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November 1, 2013

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

RE: Draft Minnesota Nitrogen Fertilizer Management Plan (Public Comment Draft, August 2013)
Comments of the Minnesota Center for Environmental Advocacy

Dear Ms. Felix-Gerth:

Thank you for the opportunity to submit the following comments on behalf of the Minnesota Center for Environmental Advocacy (MCEA) on the Minnesota Department of Agriculture's draft *Minnesota Nitrogen Fertilizer Management Plan*. MCEA is a Minnesota non-profit environmental organization whose mission is to use law, science and research to preserve and protect Minnesota's wildlife, natural resources and the health of its people. MCEA has statewide membership. MCEA has been concerned about impacts on Minnesota's waters from agriculture, point source discharges and other sources for many years, has made pollution prevention and resource restoration a significant component of its work, and has participated in a number of related policy and legal matters.

MCEA disagrees that the existing Nitrogen Fertilizer Management Plan (1990) is in need of major revisions. The 1990 Plan recognizes that the Groundwater Protection Act calls for voluntary BMP's, evaluation and assessment of effectiveness of BMPs, and establishment of regulations if BMPs prove ineffective. After more than two decades of BMP development and promotion, it is clear that the voluntary measures are not achieving the goal of the Groundwater Protection Act, which is to *prevent* groundwater pollution. In the Central Sands area of the state, for example, nitrate contamination is now detected in 97% of monitoring wells.[1] Fully 62% of recent samples exceed the Department of Health's established Health Risk Limit (HRL) designed to protect children from toxic levels of nitrate in drinking water.[2]

Because the Department has ample evidence proving that voluntary BMPs have been ineffective at preventing the contamination of groundwater, MCEA submits that the focus of the Department's efforts should be on managing this widespread and significant pollution through

[1] Minnesota Nitrogen Fertilizer Management Plan Public Comment Draft, Minnesota Department of Agriculture, Aug. 2013, at 56 ("2013 Plan").
[2] *Id.*

adoption of "water resource protection requirements" as intended by the Legislature when it enacted the Groundwater Protection Act.

The Groundwater Protection Act of 1989

The Groundwater Protection Act of 1989 has the goal of preventing groundwater degradation. For agricultural chemicals, including nitrogen fertilizer, the statute is implemented by the Minnesota Department of Agriculture (MDA), which has the duty to:

- Identify and develop best management practices to ensure that the program is consistent with and is effective in achieving the goal;[3]
- Promote these BMPs, which are voluntary, practicable measures that are capable of preventing and minimizing degradation of groundwater;[4]
- Evaluate the use and effectiveness of the BMPs and report this information to the Environmental Quality Board for inclusion in reports to the Legislature;[5]
- Evaluate the detection of agricultural pollutants in the state's groundwater;[6]
- Monitor groundwater for pollutants found to be a "common detection"—detection of a pollutant that is not due to misuse, but rather is the result of normal use of a product or practice.[7]

If the voluntary BMPs prove ineffective, the Legislature provided MDA with the authority to adopt mandatory practices called water resource protection requirements (WRPR) that include "design criteria, standards, operation and maintenance procedures, practices to prevent releases, spills, leaks, and incidents, restrictions on use and practices, and treatment requirements."[8]

The statute anticipated that WRPRs would be needed fairly quickly, but proscribed their adoption prior to January 1, 1991.[9] Although clear evidence shows that voluntary BMPs are insufficient to prevent groundwater pollution, in the 24 years since enactment of the Groundwater Protection Act, the MDA has not developed or adopted WRPRs.

The Act, like other resource protection statutes, recognizes that there is a cost borne by society when an industry is allowed to pollute our shared resources. The Legislature intended that MDA measure the extent to which agricultural activity had already degraded groundwater resources, take measures to prevent further degradation, and impose rules if voluntary measures did not work. Without such rules the costs of pollution are shifted to the public and there is no incentive for those whose activities pollute to stop polluting.

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[3] Minn. Stat. § 103H.101 subd. 7.
[4] Minn. Stat. §§ 103H.151, subd. 3 and 103H.005, subd. 4.
[5] Minn. Stat. § 103H.151, subd.4.
[6] Minn. Stat. § 103H.251, subd. 1.
[7] Minn. Stat. §§ 103H.251, subd. 1 (b) and 103H. 005, subd. 5.
[8] Minn. Stat. §§ 103H. 275, subd. 1 (b) and 103H.005, subd.14
[9] Minn. Stat. §103H.275, subd. 2.

