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COUNTY

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Physical Development Division

Dakota County
Western Service Center
14955 Galaxie Avenue
Apple Valley, MN 55124-8579

952.891.7000
Fax 952.891.7031
www.dakotacounty.us

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Annie Felix-Gerth,
Pesticide and Fertilizer Management Division,
Minnesota Department of Agriculture,
625 Robert Street North, St. Paul, MN, 55155-2538

Subject: 2013 Revised Nitrogen Fertilizer Management Plan; Dakota County Comments

Thank you for the opportunity to comment on the August 2013 draft Minnesota Nitrogen Fertilizer Management Plan (Plan). Jill Trescott, Supervisor of Dakota County's Groundwater Unit, has thoroughly reviewed the document, prepared a list of comments for your consideration. Those comments are detailed within this letter.

In general, Dakota County staff support the intent of the Plan to prevent, evaluate, and mitigate nonpoint source pollution from nitrogen fertilizer in groundwater, a type of pollution which creates serious problems with drinking water aquifers underlying much of Dakota County. We appreciate the thoughtfulness and diligence that Minnesota Department of Agriculture (MDA) staff has devoted to this revision of the Plan.

The approach described in the draft Plan will take many years to implement. In some parts of the state, such as Dakota County, faster actions may be advisable to reverse the significant degradation of groundwater that has already occurred.

The general approach presented by the Plan consists of the following general sections. We have organized our comments to coincide with these sections whenever possible. :

- identifying areas with nitrate concerns by monitoring private wells on a township scale over a number of years;
- assessing groundwater quality to determine the severity and priority of the problem;
- promoting nitrogen fertilizer Best Management Practices (BMPs) to prevent groundwater problems from occurring;
- evaluating BMP adoption and effectiveness; and
- mitigating the problem in high priority areas using a phased approach, starting with voluntary actions and progressing to regulatory actions (Water Resource Protection Requirements, WRPRs) if necessary.

<u>Areas with Nitrate Concerns</u>

Dakota County staff strongly support this Plan's approach to identify areas with nitrate concerns through private well monitoring on the township scale. This will provide all stakeholders with data to evaluate nitrate conditions in the groundwater of vulnerable areas. Sampling a large number of existing private wells over a number

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of years is likely the most cost-effective method available for characterizing nitrate conditions in the state's numerous hydrologically vulnerable areas.
Although well-construction information about some private wells may be missing or unreliable; the sampling results from those wells will be highly informative from a public health perspective. In Dakota County, construction information for about 40% of private drinking water wells is not available. Nitrate testing results that include these wells will show the drinking water quality for a significant portion of the population.

Groundwater Quality

The draft Plan identifies 5% as the percentage of private drinking water wells in a township that must exceed the Nitrate Health Risk Level (HRL) in order to delineate a "Phase 1" nitrate mitigation area. Dakota County staff considers the proposed level to be a reasonable and practical limit. From a public health standpoint, it would be ideal to have no drinking water wells that exceed the nitrate Health Risk Limit (HRL). However, we understand that a lower percentage of private wells exceeding the HRL in a community may be indicative of other issues, such as highly localized conditions (i.e., a well inside a feedlot) rather than a community issue. On the other hand, if the limit were 10%, the state would be accepting, at a policy level, having hundreds of households with drinking water that exceeds the Health Risk Limits in areas like Dakota County. Based on these considerations, 5% of the tested wells are an appropriate limit.

Best Management Practices

Under Minnesota Statute 103H.005, the term "best management practices" means "practicable voluntary practices that are capable of preventing and minimizing degradation of groundwater..." Because BMP adoption is voluntary, the rate of BMP adoption to reduce nitrate in groundwater is difficult to estimate. Statewide information about BMP adoption and BMP effectiveness is either very general and anecdotal (i.e., the amount of nitrogen fertilizer sold in the state is approximately the recommended amount for the number of acres planted in the state's major crops) or based on farmers' voluntary reporting. As a result, conclusions about statewide BMP adoption rates are unreliable.

