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## **Dairy Gets Ok from DNR on Alternate Manure Spreading Plan**

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The DNR has granted preliminary approval to Rosendale Dairy to utilize a never-before-tried method of determining whether it can spread manure on fields with shallow groundwater.

In fact, because no one has tried it before, the DNR will require Rosendale Dairy to verify its results by conducting extra tests for two years.

But, if it proves to be a reliable method of determining which fields have groundwater too close to the surface, the dairy will test only a percentage of the fields it applies manure on to see if it is safe.

Why is this an issue? Because if manure is placed on a field with groundwater less than 24 inches from the surface (also known as a "wet" field or one with "W" soils), the water could become contaminated as the manure quickly seeps through the thin topsoil.

The typical way of checking for whether a field is wet on a given day is by going out and digging a hole in the field, and seeing how far down the hole must go before reaching water.

Rosendale Dairy plans to have permanent wells in place that would serve this purpose in some locations.

The DNR's guidelines ask dairies to not spread on the W soils unless they confirm groundwater at that time is not within 2 feet of the surface.

Most often in these locations, groundwater only rises to that level in the spring. A dairy may, though, spread on adjacent land that does not have "W" soils.

To check for the groundwater, DNR guidelines tell spreaders to dig two wells for every five acres of W soils on which it intends to spread.

This is the plan most other concentrated animal feeding operations (CAFOs) have adopted in their nutrient management plans. The DNR, though, does allow for alternative plans to be submitted for review.

The CAFO must demonstrate the plan is "adequate and reliable," according to Andrew Craig, DNR nutrient management specialist.

Rosendale Dairy submitted just such an alternative plan. It is contending that because it has so many fields to spread manure on – about 13,000 acres total, 2,285 of which are considered "wet" – it cannot check every field every time as it would be time- and cost-prohibitive.

With 207 fields and 2285 acres of "wet" fields in its plans, the dairy would need to build about 900 test wells.

### **DNR PROPOSES NEW PLAN**

According to correspondence sent to the DNR by Conestoga-Rovers & Associates of Green Bay, an engineer working with Rosendale Dairy, the dairy has proposed a plan that could be described as a "statistical analysis" model for determining whether a field is wet.

Rather than checking every field, Rosendale Dairy operators will check "representative" wet fields nearby at the same elevation.

"A total of 41 MMPs [moisture measurement points] will be installed at selected locations in the 207 fields with [wet] soils," Conestoga-Rovers wrote. "These MMPs will monitor more than 904 acres of [wet] soils area on the farm and result in a database of representative field conditions..."

These points will be placed at or near the lowest elevations on the selected fields.

The idea is that if the groundwater is not at less than 24 inches from the surface in the representative field, it will not be high at another area field at the same elevation as well.

The aim, according to Conestoga-Rovers, "is to establish a permanent representative [moisture management points] in lieu of excavating soil test pits each time manure or wastewater will be land applied... Rosendale Dairy will have a statistically significant, effective database upon which to base its compliance verification that groundwater is not present within 24 inches below ground surface prior to manure and wastewater application."

The majority of these will be in Fond du Lac County (bordering into Winnebago County), with a cluster of 32 of the MMPs aimed at creating the regional analysis.

A handful will be elsewhere, and will have more direct monitoring.

### **BUT HOW DOES GROUNDWATER MOVE?**

The question remains, does groundwater remain at a constant depth over a given distance, or that at the least, it will vary in a consistent manner?

This is what the DNR “debated” with Rosendale Dairy, according to Craig.

“We questioned that assumption,” Craig said.

As Craig explained, groundwater levels can be “very dynamic,” noting that factors that can alter the level include rainfall amounts, slope of the soil, depressions, porosity of the soil, and on and on and on.

“Our groundwater hydrologist extensively [looked at] that proposal.”

Conestoga-Rovers contends the plan will work.

According to its report, “The area covered by the [wet] soils in Rosendale Dairy’s nutrient management plan has a range of surface elevations. However, the general topography of the region is fairly flat, so large variations of surface elevations are not expected to occur... Regional water level conditions are expected to vary consistently across the area.”

### **GIVING IT A TRY**

For these reasons, the DNR and Conestoga-Rovers agreed to a trial period utilizing the plan.

“We’ve accepted that ... provided they do some verification over the first two years,” Craig said. “... When there is variation [in the results Rosendale Dairy gets], they will go out and do further [tests] on those fields. We’re asking they calibrate this approach.”

In a plan the DNR is describing as the “conservative” approach, it is asking Rosendale Dairy to dig an additional 40 test points in wet fields to check the veracity of the results found at the official test points.

This represents less than 10 percent of the points that normally would be required by the DNR. But it does represent about half of the fields in the region of

Fond du Lac County/ Winnebago County that will be managed by this new plan.

Among the 13 proposed modifications the DNR made to Rosendale Dairy's plan is a note explaining this proposal.

"This condition requires Rosendale Dairy to excavate a total of 74 soil test pits per year on various Rosendale Dairy fields for the first two years of monitoring," it reads. "In comparison, DNR interim guidance would require Rosendale Dairy to dig 900 soil test pits/year for all five years of the permit term. The number of required soil tests pits/year, for all five years of the permit term. The number of required soil tests pits/year, therefore, is less than 10 percent of the DNR interim guidance. This addresses Rosendale Dairy's cost, management and mobilization time concerns."

If Rosendale Dairy's model shows consistent results during those two years, then the DNR will let Rosendale Dairy's plan continue.

If, however, it finds some variation, the DNR will require Rosendale Dairy to add more permanent test wells, and/or ask it to include those statistical variances into its permanent plan.

For the time being, Craig said, Rosendale Dairy will be given a chance to prove its method will work.

"We'll see what their monitoring shows," he said, adding "This is a work in progress. This isn't an exact science, [and] they are blazing a new trail.

"[But] by approving it, we believe this approach ... will protect water quality."