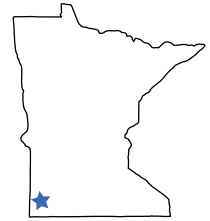




# Drinking Water Protection

## Lincoln-Pipestone Rural Water – A Case Study

*Developed cooperatively between the Minnesota Department of Agriculture and the Minnesota Department of Health*



Water quality and quantity in southwest Minnesota are significant concerns. Protection of limited water supplies is important to the long-term economic stability and growth of this area. Most drinking water supplies in the region are obtained from shallow ground water aquifers which are frequently contaminated with nitrates. Deeper aquifers are not suitable for use as drinking water because of sulfur contamination and inadequate recharge. Past agricultural land use practices have played a large role in defining today's water quality issues.

### ***LPRW Water Quality and Unique Challenges***

- ◆ Lincoln-Pipestone Rural Water supplies water to 27 communities and 3000 rural households in southwestern Minnesota.
- ◆ The recharge area of the three major well fields– Burr, Verdi, and Holland covers over 32,000 acres. Water from the Burr well fields is low in nitrates due to the geology of this area.
- ◆ Raw water from some of the Verdi and Holland supply wells have elevated nitrate levels and in some cases exceeded the federal drinking water quality standard of 10 parts per million (PPM). These higher levels are due to the fact that wells are shallow and vulnerable to contamination from activities taking place on the land.
- ◆ Wells containing various nitrate concentrations are blended to produce a safe finished product.
- ◆ A \$2,000,000 nitrate removal system was installed in the Holland well field. (Hopefully over time improved water quality will make the system unnecessary).
- ◆ Few locations in the area have a dependable backup source of drinking water. It is critical that existing supplies are adequately protected.



*Drinking water supply management area*

### ***Successful Action Steps***

- ◆ The LPRW project is an example of how water suppliers, crop and livestock producers, ag-dealerships, University of Minnesota, and local/state/federal organizations can work together to develop and implement a wellhead protection plan. Management goals and strategies in the plan define implementation steps to protect and improve drinking water quality.
- ◆ A chain reaction of grant writing and obtaining sources of funding occurred after the initial state grant was obtained. Local units of government were responsible for later bringing in \$235,000 in EQIP 319 and Clean Water funding, and a \$60,000 continuation gift from the Lincoln-Pipestone Rural Water Board, to support local initiatives.
- ◆ When nitrogen Best Management Practices (BMP's) are properly administered, and adequately funded with cost share dollars, significant behavioral changes in nutrient management can be achieved in a narrow window of time.
- ◆ Channeling communications from all of the various partnerships through the LPRW project coordinator significantly reduced much of the confusion, redundancy, and apprehension commonly shared by most producers in these types of projects.
- ◆ Local Natural Resource Conservation Service and Soil and Water Conservation District staff are historically swamped with existing work loads. Hiring a dedicated nutrient plan writer/coordinator to work solely with producers to develop nutrient, pesticide and tillage management plans was a huge boost to the project.

- ◆ Research was conducted to fine-tune existing fertilizer and manure recommendations for the unique soils and geology found in this area. Area producers were highly receptive to having research conducted by USDA-ARS and University of Minnesota on their farms. This research confirms that U of M recommendations for applying nitrogen are accurate.
- ◆ Farmers were extremely receptive to changing management practices when provided knowledge as to: 1) how their nutrient management decisions affect groundwater quality, and 2) how changes in their nutrient management decisions can result in favorable profit margins.
- ◆ Similar to most areas of Minnesota, producers frequently enjoy a cost savings of anywhere from \$4 to \$8 per acre through reduced nitrogen inputs. Savings on manured fields can be substantially higher.
- ◆ Personal on-farm visits and “one on one” technical assistance were critical in clearly explaining the benefits of conservation easement programs and nitrogen best management practices (BMP’s).
- ◆ Portions of the most sensitive land have been taken out of agricultural production and have been placed into the Conservation Reserve Program (CRP) where groups such as local hunting clubs can lease the land.
- ◆ Innovative, cost effective solutions are frequently developed on a very localized scale. In this case, a lease agreement between an area hunting club and LPRW was highly beneficial in taking some of the most sensitive land out of production and replacing it with perennial grasses and legumes.

### Future Activities and Needs

- ◆ Area residents will continue to receive updates on ground water protection efforts via newsletters, press releases, meetings, handouts, and personal visits. Emphasis will be on the connection between land use activities and water quality.
- ◆ Potential sources of contamination will be monitored and strategies will be put into place to protect ground water.
- ◆ Monitoring of test wells and surface water will provide long term nitrate trends.
- ◆ Nutrient, pesticide and tillage management plans will continue to be developed and put into action.
- ◆ Landowners operating in highly sensitive areas will be encouraged to enroll in long-term conservation easement programs. These land areas have been identified through computer modeling.

### For more information:

Minnesota Department of Agriculture - [www.mda.state.mn.us/appd/waterprotect.htm](http://www.mda.state.mn.us/appd/waterprotect.htm)

Minnesota Department of Health - [www.health.state.mn.us/divs/eh/water/index.html](http://www.health.state.mn.us/divs/eh/water/index.html)

Minnesota Rural Water Association - [www.mrwa.com](http://www.mrwa.com)

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