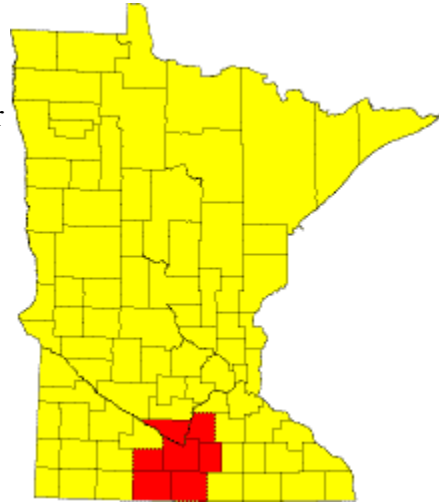




Ground Water Profile:

South Central Region

This is a ground-water profile for Minnesota's South Central Region, which is comprised of Blue Earth, Faribault, LeSueur, Martin, Nicollet, Waseca and Watonwan Counties.



HYDROGEOLOGY:

- The distribution of aquifers in this area is transitional between those having abundant, high-quality ground water to the east and those with ground water that is scarce and poor in quality to the west.
- Glacial aquifers are limited in extent and yield.
- Bedrock aquifers that discharge to Minnesota River tributaries may improve "stream" water quality.
- Deeper bedrock aquifers are underutilized and are recharged very slowly.

QUANTITY ISSUES:

- Occasional well interference problems are noted.

QUALITY ISSUES:

- Nitrate contamination may affect the Prairie du Chien-Jordan aquifer as well as surficial aquifers.
- Field tiles that intercept agricultural contaminants may pollute surface waters.
- Agricultural drainage wells, where present, pollute deeper ground water.
- Thick, clay-rich till is fairly protective. There are no high-priority problems for public water supplies in till areas.
- Proper well construction practices are critical when penetrating confining layers.

INFORMATION NEEDED:

- Define the relationships between shallow systems, regional

systems, and surface water.

- Assess the distribution and extent of nitrate contamination using existing information.
- Better knowledge about agricultural drainage wells is needed, including where they occur and where they are the most threatening to ground-water quality.
- Assess the effectiveness of clay-rich glacial deposits as confining layers for deep aquifers.

DESIRED ACTIONS:

- Develop detailed mapping of thickness of glacial deposits and recharge rates to underlying bedrock.
- Systematically sample aquifers for isotopes such as tritium or carbon 14 to identify recharge rates.
- Compile and evaluate relational databases including nitrate analyses as well as geologic information and well log information.
- Educate land owners on land-use practices to protect wells and shallow ground water.