August 3, 2017

Eric,

The following are my personal comments and opinions dealing with the proposed “Nitrogen Fertilizer Rule” I am sure in a couple of places, I did not express myself very well, thus let me know and I will re-write or we can discuss over the phone.

Chuck

C: Jennifer Dullum, Mark Zabel

--First, note that I am in the camp of “too many regulations.”

--I would encourage a simplification of the concept, goals, steps….in achieving the reduction of nitrate moving into and currently in groundwater. I realize that this is probably the next step from the N Mngt Plan (2015); but I think way too complicated. Could one start with only the public wells and one or two mitigation levels? As this gets accepted, then add to the Rule?

--As a comprehensive plan, what is being done about non-agricultural sources (ISTS, municipal / industrial systems, commercial properties, homes…..) in the way of nitrogen management? Might want to add this info just to circumvent or anticipate these type of questions. Given Figure 13, appears not to be that big of an impact in overall N application.

--The statement in the “Draft Nitrogen Fertilizer Rule” introduces the “…N fertilizer BMPs can minimize the loss of N in the environment.” “In” or “to” the environment? Since the term environment is used, should loss to surface waters and atmosphere be included? If not, then change the title and other intro information to only include and indicate groundwater.

--I am not in favor of “one size fits all” nor the generalization of sorting the areas by Townships and Sections. Why penalize those that have the heavier soils and / or vulnerable groundwater area just because a boundary and classification is determined? Just use the soil classification (type, mapping unit) and those polygon boundaries since they already currently exist with the NRCS (already indicated in proposed definition 1573.0010, Subp. 18 & 1573.0020, A reference).

--Or it might be easier to just indicate the whole state or by counties. For the vulnerable groundwater areas, just indicate the 23 (or so) counties in the SE location subject to Karst features and other regions.
--Instead of listing the soils individually, just use the broad classification used by USDA of Coarse (Sandy & Loamy sands), Moderately Coarse (Sandy loam & Fine Sandy loam) and Medium (Very fine sandy loam, Loam, Silt load, and Silt) or just use those from the 14 (or 12) Basic Soil Textural Class Names. Kind of already done by indicating that the target are soils of 10 microns/sec or faster Ksat.

--What is the possibility of having the larger ag producers file a nutrient management plan with periodic updates? This is already being done with the 550+ CAFOs to MPCA.

--To me, the classification of Township 1, 2, 3, & 4; Mitigation levels, is very confusing. I did not review in detail 1573.0040…..as I cannot really easily follow the mitigation levels, Private vs. Public wells, BMP evaluation [if recommended in the list of references, why redo?], commissioner evaluation, reevaluation, downgrade, 90th percentile, statistical trend analysis,…Would the average citizen, ag producer have the ability to figure out?

--In classification of Section & Township, how does groundwater flow direction come into play?

--In recording and tabulating nitrate concentration in groundwater from private and public wells, how is depth considered? Big difference in a few feet to several hundreds of feet below the surface. For Figure 10 of the N Mngt Plan, be interesting to see a 3-D map….or are the red dots from shallower wells?

--Suggest using dual (SI & English) measurements. Some places use SI [e.g. microns], and most places use English.

--For fall application of N, tie this into soil temperature. One cannot apply until soil temperature at xyz depth is xyz oF / oC for xyz days. The mngt plan indicates 50oF at the 6 inch depth. Fall application could be controlled by the commercial fertilizer suppliers and applicators. There are numerous sites around the state by MnDOT and Climatologist office measuring soil temps. Really would be no different that spring road restrictions where those affected watch for signs, web sites….on when this period is.

--What prevents over N application during the spring and/or growing season?

--Are there any “carrots” or incentives in this proposed Rule or program? Such as bringing a deep-rooted forage into the farm management program to extract nitrates and / or reduce the amount of N applied. Randy Ellingboe, Dept of Health and Bill Lazarus, Applied Econ, have discussed this over the past several years and have target the Hastings groundwater supply area to the SW.

--Is there a SONAR?
--Is there a statement of costs? Where do the funds come from to run the program stated in the draft Rules? For example, salaries of those monitoring….. The costs of placing the info in the “legal newspaper”? 

--1573.0010, Subp. 5: How is this area determined? Can there be a crosslink? 4720.5100, Subp 13 is of no help. 