The implementation of voluntary BMPs has proven to be ineffective.

Although MDA and the University of Minnesota developed and promoted the BMPs required by the Act and agricultural producers have widely adopted them, nitrate levels in groundwater are high and are worsening. There is clear evidence that the BMPs are ineffective at preventing nitrate contamination and that additional measures are needed.

The 1990 Nitrogen Fertilizer Management Plan included a list of voluntary BMPs for agricultural producers to adopt statewide, plus additional tiers of regional and special situation BMPs.[10] These sets of BMPs are still in place and have been further refined.[11] MDA's assessment found that on the whole agricultural producers have adopted the BMPs.[12] MDA has successfully developed and achieved broad implementation of the BMPs required by the Groundwater Protection Act.

Despite the high BMP adoption rates, monitoring shows increased degradation in ambient groundwater, natural springs, and public water supplies. This pollution is widespread. Worse, trends in groundwater nitrate concentrations are increasing in nearly all regions of Minnesota.

MDA has conducted shallow groundwater monitoring since 1985. All agricultural regions show substantial nitrate contamination. Comparing recent samples to monitoring conducted in the 1990s reveals that the rate of detection is increasing across all regions, as shown in Table 1.

Table 1. Summary of Nitrate Results from Former and Current MDA Monitoring Networks.[13]

	% Detection			% Above HRL		
	1985-1999	2000-2010	% Increase	1985-1999	2000-2010	% Increase
Region 1 (Northwest)	6	50	44	0	8	8
Region 4 (Central)	73	97	24	38	62	24
Region 5 (East Central)	74	93	19	44	50	6
Region 6 (West Central)	25	56	31	8	17	9
Region 7 (Southwest)	34	56	22	6	29	23
Region 8 (South Central)	18	62	44	7	19	12
Region 9 (Southeast)	83	99	16	35	22	-13

This rate of increase ranges from 19 to 44 percent. As a result, at least half the water quality samples show nitrate contamination in every agricultural region of the state.

[10] Recommendations of The Nitrogen Fertilizer Task Force on The Nitrogen Fertilizer Management Plan to the Minnesota Commissioner of Agriculture, Minnesota Department of Agriculture, Aug. 1990, pages 57-67.
[11] Minnesota Nitrogen Fertilizer Management Plan Public Comment Draft, Minnesota Department of Agriculture, Aug. 2013, at 42 ("2013 Plan").
[12] 2013 Plan at 51.
[13] 2013 Plan at 56.

A startling number of groundwater samples show nitrate concentrations above the Health Risk Limit (HRL) of 10 mg/L. All agricultural regions of the state now have groundwater that is unsafe for human consumption. Six of seven agricultural regions exceeded the HRL more frequently in the last decade than in earlier monitoring.

A majority of the samples in the Central Sands region, which includes Regions 4 and 5, have nitrate levels that are unsafe for human consumption. Groundwater samples above the HRL increased by 24 percent in Region 4, resulting in the highest rate of samples above the HRL at 62 percent. Nitrate contamination was detected in 97 and 93 percent of samples in Regions 4 and 5, respectively. Of note is that areas with the highest rates of BMP adoption also have the highest rates of nitrate above the HRL.

While the Southeast region showed a decrease in samples above the HRL, nitrate was detected in 16 percent more samples. At this point, nitrate contamination is essentially universal in the region, with 99 percent of samples finding contamination.

