavestroughs and outlet pipes to conduct water away from storage and livestock yard
- re-route any surface water flows away from storage and yard
- install diversion bumps at all entrances to storage and yard
- use a vegetated flow path between the barn and storage to capture roof water and divert away from storage
- install fencing to reduce the entry of drifting snow

# 8–15. Control of runoff from a permanent solid prescribed material storage or outdoor livestock yard

## BACKGROUND

Runoff from solid storages or yards should be contained and properly handled or eliminated. Uncontrolled runoff can have serious impacts on surface and groundwater quality.

Runoff causing off-farm environmental contamination could be a contravention of the Environmental Protection Act, Ontario Water Resources Act, or the Fisheries Act.

**Ontario Regulation 267/03**, as amended, and associated protocols and guidance documents identify the minimum standards required for solid storages or yards in Ontario.

As with all other types of manure storages, runoff from solid storages or yards with an earthen base should be contained and properly handled or eliminated. A manure storage with a soil base can have the added risk of contaminated water percolating into the ground beneath the pile and reaching groundwater or tile drainage systems.

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Install a roof over solid storages or yards to eliminate direct precipitation from rain and snow:

- ensure clean water does not enter solid manure storage (see 8–14. for more info)
- if needed to soak up all liquids, increase manure dry matter content by adding more bedding

### OPTION 2 – ACTION

Install a liquid runoff storage system to properly capture and contain all runoff from solid storage or yard:

- ensure the runoff storage is properly sized and designed
- divert clean, upslope water away before it reaches the storage or yard
- adjust storage size to accommodate any washwater to be added to storage (e.g., milking centre)

### OPTION 3 – ACTION

Tarp storage to eliminate entry of direct rainfall and snowfall:

- divert upslope water away before it reaches the storage location
- securely tie down the cover

### OPTION 4 – ACTION

Construct a vegetated filter strip of the required size to receive the runoff:

- this will require an engineered design to account for peak flows. Refer to **O. Reg. 267/03** for details related to the design and maintenance of runoff management systems

### OPTION 5 – ACTION

Establish a physical barrier consisting of a permanently vegetated flow path to manage runoff from solid storage:

- earthen diversions redirect manure runoff to run alongside the watercourse or cause it to meander in an upslope area. This increases the distance runoff has to travel before reaching surface water

Ensure any land-forming change will not cause or increase erosion on either your property or neighbouring lands.

Professional assistance to site and design berms is recommended when such work is being considered, particularly along larger watercourses. A permit from the local Conservation Authority is required if work is done within the floodplain.

**Note that:**

- the length of flow path must be at least 300 m (984 ft.) for stored manure of 30–50% dry matter (DM)
- the length of flow path must be at least 100 m (328 ft.) if the DM content of stored manure is greater than 50%
- upslope water must be diverted away from the flow path

**For more details about options, see the chapter on runoff management from yards and stored feeds, in the Manure Management BMP book.**

# 8-16. Control of runoff from an outdoor sacrifice or winter-feeding area

## BACKGROUND

Outdoor sacrifice or winter-feeding areas can lead to degradation of vegetation cover and the accumulation of manure. This can lead to an increase in runoff and erosion. To prevent increased erosion, these areas need to be moved around regularly and must meet the required setback distance from surface water.

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Plan and manage all outdoor sacrifice and winter-feeding areas. In springtime following winter use:

- remove excess manure solids from feeding area and land-apply to cropland
- reseed to re-establish vegetation over the area
- establish a minimum of 30 m (100 ft.) of permanently vegetated buffer between winter feeding area and surface water

Establish winter feeding areas with a minimum of 30 m (100 ft.) of permanently vegetated buffer from surface water.

Well-managed buffer strips go a long way to filtering farm runoff before it enters streams, wetlands, ponds and lakes. This BMP book explains how to establish, maintain and improve buffer strips according to the topography and land uses on your property.


If you would like to learn more about options to develop a workable grazing management plan that balances your production and environmental goals, see this BMP publication.

# 8–17. Temporary field storage or outdoor windrow composting (on soil base) of agricultural source materials (ASM) or Category 1 non-agricultural source materials (NASM)

## BACKGROUND

Temporary field storage = stacked in the field on soil base.

Runoff from stored manure can cause significant environmental damage to surface and groundwater. Off-farm contamination caused by runoff from temporary solid storages could be a contravention of the Drainage Act, Environmental Protection Act, Water Resources Act, and/or the Fisheries Act.

