

ENVIRONMENTAL MANAGEMENT NEWSLETTER

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DRILLED WELL SETBACK DISTANCES REMEMBER THE DEFINITION

Richard Brunke—Engineer, Nutrient Management

The required setback distance from new or expanding permanent nutrient storages is set out in Section 63. (1) of the Nutrient Management (NM) Regulation (267/03) as follows:

“63. (1) ...no person shall construct or expand a permanent nutrient storage facility used on a farm unit in the course of the operation if the facility is located,

- within **15 metres** of a drilled well that has a depth of at least 15 metres and a watertight casing to a depth of at least six metres below ground level;
- within **100 metres** of a municipal well;
- within **30 metres** of any other well, if the facility is designed to store only agricultural source materials; or
- within **90 metres** of any other well, if the facility is designed to store non-agricultural source materials. O. Reg. 267/03, s. 63 (1); O. Reg. 447/03, s. 27 (1). ”

A minimum setback distance of 15 metres must be maintained between a new or expanded permanent nutrient storage facility and a drilled well that has a depth of **at least 15 metres and has a watertight casing to a depth of at least 6 metres below ground level.**

There are many examples of older drilled wells that were constructed within a well pit where the wellhead was normally four or more feet below ground level. Photo 1 is an example of a drilled well within a pit, with a very poor cover.



Photo 1. Well Pit



Photo 2. Well pit inside view

Photos 2 and 3 show how ground water can enter the well pit and lead to well contamination. Foreign materials that enter the well through the well pit do not necessarily stay in that well; but can flow with ground water to other wells. It must be remembered, a well is a direct connection between the aquifer and surface. If any contaminated water is allowed to enter into a well, it will be transferred directly into the aquifer.

Existing wells in a well pit **do not** meet the criteria of a drilled well under the NM Regulations since the wellhead is below the ground surface. For this reason, any new or expanded permanent storage facility are required to have a minimum of 30 metres setback to



Photo 3. Wellhead in well pit

these types of wells, provided that they do not fall under the definition of a municipal well.

Construction standards for new wells are legislated under the Ontario Water Resources Regulation 903. As of 1990, Ontario Water Resources Act Regulation 903 does not allow any new wells to be constructed within a well pit nor can a well pit be added to any existing wells. All new drilled wells must have a casing that extends 0.4 metres (16 in) above ground level to prevent groundwater contamination. It is highly recommended that existing wells in well pits be upgraded to meet today's standards or decommissioned if no longer in use.

WINTER APPLICATION – WHAT ARE THE RULES ANYWAY?

Jacqui Laporte—Environmental Specialist

The Environmental Specialists and Agricultural Environmental Officers are receiving an increase in calls regarding winter spreading. The majority of calls came in early January, when a thaw melted the snow. Some farmers were finally able get their corn off the field, and the manure that was intended for spreading in November was ready for land application.

While the weather has certainly proposed significant challenges to harvesting crops and manure application plans for a lot of farmers, there are a few important things to keep in mind.

First, all farms with Nutrient Management Strategies (and Plans) are required to have a Contingency Plan. The plan must include the steps a farmer will take to manage manure in the event that weather or equipment conditions impede their ability to spread as planned. This could include things like finding other storage locations or reducing the collection of clean water. If a farmer finds themselves in a position where the tank is full and the snow is knee deep, the first question should be – What did I say I would do in my contingency plan to manage this?

Second, winter application of manure and other agricultural source materials do not make the best use of nutrients and are **not recommended** as they increase the risk of polluting the environment. The risk of runoff to surface water is greater when applying on frozen or snow-covered ground than other times of the year. We can also consider the economic impact of the

loss of nutrients. OMAFRA published a Fact Sheet earlier this year entitled *The Available Nutrients and Value for Manure from Various Livestock Types* (Order No. 08-041). The manure values were based on the purchase price of an equivalent amount of mineral fertilizer, as of June, 2008. If these nutrients are lost to the atmosphere or to surface water runoff, then there is an economic loss to the farming operation.

Finally, while the winter spreading rules in O. Reg. 267/03 apply to phased-in farms, other environmental legislation applies to everyone. Statutes such as the Environmental Protection Act, Ontario Water Resources Act, and the Fisheries Act all contain general prohibitions against the discharge of contaminants which may impair the natural environment. Land application of manure at inappropriate times and locations could result in a visit from regulatory authorities.

EFP Equivalency Option Extended for Agricultural Operation Planning Certificate

The EFP equivalency option for farmers seeking certification to prepare their own NMS/P is extended to **June 30, 2009**.

As a reminder, farmers hoping to be certified as Agricultural Operation Planning Certificate holders have the following options to fulfill their requirements:

Option A:

Regulation and Protocols course (in class or on-line)
Introduction to Nutrient Management course or historical Fundamentals of Nutrient Management Course

Option B:

Regulation and Protocols course (in class or on-line)
Agronomic Quiz and confirmation and completion of a 3rd Edition Environmental Farm Plan (i.e. a letter from the local Peer Review committee accepting the farm action plan).