A separate 20-year monitoring effort on two groundwater-fed springs in the Southeast region found that both springs have statistically significant increases in nitrate loading.[14]

Public water supply well testing presents additional cause for concern. Communities where well nitrate concentrations exceed 5 mg/L are required to test their water quarterly.[15] In 1990, 17 communities had to test for nitrates. Today, 27 communities must test their water for nitrate – a 59 percent increase.[16]

These high nitrate levels have forced investment of significant public funds to ensure communities provide safe drinking water and meet federal law. For example, the city of St. Peter installed reverse osmosis treatment at a cost of $18.8 million because the city could not find wells without high nitrate levels.[17] In an interview with Minnesota Public Radio, Bruce Montgomery, manager of MDA's fertilizer management section, stated that fertilizer BMPs alone cannot protect drinking water supplies, and "the science strongly suggests … the use of perennial cropping systems such as alfalfa strategically placed throughout the wellhead area may have the most significant impact."[18]

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[14] 2013 Plan at 127-128.
[15] 2013 Plan at 61.
[16] 2013 Plan at 61
[17] "Saint Peter Adds Reverse Osmosis as Part of Expansion and Upgrade," *Waterline*, Minnesota Department of Health, 2011 ("Blending with water from other wells might not be enough to keep the nitrate in the finished water from exceeding the federal limit of 10 parts per million.").
[18] Mark Steil, "Fertilizer by-product an unhealthy, expensive risk to water quality," Minnesota Public Radio, Sep. 10, 2013, available at http://minnesota.publicradio.org/display/web/2013/09/10/environment/alfalfa-fertilizer-water-quality.

Other communities are facing the same issue. Park Rapids, located in Region 4, recently approved a $2.45 million upgrade to its treatment system to remove nitrates.[19] Lincoln-Pipestone Rural Water District invested $2 million to remove nitrates.[20] Additional public water suppliers have considered similar investments.[21]

Increasingly pervasive high nitrate levels have externalized costs onto citizens who pay for water treatment upgrades. Continued increases around the state will trigger additional public investments to remediate groundwater pollution in agricultural areas.

There is no dispute that agricultural practices are causing groundwater degradation despite implementation of the BMPs. As shown in Table 2, groundwater under all agricultural land in the state has a *median* nitrate concentration of 8.75 mg/L, only slightly below the HRL. This concentration is more than three times higher than any other land use. By comparison, concentrations in groundwater under undeveloped land are 0.05 mg/L.

Table 2. Nitrate Concentrations by Land Use, 2007-2011.[22]

Land use	Median nitrate concentration, in mg/L	Number of wells	Data Source
Agriculture	8.75	212	MDA
Residential SSTS	2.82	13	MPCA
Sewered Residential	2.15	36	MPCA
Commercial/Industrial	1.96	9	MPCA
Undeveloped	0.05	18	MPCA

The land use monitoring data are buttressed by recent findings of nitrate pollution in surface water. MPCA determined that 30 percent of nitrate pollution to surface waters resulted from shallow groundwater below cropland.[23]

The BMPs developed, promoted, and adopted pursuant to the Groundwater Protection Act have not been effective at preventing degradation of the state's groundwater. Because nitrate pollution from agricultural activities across the state is degrading groundwater resources and in many instances exceeding human health risk limits, MDA must take immediate action to develop rules that will prevent further degradation.

The 2013 draft Nitrogen Fertilizer Management Plan is unnecessary and contrary to the goal of the Groundwater Protection Act.

Despite the widespread pollution of Minnesota's groundwater resources, substantial trend toward increased degradation and demonstrated ineffectiveness of BMP implementation, the MDA has

[19] Anna Erickson, "Park Rapids moves ahead with water treatment plan," Park Rapids Enterprise, Dec. 1, 2012, available at http://dev1.parkrapidsenterprise.com/event/article/id/35060/publisher_ID/15/.
[20] 2013 Plan at 103.
[21] 2013 Plan at 99.
[22] *The Condition of Minnesota's Groundwater, 2007 – 2011*, MPCA, Aug. 2013, at 21.
[23] Dave Wall, *Nitrogen in Minnesota Surface Waters*, MPCA, June 2013, at 9.

not acted to redress the situation with WRPRs. Instead, MDA offers a 2013 revision to the 1990 Nitrogen Fertilizer Management Plan that delays real action to address a growing problem by erecting roadblocks to adoption of WRPRs. The 2013 "update" is neither called for by law nor necessary and should be set aside in favor of regulatory requirements that will address the agriculture industry's degradation of Minnesota's groundwater resources.

The 1990 plan was required by the 1989 Act and was to include:

> the determination of trends in nitrogen pollution; causative factors; the development of recommended best management practices to reduce and minimize the pollution; regulatory controls; the feasibility of proposed treatment and corrective or mitigative measures; and the economic impacts of proposed corrective measures.[24]

Updates to the plan are not required by law. As noted above, the required plan was adopted in 1990, and included a full suite of BMPs. These 1990 BMPs have been promoted, revised and widely adopted over the past 23 years.