There is no "Best" category because field storage will not contain runoff. In general, it is not a best practice to stack solid prescribed materials on the ground for long-term storage. **Ontario Regulation 267/03** provides the option of temporary field storage if the site chosen and material stored result in a low-risk situation. See Sections 83 to 86 of O. Reg. 267/03, as amended, and guidance documents.

OMAFA Factsheet **Temporary storage of solid manure or other agricultural source material** outlines siting and management criteria.

Runoff from a composting site needs to be managed. If not, a composting site may have a serious impact on surface and groundwater quality.

A well-managed composting process requires full attention to the moisture content, dry matter content, C:N ratio, and temperature of the material being composted. Keep complete records of your composting management activities including where pile is located, dates when pile turned, compost pile monitoring results, compost analysis results, and dates that piles were established and removed.

Off-farm environmental contamination caused by runoff from composting sites could be a contravention of the Drainage Act, Environmental Protection Act, Water Resources Act, or the Fisheries Act.

**A well-managed compost site will not pose a risk to surface or groundwater.**

**See also:**

**Guideline for the production of compost in Ontario, from Ministry of Environment, Conservation and Parks (MECP)**

**Temporary field storage of solid manure or other agricultural source materials**

## 8-17. Temporary field storage or outdoor windrow composting (on soil base) of agricultural source materials (ASM) or Category 1 non-agricultural source materials (NASM) continued

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Relocate temporary pile on a site that meets all siting and management criteria:

- more than 90 m (300 ft.) from a drilled well or 200 m (656 ft.) from any other well
- not in a flood-prone area
- maximum 3% slope
- more than 100 m (330 ft.) from surface water or tile inlet
- minimum soil depth to bedrock is at least 0.6 m (2 ft.)
- minimum depth to water table under the pile and within 6 m (20 ft.) of sides is at least 1.8 m (6 ft.)
- not on a tile-drained site, or if tile-drained there is a tile monitoring and shutoff station and a plan in place to deal with leachate entering tile
- if the pile is ASM or Odour Category 1 (OC1) NASM, it is at least 125 m (410 ft.) from a single residence and 250 m (820 ft.) from a residential area
- if the pile is Odour Category 2 (OC2) NASM, it is at least 200 m (656 ft.) from a single residence and 450 m (1,477 ft.) from a residential area

Runoff from a composting site

Manage and monitor:

- moisture content
- dry matter content
- C:N ratio, and
- temperature of the material being composted

**Manure can be temporarily stored in field as long as all siting and management criteria are met.**

Keep complete records of your composting management activities, including:

- where pile is located
- dates when pile is turned
- compost pile monitoring results
- compost analysis results, and
- dates piles were established and removed

## 8-18. Management of feedlot or yard snow

### BACKGROUND

When snow in a feedlot or yard melts, it will become mixed with manure and result in contaminated runoff.

If runoff is not controlled, it may have a serious impact on surface water and groundwater quality. A feedlot or yard with a soil base can have the added risk of contaminated water percolating into the ground and reaching groundwater or tile drainage systems.

Runoff from feedlots or yards should be eliminated or contained and properly handled.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Construct a roof over the feedlot or yard to prevent snow and ice buildup.

**OPTION 2 – ACTION**

Construct a runoff collection and storage system to contain the water and manure runoff resulting from snow melt.

**All runoff from this walled yard is captured in a liquid storage tank.**

# 8–19. Contingency plans

## BACKGROUND

All farmers should have a written contingency plan. It will help you react quickly and demonstrates due diligence.

A contingency plan includes:

- an emergency plan, which outlines steps to be taken in the event of a manure or fertilizer spill
- steps to be taken if manure storages are filling up faster than expected, or weather conditions or equipment failures delay spreading

For Ontario farms regulated by the Nutrient Management Act, Ontario Regulation 267/03, as amended, requires that a contingency plan be part of the farm's nutrient management plan (See Part III of O. Reg 267/03, as amended).


**A contingency plan must be site-specific – tailored to the operation to which it applies.**

## WHAT CAN YOU DO?

### OPTION 1 – ACTION

Prepare a contingency plan covering the critical risk points on your operation (e.g. agricultural materials storage facilities, manure transfer systems, spreading near surface water, etc.).

Ensure the written plan is accessible, so that anyone in your operation can respond to an emergency. Also keep the contingency plan reviewed and up-to-date.

The "emergency plan" component of a contingency plan should include a list of emergency contacts, including the Ministry of Environment, Conservation and Parks Spills Action Centre, the local municipality, local emergency response or contracting companies with the type of equipment needed to address a manure spill.

