November 1, 2013

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

Dear Ms. Felix-Gerth:

Minnesota farmers and farm organizations take the protection of ground water very seriously. Many farm families depend on groundwater for their drinking water, livestock production or irrigation. Fortunately, safe and abundant groundwater can be found throughout most of Minnesota. We offer the following comments in an effort to make the draft Nitrogen Fertilizer Management Plan (NFMP) more clear and useful.

The draft NFMP provides a comprehensive assessment of the critical groundwater protection areas scattered across Minnesota and the geologic features that make them sensitive. While good nitrogen management is important wherever crops are grown, it is especially important to provide targeted education to farmers operating these sensitive lands to insure that they understand both the risk factors and the practices that can help them maintain productivity while protecting groundwater resources.

The draft plan states, twice, that some parts of the current NFMP have not been fully implemented, primarily due to limited funding. These passages should also include some description of the "lessons learned" as outlined in the appendix to the report. In our perspective, limited funding was less of a factor than the usual learning and implementation curve experienced with any new program.

The mitigation section of the draft plan includes phase descriptions based on the percent of wells having nitrate-nitrogen concentrations above thresholds. While the first step in the mitigation process outline is "confirm there is a problem"… the report should also clearly spell out a process to determine well suitability as indicators of actual groundwater nitrate levels, excluding sandpoints and wells that do not meet well codes. Numerous examples can be found of poorly located and/or constructed wells dug decades ago. These cases where a new well or well location is simply in order should be excluded from analysis, but the owners of these problem wells should be notified and educated with clear delineation that their well issue is localized to their well, not an aquifer nitrate issue. The NFMP process applies to aquifers affected by nitrogen fertilizer, not localized specific well problems. The process for screening wells potential impacts should be emphasized here as well as in the monitoring section, and the protocol in Appendix H should exclude both sandpoints and hand dug wells from statistical data analysis.

The plan should clearly explain that because tile drainage is very rare in the areas identified as sensitive to groundwater contamination, agricultural drainage is very rarely associated with groundwater nitrate concerns.

As stated in chapter 2, many Minnesotans rely on groundwater for their drinking water. It is true that where there are elevated nitrate levels there are costs associated with treatment or remediation. It is also true and important for readers to know that the vast majority of Minnesotans have access to groundwater that is NOT significantly impacted by nitrates, providing greater context to the scope of the problem. This notation is especially important as readers study examples outlining remediation and treatment costs that are important but have been encountered relatively rarely.

The report should also note that at low levels (<10 mg/l) nitrates are not a threat to human health, that most nitrate intake is through food rather than water and that nitrates are an essential nutrient for humans as well as plants and animals.

Regarding animal health risks, it is true that water can be a potential source of toxic levels of nitrate. For context, the report should also state the number of cases in which this is documented to occur. Also, the reference to shallow wells with poor casings and the NAS livestock guideline of 100 mg/l nitrate-nitrogen does not fit here. The "shallow wells with poor casings" reference fits more appropriately as a qualifier, or more accurately a dis-qualifier, of well description for analysis purposes. The reference to water being hauled to livestock using fertilizer tanks should be removed from the report as it is not related in any way to the issues of fertilizer use and groundwater contamination.

Under the "other risks" section, we suggest a more complete description such as "An area of hypoxia (low oxygen) occurs seasonally in the Gulf of Mexico due to a combination of nutrient enrichment from agricultural and urban sources, freshwater-salt water stratification and other factors." Alternatively, this section should be deleted from the report as it confuses readers by blurring groundwater and surface water issues. It should also be noted that the MPCA paper used as a reference here was not part of the stakeholder discussion as the draft report was being developed.

The Agronomic and External Sources of Nitrogen section relies heavily on an MPCA report that was not made available to the stakeholder committee, was directed at surface water (not groundwater) and provides no information relative to sensitive areas or geographic concerns relative to the NFMP. As such, these passages should be deleted.

The Nitrogen Fertilizer Sales and Sources data are statewide, again providing no information specific to sensitive areas. It would be more appropriate for the report to focus on fertilizer use in the regions identified within the report as sensitive. The same is true of the Cropping Trends discussion, which provides statewide figures rather than specific to the areas primarily addressed by the NFMP.

Figure 13 has been presented in various forms in several MDA formats. The version shown in the draft NFMP depicts a relatively flatter yield response curve and a relatively steeper nitrate loss curve, suggesting that economic risks associated with lower rates are relatively small while local environmental risks associated with higher rates are relatively large. It is also important to point out that there are potential environmental risks at a larger geographic scale associated with low nitrogen rates due to higher food prices which drive crop prices higher which lead to increased crop acreage (sometimes in areas sensitive to environmental impacts) due to inefficiencies of production. Figure 13 should be used as a tool to summarize the balance sought between environmental risks (local and global) and economic risks (local and global) and help farmers move as close as is feasible to the optimum nitrogen rate.

Nutrient management and specifically the discussion of the 4Rs and Minnesota's nitrogen BMPs is confusing. The draft report states that Minnesota nitrogen rates are based on a grouped economic

approach that determines rates by applying large sets of nitrogen response data, and then states that "this is due to the fact that there is a very weak relationship between economic optimum N rate and corn yield in the North-Central region of the United States." The draft report goes on to say that "prior to 2006, N rates were based on yield goal." It is accurate to state that the more recent BMPs incorporate economic considerations into rate recommendations, but this includes economic considerations associated with yield. In other words, yield goals have not been abandoned in the current process, economics have simply been added. Additionally it should be noted that the "very weak relationship" is due to the fact that the EONR can only be quantified at the end of the growing season, which is why an N rate range around the projected EONR is promoted.

The MDA Nitrate Report Findings provide much helpful information, but again are limited due to the lack of detailed diagnostic information about specific wells. It is important to gather enough information to differentiate aquifer conditions from individual well conditions early in the NFMP process.

We appreciate that the draft NFMP relies heavily on local input and decision making. Local stakeholders, including farmers, share concern for the groundwater on which they depend and are best positioned to seek the appropriate balance in addressing land use, BMPs and groundwater protection. Local stakeholders can also provide local knowledge about changes over time. As noted in the report, nitrate movement to groundwater can take years, even decades, depending on soil and precipitation conditions. Given that the process is focused on agriculture, it is critical that farmers, agronomists and fertilizer retailers be included in the makeup of the local advisory team as spelled out in section 3 of the mitigation process.

We also appreciate the extensive process by which the MDA developed the draft NFMP and our opportunity to participate in the task force and through these comments.

Sincerely,

Irrigators Association of Minnesota

Minnesota Crop Production Retailers

Minnesota Farm Bureau

Minnesota Farmers Union

Minnesota Soybean Growers Association

Red River Valley Sugarbeet Growers Association

Southern Minnesota Beet Sugar Cooperative