The regulatory phase authorized by the 1989 Act is endorsed by MDAs 1990 plan:

> If the voluntary BMPs are not effective, the MDA will rule development for Water Resource Protection requirements (WRPRs) to be applied to the area.[25]

Minnesota currently faces the situation envisioned by the statute and MDA's 1990 plan—proven ineffectiveness of the voluntary BMP approach. However, instead of adopting WRPRs to stem the degradation of our groundwater resources, MDA has drafted a plan that premises such action on a slew of extra-statutory conditions including a 16-step process, four mitigation phases and numerous conditions:

- Exceedance of the health risk value for nitrate (10 mg/L) instead of preventing and minimizing degradation (which is defined as a change in groundwater from its natural condition by human activities);
- Determination of mitigation need and phase based on percent of wells exceeding the HRL;
- Premising action and "effectiveness" determination solely on the basis of non-adoption of BMPs instead of implementation effectiveness as demonstrated by groundwater trends;
- Prioritizing action where local government and agricultural community are willing to participate;
- Setting the clock back 24 years and starting over with a host of resource-intensive steps: groundwater sampling, review, voluntary BMPs, discussions by a local farmer advisory team, detailed BMP adoption surveys, identification and promotion of more BMPs, consideration of locally developed "alternative management tools," development of educational programs, securing funding for BMPs, developing new field demonstration

[24] 1989 Minn. Laws ch. 326, Art. 1.
[25] 1990 Plan at 4.

projects, continued monitoring and promotion, another adoption survey, more evaluation of adoption rates, and on and on.

There is no need for this 2013 plan, and it is contrary to the goal of the 1989 Act.

State law requires MDA, as the agency responsible for regulation of groundwater from agricultural pollutants, to prevent the on-going degradation of the state's groundwater resources.

As set out above, the Legislature provided MDA with the authority to implement water resource protection requirements to prevent continued degradation of groundwater from agricultural pollutants. The evidence is very clear that MDA's efforts in the quarter century since passage of the Groundwater Protection Act have been ineffective. MDA's monitoring demonstrates that voluntary BMPs are ineffective at preventing groundwater pollution. Despite widespread adoption, widespread pollution continues to get worse.

MDA's failure to develop and implement water resource protection requirements has resulted in the degradation of state's groundwater resources, which continues today. Minnesota's bedrock laws protecting the state's natural resources, the Minnesota Environmental Policy Act, Minn. Stat. § 116D, and the Minnesota Environmental Rights Act, Minn. Stat. § 116B, give a clear mandate to state agencies to act to protect the state's resources for future generations. MDA's failure to use its authority under the Groundwater Protection Act to execute its duty to protect and preserve the state's groundwater resources is unlawful. Its failure to act is causing pollution, impairment and destruction of the state's resources in violation of state law.[26]

Conclusion

What is needed in 2013 is not an "update" to MDA's statutorily mandated 1990 Nitrogen Fertilizer Management Plan. After two decades of BMP promotion and near universal adoption, the voluntary implementation of BMPs has been proven ineffective. Groundwater quality has worsened substantially and is still declining. Despite the continued rise in nitrate concentrations, MDA has not taken additional action. Instead, the Draft Plan proposes to reset the clock and delay action even further.

Continued delay in developing water resource protection requirements authorized by the GWPA violates MDA's duty to prevent degradation and allows ongoing pollution, impairment, or destruction of Minnesota's natural resources.

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[26] Minn. Stat. §§ 116B.03, 116B.04; *State ex rel. Swan Lake Area Wildlife Ass'n v. Nicollet Cnty. Bd. of Cnty. Comm'rs*, 771 N.W.2d 529, 537 (Minn. Ct. App. 2009) ("An agency may be held liable for its inaction if the failure to act results in, or is likely to result in a materially adverse effect on the environment.")

MCEA requests that MDA immediately develop water resource protection requirements, beginning with the Central Sands and Southeast Regions, to prevent further degradation of the state's groundwater.

Sincerely,

Kevin Reuther
Legal Director

Kris Sigford
Water Quality Director