

What we've learned from over 20 years of voluntary private well water testing

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Center for Watershed Science and Education
College of Natural Resources
University of Wisconsin-Stevens Point



What we've learned from over 20 years of voluntary private well water testing

- Overview of data collection efforts
- Demonstration of WI Well Water Viewer
- What we've learned
- Where to go from here

Evolution of private well data collection



Data entry begins
(most from mid-80's – Present)

Water quality data generated by multiple entities:

- UWSP Water and Environmental Analysis Lab
- State Lab of Hygiene
- Local Health Departments
- WI Dept. of Agriculture Trade and Consumer Protection (DATCP)
- Private Laboratories
- Others

Evolution of private well data collection



Data stored in various locations:

- WI DNR – Groundwater Retrieval Network
- WI DATCP – Ag Chemical Monitoring
- UWSP – Drinking Water Programs
- Others – not easily accessible

Evolution of private well data collection



Find ways to sort and bring those sources of data together*

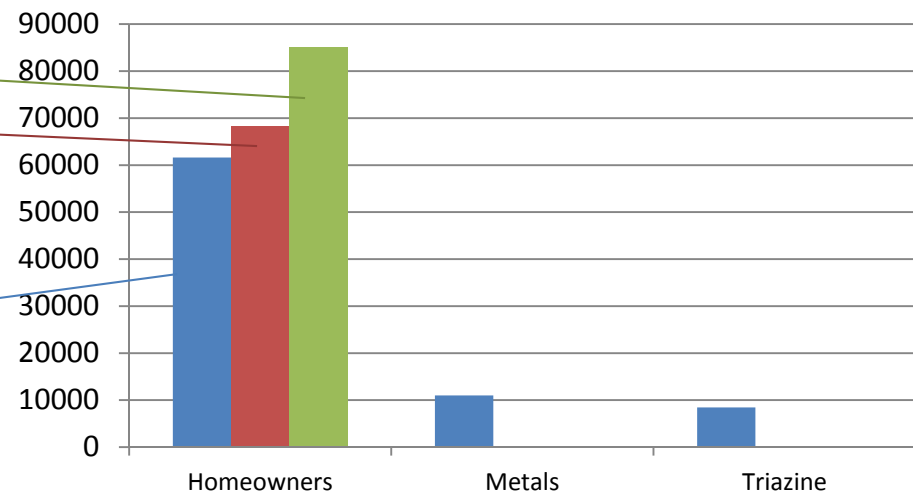
- Multiple database formats
- Different quality (WUWN, location, etc.)
- Varying detection limits

*Grant from WI DHS and EPHT

Water Tests Offered through UWSP

- **Homeowners Package:**

- Coliform Bacteria*
- Nitrate*
- Chloride
- Alkalinity
- Conductivity
- Hardness
- pH
- Saturation Index



- **Metals Package – added in late 90's**

- Arsenic*, lead*, copper*, zinc, iron, manganese, sodium, calcium, magnesium, potassium, sulfate

- **Triazine* Screen added in late 90's** (*switched to diaminochlorotriazine in 2008*)

- Quick and dirty method to measure the amount of some common corn herbicides

*Health related contaminant

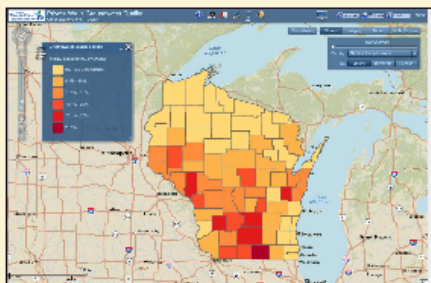
Evolution of private well data collection



Use the data to create a detailed visual of water quality:

- Nitrate – DNR, DATCP, UWSP
- Bacteria – DNR, UWSP
- Hardness – UWSP
- Arsenic – DNR, UWSP
- Chloride – UWSP
- Atrazine Family – UWSP, DATCP

WI Well Water Quality Interactive Viewer



[Use the Interactive Well Water Quality Viewer](#)

Homeowners and local units of government can use this tool to:

- See what we know about general well water quality in Wisconsin.
- Compare water quality in your area to nearby towns or counties.
- Raise awareness of local groundwater quality issues.
- Promote testing and outreach efforts.
- Encourage well testing in areas where little data exists.
- Highlight the importance of testing well water on a regular basis.

Disclaimer: The viewer summarizes private well water quality data from the Center for Watershed Science and Education, the WI Dept. of Ag, Trade and Consumer Protection, and the WI Department of Natural Resources Groundwater Retrieval Network. It is not considered a scientific study and does not represent well water quality information for all known private wells.

This information is not intended to be a substitute for well water testing and does not provide site specific information for an individual well or property. The Center for Watershed Science and Education is not responsible for misuse or misinterpretation of the data.

Direct questions on using and interpreting this information to [Kevin Masarik](#).