The available information indicates that nitrate contamination of groundwater in the state is widespread. If BMP adoption is, indeed, prevalent, then the BMPs currently being promoted apparently are not "capable of preventing and minimizing degradation of groundwater," as the law requires.

The process of developing BMPs, promoting them, and evaluating their effectiveness takes years. At the current rate, decades may pass before nitrate conditions improve in the state's groundwater resources. New strategies are needed for ensuring that BMPs are "capable of preventing and minimizing degradation of groundwater" and for accelerating the evaluation of BMP effectiveness and adoption. In particular, more comprehensive and reliable information is needed regarding farming practices and their impacts on water resources.

One such strategy, available under current law, could generate extremely informative data about the impact of water appropriations for crop irrigation on groundwater quality and quantity. Under Minnesota Statute 103G.282, the Commissioner of the Department of Natural Resources (DNR) has the authority to "require the installation and maintenance of monitoring equipment to evaluate water resources impacts from permitted appropriations... the Commissioner may determine the frequency of measurements and other measuring methods... the measurements must be reported annually to the commissioner." Dakota County staff urges MDA and the Minnesota Pollution Control Agency to consider working with the DNR to make groundwater monitoring a condition of irrigation appropriations permits issued in jurisdictions where more than 5% of the private drinking water wells tested exceed the HRL for nitrate. In these high-nitrate areas, farm operators, the State, and the County would gain valuable information from monitoring wells and equipment adjacent to irrigated fields. When combined with data on groundwater levels, precipitation, irrigation water usage, and groundwater nitrate concentrations (both at the water table and from the irrigation well itself) over the course of each growing season, this information would enable all parties to learn a great deal about nitrate and groundwater movement below irrigated crops and the effectiveness of BMPs. The cost to farm operators to install and sample the required monitoring wells would be relatively small compared to the large capital investment represented by the irrigation system as a whole.

In order to understand what practices effectively protect water quality and what practices do not, across the state's wide range of field conditions, more detailed information about current farming practices may be needed -- even beyond the information that could be gathered from irrigators, as described above. It may be necessary to enact WRPRs sooner than outlined in the Plan in order to collect detailed information from farmers about their crops, soil and water test results, yields, and their fertilizer, manure, tillage, conservation, and other pertinent practices. This information will be needed to understand the efficacy of the various BMPs being employed.

Mitigation

The strategies outlined in the Plan appear to be effective for areas in which nitrate is a relatively low or new contamination issue. However, for an area with a serious and well-documented nitrate problem like Dakota County, the rate of implementation appears very slow. Quicker action in such areas is desirable. For example, restricting fall applications of nitrogen fertilizer and beginning to collect the type of cropping information described above.

The Plan does not make any proposals to address the significant costs borne by public and private well owners when their wells are high in nitrate. For example, the City of Hastings has installed a $3 million nitrate removal system for its public water supply wells that exceed the drinking water standard. In addition, private well owners pay the price for installing and maintaining treatment systems, replacing

their wells, or purchasing bottled water. Strategies should be considered to reverse this cost-shifting from farmers to their neighbors. Leaving well owners to bear the cost of drinking water contamination for which they are not responsible is an inequity that should be addressed.

In high-nitrate areas, it would also be helpful to have specific time-frames (e.g., five years) in which measurable improvement in groundwater conditions (such as the percentage of wells exceeding the drinking water standard, or the trend in nitrate concentrations) would have to be documented. Failure to improve within the specified time-frame should result in predefined consequences, such as restrictions on irrigation permits, other restrictions, or financial penalties.

Thank you for the opportunity to review and comment on the revised Minnesota Nitrogen Fertilizer Management Plan. Please contact Jill Trescott at 952-891-7019 (jill.trescott@co.dakota.mn.us) if you have any questions or comments.

Georg T. Fischer
Director
Environmental Resources Department