--1573.0010, Subp. 6: Thus producers can fall apply on August 30? Could be done if the producer grows small grains, truck crops, forages, etc. that are harvested mid-summer allowing the application window in late August. Still suggest tying into soil temperature. 

--1573.0010, Subp. 7: Suggest indicating the exact depth, say 2 inches (5 cm), 6 inches (15 cm), or ?? inches and for xyz days (5 days ??). Soils can be tilled if the surface freezes over night, but thaws during the day; plus even if the top portion of the soil is frozen, tillage can still be performed. And below the surface (if deep enough) never freezes. 

--1573.0010, Subp. 8: Statue 115.01, Subd. 6 indicates saturated zone and near-surface. Guessing a big difference in nitrate concentration from a few feet to a 1000+ ft. 

--1573.0010, Subp. 10: Thus the growing season for biennials (winter wheat, rye…..) includes the period over winter too? 

--1573.0010, Subp. 12: Statue 103H.151, Subd. 2 is for Ag chemical BMP. Suggest modifying this definition to indicate that N is a chemical. [As a sidebar, Subd. 3 is about Education and promotion. Anything within this draft Rule that addresses this?] 

--1573.0010, Subp. 18: Microns? Suggest using 0.001 cm/sec (1.4 inches/hr) or a recognized standard set of units for Ksat. This is the first time I have seen microns. I believe NRCS just uses inches/hr. 

--1573.0020: How will the Rules be kept current as the references are changed, modified, updates, deleted and news ones published? My suggestion is to include a generic statement something like “A list of references, user guides, BMPs…..can be found at the MN Dept of Agr….web site [did this in Line 7.21]? Or the like” This way, the list can be changed without having to go through the Rule making and changing process. 

--Line 6.16: Encourage fertilizer suppliers and applicators to use P2O5; thus no additional nitrogen being applied via DAP. In my case, applying enough P to alfalfa brings about 20 lb/ac of N, which stimulates weed/grass growth, which leads to increase herbicide use. When I asked about P2O5, the supplier does not want to tie up storage space.
--Line 10.2: State the specific nitrate concentration for the health risk. Concentrations are specifically stated later. And is the health risk for adult humans, infant humans, livestock, ruminants....?

--1573.0050: Could a table do a better job of explaining? The flow diagram in the Part 2 document, page 2 is easier to flow than this Rule text. I like Table 10 of the N Mngt Plan document.

<table>
<thead>
<tr>
<th>Level</th>
<th>Private wells</th>
<th>Nitrate-N concentration, mg/L</th>
<th>Cropland BMP</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.00 – 9.99%</td>
<td>&gt; 10.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10.00%</td>
<td>7.0-10.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>&gt; 10.00%</td>
<td>&gt; 10.0</td>
<td>&gt; 80%</td>
<td>No BMPs</td>
</tr>
<tr>
<td>3</td>
<td>&gt; 10.00%</td>
<td>&gt; 10.0</td>
<td>&lt; 80%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&gt; 15.00%</td>
<td>&gt; 10.0</td>
<td>&lt; 80%</td>
<td>0.10 ratio minimum</td>
</tr>
</tbody>
</table>

[Table not complete]

Would a table be better for 1573.0060 & 1573.0070?

Line 13.8: Why does this need to be done if the BMP is listed in the references? Does this indicate or allow the Commissioner to reject a BMP from the references? Or allow the Commissioner to accept a BMP not list in the references?

1573.0070: My understanding is that this is only for public wells; if so state (restate) “…..management areas for public wells.” [Line 16.11]

Line 16.14: Why the change in nitrate concentrations? Is this because of public vs. private? How does this 90 percentile fit in? For the ten year period, minimum number of samples collected and tested? Do all samples need to fit within this range? How are outliers handled?

1573.0080: Did not review in detail.

Line 24.24 & Line 26.14: How is this different than the list of BMPs in the reference listing, 1573.0020? Does the Commissioner pick, chose, reject from the list?

Line 25.4: How does manure [organic nitrogen] fit into this document of only inorganic nitrogen? Thus the need for the big picture, comprehensive nitrogen plan. Manure is excluded in the Nitrogen Fertilizer definition [Line 2.10].