It should also include contact numbers for downstream water users who may be affected and neighbours who could help in an emergency. The Nutrient Management Act, 2002, Ontario Regulation 267/03, as amended, requires that contingency plans prepared for provincially regulated farms also demonstrate that thought has been given to the following situations:

- when the actual amount of prescribed material generated in the operation ends up exceeding the design capacity of the storage facilities available
- when weather conditions delay application plans and manure storage is at risk of exceeding capacity
- when equipment unexpectedly becomes unavailable or breaks down and manure capacity is at risk of being exceeded
- when any other situation occurs (e.g., liquid runoff) that could result in the emergency handling of prescribed materials

Sample contingency plans are available from OMAFA. However, every contingency plan should be tailored to the operation to which it applies, and address situations thought to be of highest risk. The EFP Contingency Plan booklet available from OSCIA contains a section on manure spills.

## 8-20. Distance from Category 1 NASM storage to well

### BACKGROUND

Increasing the distance between the NASM storage and wells, lowers the chance of well water from becoming contaminated by any storage that leaks to groundwater.

Similarly, increasing the distance between the NASM storage and wells, lowers the chance a spill reaching the groundwater through the well head.

The soil type, depth to water table and bedrock also influence the contamination potential.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Build storage the required distance away from the well:

- locate new storage downslope of well if possible
- the new storage location should change the final EFP distance rating to a (3) or (4) Best

Test well water for indicator bacteria at least three times a year, and once a year for other parameters such as nitrate.

**OPTION 2 – ACTION**

Construct new water well the required distance away from the storage:

- make sure old well is properly abandoned according to Ontario Regulation 903 (Section 21) under the Ontario Water Resources Act
- the new water well location should change the final EFP distance rating to a (3) or (4) Best

## 8-21. Category 2 or 3 NASMs are stored on farm

### BACKGROUND

Storage of Category 2 (processed plant material) or Category 3 (may include meat processing and sewage biosolids NASM) requires an approved NASM plan.

### WHAT CAN YOU DO?

**OPTION 1 – ACTION**

Prepare, seek approval for, and follow a NASM plan:

- see Appendix A of the EFP Workbook for more information

**AgriSuite is used to generate NASM plans.**


**For additional information about the use of sewage biosolids NASM, see this BMP publication.**

# FOR MORE INFORMATION

## ONTARIO MINISTRY OF AGRICULTURE, FOOD AND AGRIBUSINESS (OMAFA)

- Agricultural Information Contact Centre (AICC)
  Toll free: 1-877-424-1300 | e-mail: ag.info.omafa@ontario.ca

  Find most of the resources listed below at www.ontario.ca

### Publications

- The Minimum Distance Separation (MDS) Document, Publication 853

### Factsheets

- Constructing a permanent concrete or steel liquid nutrient storage facility for agricultural source materials
- Constructing a permanent solid nutrient storage facility for agricultural source materials
- Constructing an earthen liquid nutrient storage facility for agricultural source materials
- Decommissioning and/or recommissioning existing nutrient storage facilities
- Site characterization study for the construction of permanent nutrient storage facilities
- Siting requirements for permanent nutrient storage facilities
- Storage of liquid manure
- Regulatory requirements for regulated mix anaerobic mix digestion facilities
- Anaerobic digestion basics
- Building permit requirements to construct, expand or renovate farm buildings
- Fencing for outdoor pig production – protecting your livestock and the environment
- Fencing options for predator control

## ONTARIO MINISTRY OF AGRICULTURE, FOOD AND AGRIBUSINESS (OMAFA), *continued*

### Factsheets, *continued*

- Fencing for deer and elk
- Managing outdoor confinement areas and livestock yards
- Hazardous gases on agriculture operations
- Temporary field storage of solid manure or other agricultural source material
- Temporary field storage of non-agriculture source materials

### Best Management Practices Series

- Manure Management
- Nutrient Management Planning
- Application of Municipal Sewage Biosolids to Cropland
- Buffer Strips
- Soil Management
- Water Wells

### Other Resources

- AgriSuite

## ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

- Guideline for the Production of Compost in Ontario

## CONSERVATION ONTARIO

- Flood Plain Mapping

# FOR MORE INFORMATION, *continued*

## ONTARIO SOIL AND CROP IMPROVEMENT ASSOCIATION

- Emergency Plan

## LEGISLATION/ACTS

- Ontario Building Code
- Nutrient Management Act, 2002
- Drainage Act, 1990
- Ontario Water Resources Act, 1990