To arrange a quiz, clients and staff can call Freida Hebert (519-826-6374) or Thel Simpson (519-826-4392) to make arrangements.

QUESTION FROM CONSULTANTS AND FARMERS

**Phyllis MacMaster—Environmental Specialist
and Matt Wilson—Environmental Specialist**

QUESTION:

How do you represent cattle operations that use scrape alleys when using MSTOR to prepare a Nutrient Management Strategy or Plan?

ANSWER:

An important step in preparing a Nutrient Management Strategy is to demonstrate sufficient storage on the farm. The type and amount of manure generated by livestock may vary considerably from one farm operation to another.

In assessing the amount of manure generated, and the storage required, consultants should consider several factors when operations have facilities with scrape alleys/bedding packs or yard/bedding packs. Some practices that can impact the amount and type of manure generated in specific areas are feeding routines, amount of extra bedding, livestock stocking rate, location of water areas.

The management of the bedding pack and scrape areas can also impact the amount of solid and liquid manure that is generated. For example, some operations may incorporate the scrape alley manure into the bedding pack, add extra bedding to the scrape alley or compost the bedding pack area.

One of the biggest challenges when preparing a Nutrient Management Strategy is to accurately represent the operation using the NMAN software. Sometimes, it is easy to make a scenario work in the program or on paper, but the end result might not be a true reflection of the farm operation. It is important to represent the management method of the operation in MSTOR so you don't underestimate the amount of storage required by the operation. This is particularly important for liquid manure. There are more options available to manage actual solid manure production than liquid (i.e. increasing the height of bedded pack or temporary field storage sites)

Below are a few examples of how you could represent scrape alleys or yards and bedded pack barns in MSTOR.

Bedded Pack Barns with Scrape Alleys

One common manure management practice is to have dairy heifers on a manure pack with a scrape alley along the feeder. In NMAN, there are many ways you could represent this practice. When using MSTOR the program, the recommended method is to show 50 per cent as liquid manure and 50 per cent as solid manure. Research shows that cattle deposit half of their manure in the vicinity of the feed bunk.



Photo 4: Interior of compost dairy barn

However, there is variation in the amount of solid and liquid manure generated in facilities that use scrape alleys. When submitting a Nutrient Management Strategy for approval, it is best to explain how the operation manages this type of facility and to choose solid and liquid manure production percentages that best reflect what is happening on the farm. The solid manure produced will most likely range from 50 to 75 per cent, while the liquid portion will likely range from 25 per cent to 50 per cent. Because the manure in the scrape alleys is more liquid in nature, frequent scraping is required. The manure scraped will normally be less than 18 per cent dry matter and should be entered into NMAN as liquid manure. In some cases, this manure can be greater than 18 per cent dry matter, but will not be as dry as the manure deposited in the bedded area. The manure collected in the bedded area will normally have much higher dry matter content (40 to 42 per cent). Two different types of manure must be represented separately in NMAN.

Another common practise is beef feeder cattle in loose housing with a scrape alley along the feed bunk. Similar to the dairy heifers, the beef feeders will deposit about 50 per cent of the manure in the scrape alley and 50 per cent in the bedded area. This must be represented separately in NMAN using the suggested 50/50 ratio for the two manures that will have significantly different dry matter contents.

As a default, the new version of NMAN 2 uses a 50/50 split for liquid and solid manure when a Pack Scrape system is entered. Manure collected in the scrape alley will not always be handled as liquid, but it will have lower dry matter content and there may be restrictions on the type of runoff management options available.

In some cases the scrape alley manure and the pack manure is stored or mixed together. Another way of representing this system in MSTOR is to choose Freestall as the type of housing then check the box for solid manure. This method accounts for the mixing of the manure and more accurately represents the dry matter content of the manure.



Photo 5: Interior of bedded pack dairy barn

Composted Bedded Pack Barns with Scrape Alleys

Composted bedded pack barns are actively managed to compost manure and urine that falls in the bedding. The pack is aerated two times per day to a depth of 10 to 12 inches. The stirring incorporates the manure and urine on top of the bedding and adds air to the bedding pack to increase aerobic decomposition of the material. Additional bedding is added every 2 to 5 weeks (equal to 18 lbs per day per cow). The pack usually remains in the barn for a year and one foot of pack is usually left to start the new compost pack.

Another key for success with composted bedded pack barns is to have the moisture of the pack in the range of 50 to 60 per cent for proper composting.

Work by the University of Minnesota on composted bedded pack barns, shows producers estimated that 70 to 75 per cent of the manure falls in the pack area and 25 to 30 per cent falls in the scrape alley. Depending on management and feeding routines, other producers indicated that up to 50 per cent of the manure can end up in the feed alley. Farms using composted bedding pack barns usually scrape the feed alley once or twice per day. The scrape alley manure will most likely need to be managed as liquid material. In some cases when a lot of bedding is moved from the pack to the alley or if bedding material is added to the scrape alley, the manure may be solid and handled in this manner.

