RUSH RIVER ASSESSMENT PROJECT
SUMMER 2003

Vol. 2 Issue 1

Testing Reveals Arsenic in Drinking Water

Results of recent testing of rural drinking water has revealed that many area wells exceed the drinking water standard for Arsenic concentration. Thirty-seven percent of samples collected from 183 area wells tested over the drinking water standard set by the Environmental Protection Agency (EPA).

This past May, RRAP offered free testing for Arsenic in well water. The testing, which was partially funded by the Department of Health, was made available to all residents living in Rush River Watershed. Testing revealed that 68 of the 183 wells tested for Arsenic were over the drinking water standard. These wells were found throughout the watershed and concentrations did not appear to be related to well depth, as previously thought.

The current drinking water standard for Arsenic was reduced from 50 parts per billion (ppb) to 10 ppb in the fall of 2001. The lowering of the standard was prompted by new studies on the health effects of Arsenic. The drinking water standard addresses the long-term effects of exposure to low concentrations of Arsenic. These long-term effects may increase the likelihood of certain cancers, such as skin, bladder, lung and prostate and non-cancerous effects such as, skin pigmentation, keratosis, diabetes, anemia, pulmonary and neurological problems. Consuming water with Arsenic levels above 10 ppb does NOT mean you will develop health problems, but it does put you slightly more at risk.

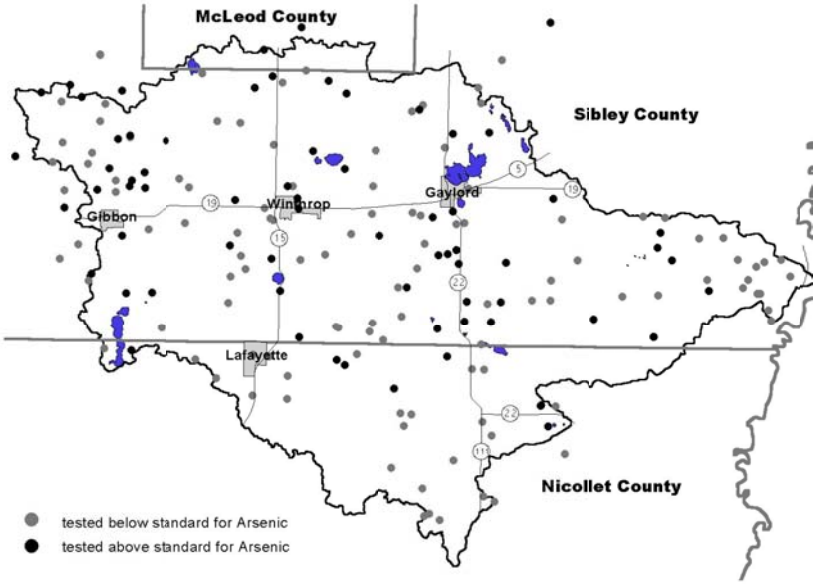
The contamination of drinking water by Arsenic can result from either natural or human activities. Arsenic is an element that occurs naturally in rocks, soil, water, air, plants and animals. The majority of Arsenic used by industry in the U.S. is for wood preservative purposes. Arsenic found in drinking water in this area is thought to be naturally occurring from bedrock.

Residents who have drinking water over 10 ppb are encouraged to install systems to reduce Arsenic. The two most commonly used methods of treating well water for Arsenic, according to the Minnesota Department of Health, are reverse osmosis and distillation. Both systems are usually installed at the point of source (tap that you get your drinking water from). Body contact (such as bathing) with water high in Arsenic is not a health concern. Reverse Osmosis units range in cost from $300 to $3000 and vary in quality and effectiveness. Replacement membranes cost $100 to $200 and filter cartridges around $50.

If you missed the Arsenic well water clinic last May, but are interested in having your water tested for Arsenic on your own, you can bring a sample to one of the laboratories listed below. Testing for Arsenic runs from $15 to $25.

Minnesota Valley Testing Laboratory
1126 North Front Street
New Ulm, MN 56073-0249
(507) 354-8517

Brown-Nicollet Community Health Services
322 South Minnesota Avenue
St. Peter, MN 56082
(507) 934-4140



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Project to Focus on Ways to Reduce Flooding in Rush River Watershed

by Bob Barth, Project Manager - Bonestroo and Assoicates

The spring of 2003, Bonestroo and Associates Consulting Firm was hired by RRAP to conduct a detailed hydrologic study of the Rush River and its tributaries. The hydrologic study will be used to assess what can be done to reduce peak flows and what areas of the watershed would be best for water storage/retention. Bob Barth, project manager from Bonestroo, details the specific project activities below:

Flood Control

We are developing a hydrologic model of the watershed to use in analyzing stormwater storage alternatives. The model builds on existing data available for the watershed: GIS mapping, contour data, ditch and tile mapping, anecdotal data about problem areas, and bridge and culvert replacement plans. Extensive field work has also been conducted so as to better quantify existing conditions within the Rush River watershed.

