



## **Winter application at CAFOs**

### **EPA Regulations for CAFOs**

*EPA requirements:* EPA requires all states to have technical standards for nutrient management. They also require that “nutrient management plans address the form, source, amount, **timing**, and application method to minimize nitrogen and phosphorus movement to surface waters.”

*EPA guidelines for state standards:* The preamble to EPA’s regulations and EPA’s manure nutrient guidelines ask that state standards for winter application address the following:

- Form of manure (liquid, semi-solid, solid)
- Time applied relative to periods when runoff may occur
- Fraction of precipitation that runs off the land in meltwater and in response to winter rains
- Time it takes runoff to travel to waters as affected by slope, distance to waters, and roughness of land surface
- And other relevant factors.

*Exceptions for transferred ownership* - EPA requirements do not apply to situations of transferred ownership of manure. The only specific state winter-time restriction to transferred ownership is a 300 foot setback from lakes, streams, intermittent streams, public waters wetlands, open tile intakes and drainage ditches without berms.

### **Minnesota General Permit**

Minnesota’s general permit establishes the state standards and requires the following concerning winter application on fields that are owned, rented or in direct control of the feedlot owner (non-transferred ownership):

a. Winter Application.

- 1) The application rate of Manure onto frozen or snow-covered soil shall be adjusted to preclude runoff or ponding of liquid manure during the application process.
- 2) Manure shall not be surface-applied to frozen or snow-covered soil when any of the following conditions apply:
  - a) Where fields are within 300 feet of lakes, streams, open tile inlets, intermittent streams, drainage ditches without protective berms, or public waters wetlands;
  - b) During periods of active snowmelt that create runoff from the field;
  - c) When a high probability of rainfall over 0.25 inches (over 50 percent chance predicted by National Weather Service) is predicted within 24 hours of the end of the application period;



- d) Slopes exceed two (2) percent for liquid manure or six (6) percent for solid manure, except that manure can be applied onto fields exceeding these slopes if:
    - i. Emergency applications are approved by the MPCA,
    - ii. Applications to frozen or snow-covered soil are made prior to November 20, or
    - iii. Snowmelt runoff from the field cannot enter surface waters due to constructed berms, depressional areas or other landscape features;
  - e) Where tillage is up and down slopes (i.e., not along the contour) on slopes exceeding two (2) percent; or
  - f) Where water or ice occupies most tillage furrows so that additional snowmelt or precipitation can not be contained between furrows or in other depressional storage areas within the field.
- 2) For all winter application sites, the MMP must identify field slopes, proximity to waters, soil and water conservation measures, and reasons why alternatives to winter application are not feasible. Manure application to frozen or snow-covered soil shall be only on those fields identified in the MMP for winter application, unless otherwise approved by the MPCA.

### **Added review required by EPA**

In addition to the General Permit conditions for winter-time spreading, EPA asked for further assurance that nutrient runoff is minimized and waters are protected from winter manure spreading activities. EPA requires that the MPCA conduct site-specific technical evaluation at CAFOs with winter application.

The MPCA will conduct site-specific review and evaluation during the permitting process at sites that meet each of the following criteria (all three):

- The feedlot exceeds EPA's animal number criteria for large CAFOs;
- The winter-applied manure is not considered transferred ownership; and
- The winter applications are regular applications intended for December, January, February or March.

Note that the site-specific technical reviews are not required for: 1) mixed animal types where no large CAFO thresholds are exceeded; 2) sites where the winter-applied manure is transferred for ownership by someone other than the feedlot owner/operator; 3) occasional unintended applications during winter months for emergencies or other unexpected equipment/management challenges; or 4) applications intended for mid to late November, even if the soils are sometimes to be frozen or snow-covered.

### **Site-specific review procedure**

**Step 1 – Obtain information from producer** - The specific information in attachments A will be required with the permit application in order to conduct the review.



**Step 2 – Estimate P or BOD losses using models** - Use Minnesota’s phosphorus index to evaluate P losses with swine, beef, calves, young stock and turkey manure, and use EPA’s BOD model to evaluate pollutant transport for manure from mature dairy cows, layers or broilers. Until the EPA BOD model is complete, the Minnesota P index can be used.

**Step 3 – Determine if follow-up review is needed** – If the site has a P index rating that exceeds “low” or the BOD model predicts more than 18 pounds of BOD in runoff from one-inch of precipitation, then a follow-up evaluation is needed. If results are lower than the above stated thresholds, then the site(s) can be approved for winter application without further review.

**Step 4 - Conduct follow-up evaluation (where needed)** - Where follow-up evaluation is needed, it must be conducted or reviewed by an MPCA soil scientist or hydrologist (in accordance with our agreement with EPA). The follow-up evaluation considers the nature and impairment status of the receiving waters, degree of expected impact (chronic loadings and acute impacts), and possible alternative management that can eliminate the need for winter spreading.

**Step 5 – Decide whether winter application can be allowed** – Continued winter applications will not be allowed where thresholds under step 3 are exceeded and one of the following apply: 1) the receiving water is classified as impaired water by oxygen demand, 2) the water is an outstanding national resource water, or 3) the evaluation determines that runoff will be detrimental to the receiving water. If the follow-up evaluation shows that the manure can be applied during winter months, then the MPCA will document the reasons for this determination and include this documentation in the permit file.

**Step 6 – Work with producer to make needed changes** – At sites where winter application will not be allowed under step 5, then the producer must modify the MMP to show no winter application or otherwise show how necessary pollutant reductions can be achieved. If the producer is not able to make immediate changes to sufficiently address the problems, then a schedule of compliance (with interim dates and reports) will be developed for CAFOs that are not new sources.

### **Future Guidelines**

The MPCA will track the number of CAFOs with winter application, the reasons for winter application at these sites, and the potential pollution concerns. The procedures described in these guidelines may be changed with EPA approval, if needed.