One of the questions related to composted bedded packs is: “does the pack truly compost?” There appears to be enough composting activity to control environmental mastitis organisms but does the pack really compost at levels of traditional composted manure? In studies by the University of Minnesota, the composted bedded pack does not shrink as much as anticipated. When using NMAN and selecting a compost treatment, it is best to use a 15 to 20 per cent reduction rather than higher reduction levels associated with compost to more accurately reflect the volume of manure produced. Farm management practices on individual farms will vary and will therefore impact how a bedded pack scrape system will be represented in MSTOR.

We encourage Consultants to ask questions on the farm and provide a more detailed description of the scrape bedded pack in your submitted NMS overview.

RENEWING YOUR NUTRIENT MANAGEMENT STRATEGY AND PLAN **Jacqui Laporte—Environmental Specialist**

CAN YOU BELIEVE IT’S BEEN 5 YEARS ALREADY?

As we approach the expiration date of many nutrient management plans and strategies, producers may receive a letter informing them of their obligations. A renewed strategy or plan must be prepared at least 90 days before the original strategy or plan ceases. Here are a few points to keep in mind when contacting your clients about their renewal:

- A. The farmer should not wait for a letter. Encourage your client to know when their current strategy was approved and when new one must be prepared. The farmer is responsible for having a new one prepared 90 days before the current one ceases whether or not a reminder letter has been received.
- B. For many operators, when the NMS/NMP nears expiration, there are a couple requirements for preparing a renewed strategy or plan:
 - a new NMS/NMP must be prepared to meet the regulations of Reg. 267/03 by a certified individual and kept on file at the farm
 - a registration form must be completed and submitted to OMAFRA. To locate a registration form—follow this link: [Registration forms](#)
- C. If the farm operation has changed ownership since the previous approval, then the change in ownership can be reflected on the Registration Form. OMAFRA should be notified of all changes in ownership when it occurs.
- D. You will need to send in the strategy for approval in one of the following cases:
 - constructed new livestock housing or a manure storage without getting a new strategy approved
 - there is a municipal well within 100 meters of any part of the declared farm unit
 - farm is treating material through a regulated mixed anaerobic digester and this is not reflected in the current strategy.

Increases in nutrient units above 300 NU would trigger the requirement for a NMP, if the operation didn’t already have one.

- E. Section 31 of O. Reg. 267/03 states that all of the “deemed approved” plans, meaning those that were prepared and reviewed by OMAFRA prior to September 30, 2003, have now expired. A new strategy must be prepared by a certified person and be submitted for approval by the Director.
- F. Section 18 of the O. Reg. 267/03 states that as short form strategies will cease on their five-year anniversary. The regulation no longer provides for short-form strategies, and these operations fall under the same rules found in (B) above.
- G. If the operation has decreased their nutrient units, or decided not to build after they obtained an approval, then they may still have to renew. Individual operations may be in slightly different circumstances, and we would encourage you to contact your local Environmental Specialist to discuss these cases.

Upcoming Events

February 3 & 4, 2009 – Ontario Soil & Crop Improvement Association 2009 Annual Meeting

Sheraton Fallsview, Niagara Falls. Watch for details at www.ontariosoilcrop.org

February 17-20—Biogas Systems Pilot Operators' Course

London, ON - Register by calling the Agricultural Information Contact Centre 1-877-424-1300

Nutrient Management Consultant Update Meetings:

February 12, 2009 — Guelph

February 19, 2009 — London

February 26, 2009 — Kemptville

March 9, 2009– Air Quality in Rural Ontario Workshop

Hilton Hotel, London, ON

March 10 – 13, 2009—3rd Annual Growing the Margins Conference held in conjunction with the 1st Annual Canadian Farm and Food Biogas Conference and Exhibition.

London Convention Centre, London, ON.

Visit: www.gtmconference.ca or www.biogasconference.ca for more details.

In addition to the main conferences (with 5 concurrent sessions, great plenary speakers, a banquet, and exhibition area), there are extra workshops at the conference with a tour day as well.

1. **Air Quality in Rural Ontario:** Bringing together science and farm practice to build solutions (March 9)
2. **European Union/Ontario Biogas Networking Forum:** Developing knowledge and business relationships in the agriculture and food processing sectors (March 10)
3. **Biomass Heat Networking Forum:** Growing the value chain for agriculture and rural biomass heat businesses (March 10)
4. **Building Your Biogas System Workshop** Introduction and basic training for biogas projects (March 10)

March 13, 2009 Three technology tours:

- Tour 1: Farm Energy Tour** – a revisit of last year's tour because it received rave-reviews
- Tour 2: New Biomass and Biogas Projects** – a focus on biomass energy, the use of organic byproducts, and biofuel production.
- Tour 3: Niagara Falls** – heading out to the Falls on Thursday evening, this tour will start in the Niagara area and wind its way back to London looking at waste management, biomass energy, biogas, combustion, and a BIG surprise biomass energy location. Don't miss out.

WE WANT TO HEAR FROM YOU!

Do you have questions? Need more information? Have a comment about what you'd like to see in the next issue? Please contact your area Environmental Specialist or Engineer at:

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US

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