At present the hydrologic model is 90% complete. When complete it will be used to identify priority areas for stormwater storage and design key hydrologic parameters for these areas including:

< Normal and high water levels
< Wet and flood storage volumes
< Areas and durations of inundation
< Peak inflows and outflows
< Outlet configurations

The study will address control of peak flows.

Once feasible alternatives for storage implementation are identified, we will estimate the costs of recommended facilities, including easement costs. The primary goals of the hydrologic analysis are to identify strategic locations for storage and put a cost to the implementation of this storage.

Wetland Restoration

Once the existing hydrologic model is complete and we begin looking at storage solutions, we will consider where wetland restoration would complement recommended storage solutions. Historical wetlands that have been drained due to ditching or tiling are typically among the easiest to restore and also have the best success rate. The wetland seedbank and other characteristics necessary for wetland success are frequently still in place in these drained wetlands.

As part of this study, we are using National Wetland Inventory maps, hydric soils mapping, ditch and tile line maps, and historical aerial photos (where available) to identify potential sites of historical wetlands. These will be combined with local knowledge of past wetlands and activities that may have affected them.

Wetland areas provide water quality and habitat benefits beyond what stormwater ponds can provide. The goal of integrating wetland restoration into the storage program is to realize some of these additional benefits.

Wetland restoration can be incorporated into stormwater storage areas.

Water Quality

We will incorporate water quality treatment of stormwater into the design of the stormwater storage areas where possible and appropriate. To that end we have been reviewing water quality data obtained through the ongoing RRAP monitoring program.

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Cropping and Tillage Practices

Our hydrologic modeling incorporates information on cropping and tillage practices. Our modeling will also quantify benefits associated with large scale changes in these practices. Changes in tillage practices, or better put, an extension of already used conservation tillage practices is another aspect (along with storage) to a comprehensive approach to both flooding and water quality.

The product of this work will be recommended residue cover within high priority areas of the watershed and their associated impact on downstream water quality.

The study will also consider the effect of cropping and tillage practices on stormwater runoff.

Citizen Involvement

The hydrologic assessment involves regular meetings with county board members and other stakeholders to present results and obtain input and feedback. Stakeholder input will guide the final report to recommendations that make sense at the local level.

Conservation Reserve Program, Continuous Sign-Up

by John Dotolo, Sibley NRCS

Grass filter strips help keep sediment and nutrients out of streams and ditches.

The Conservation Reserve Program (CRP) was conceived to provide a variety of natural resource conservation benefits. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as tame or native grasses, wildlife plantings, trees, contour grass buffers, filter strips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices.

The continuous sign-up was recently enhanced by some incentives that make participation in the program more attractive. First: a signing incentive payment (SIP) of $100 to $150 per acre is available for selected practices. This one-time payment will be made after the contract is approved and all payment eligibility criteria are met. These practices include; filter strips, riparian buffers, grassed waterways, field windbreaks, shelterbelts, and living snow fences. Second: a performance incentive payment (PIP) equal to 40 percent of the eligible installation costs will be provided to eligible participants. This one-time payment will be issued after the practice is installed. All practices available for the continuous sign-up are eligible for the PIP. Third: new rental rates for marginal pastureland will better reflect the value of such lands.

The question you may ask yourself is, why should I participate in CRP? That can be answered by doing an inventory of the land you operate. Do you farm areas next to a river or stream? Do you have a gully that forms in the same place in a field every year? Don't allow gullies to reduce the value and profitability of your farm. Now is an excellent time for interested producers to take advantage of CRP for practices addressing erosion control, water quality, and wildlife habitat. The current continuous sign-up runs through September 30th, 2003. Interested landowners and operators should schedule a time to visit with us and the Farm Service Agency office about the practices.

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Scott Matteson
Rush River Assessment Project
111 6th Street
Gaylord, MN 55334

Phone: (507) 237-5435 ext. 103
Email: scott.matteson@mn.usda.gov

Rush River Assessment Project
P.O. Box 161
111 6th Street
Gaylord, MN 55334

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MSUM Students Study the Health of Rush River

This spring and summer three undergraduate students from Minnesota State University, Mankato are collecting aquatic critters from the Rush River to determine the biological health of the river. Jenny Mocel, Alicia Hachfield and Jesse Neyens are spending their summer collecting and identifying these critters that live under rocks, branches and other debris in the Rush River. The critters, known as macroinvertebrates, come in many different shapes and colors, and most are under 1/2 inch in size. The students are collecting these "bugs" at seven monitoring sites in the Rush River Watershed. The students collect the macroinvertebrates monthly from traps that are set out at each of the monitoring sites.

Studying the type and number of these critters in the river is important as it can tell us the biological health of the river. As some macroinvertebrates live in dirty water and some clean, we are able to identify how healthy the river is, or in this case, each branch of the Rush River.

The MSUM students will finish the macroinvertebrate study this fall and the results will be printed in the winter 2003 RRAP newsletter.

Macroinvertebrates, such as these, help determine the general health of the river.

MSUM student, Jenny Mocel, collects macroinvertebrates from a trap.