Interactive Well Water Quality Viewer 1.0 created by David Mechenich, Center for Watershed Science and Education

WI Well Water Quality Viewer

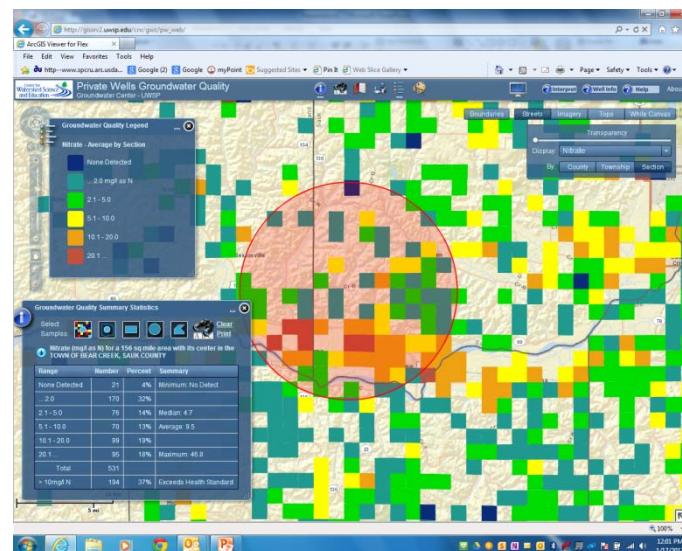
Nearly 900,000 households rely on private wells as their primary water supply. Homeowners with private wells are encouraged to have wells tested on a regular basis to determine the safety of the water supply for purposes such as drinking and cooking. While testing is the only way to determine the types and amount of contaminants in a well water system, homeowners, health professionals and local officials often want to know more about water quality issues in their community.

Features

- Search for information on 14 different water quality parameters
 - Health related contaminants:
 - Nitrate
 - Arsenic
 - Atrazine
 - Lead
 - Copper
- View water quality information at a county, town or section level detail
- Generate groundwater quality summaries by county, town or any user defined area greater than 1 sq. mile

Available online at:

<http://www.uwsp.edu/cnr-ap/watershed/Pages/wellwaterviewer.aspx>

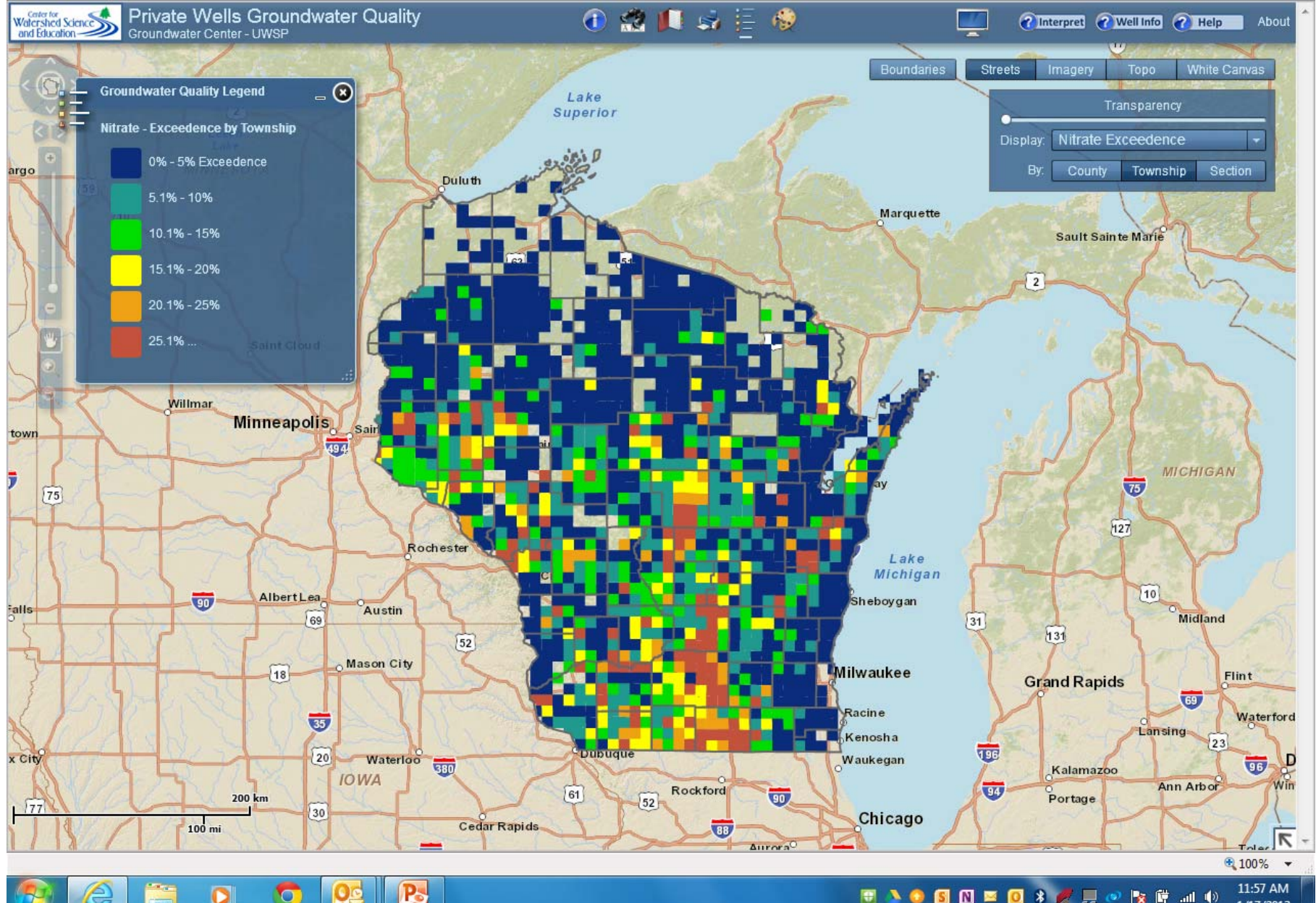


UW
Extension

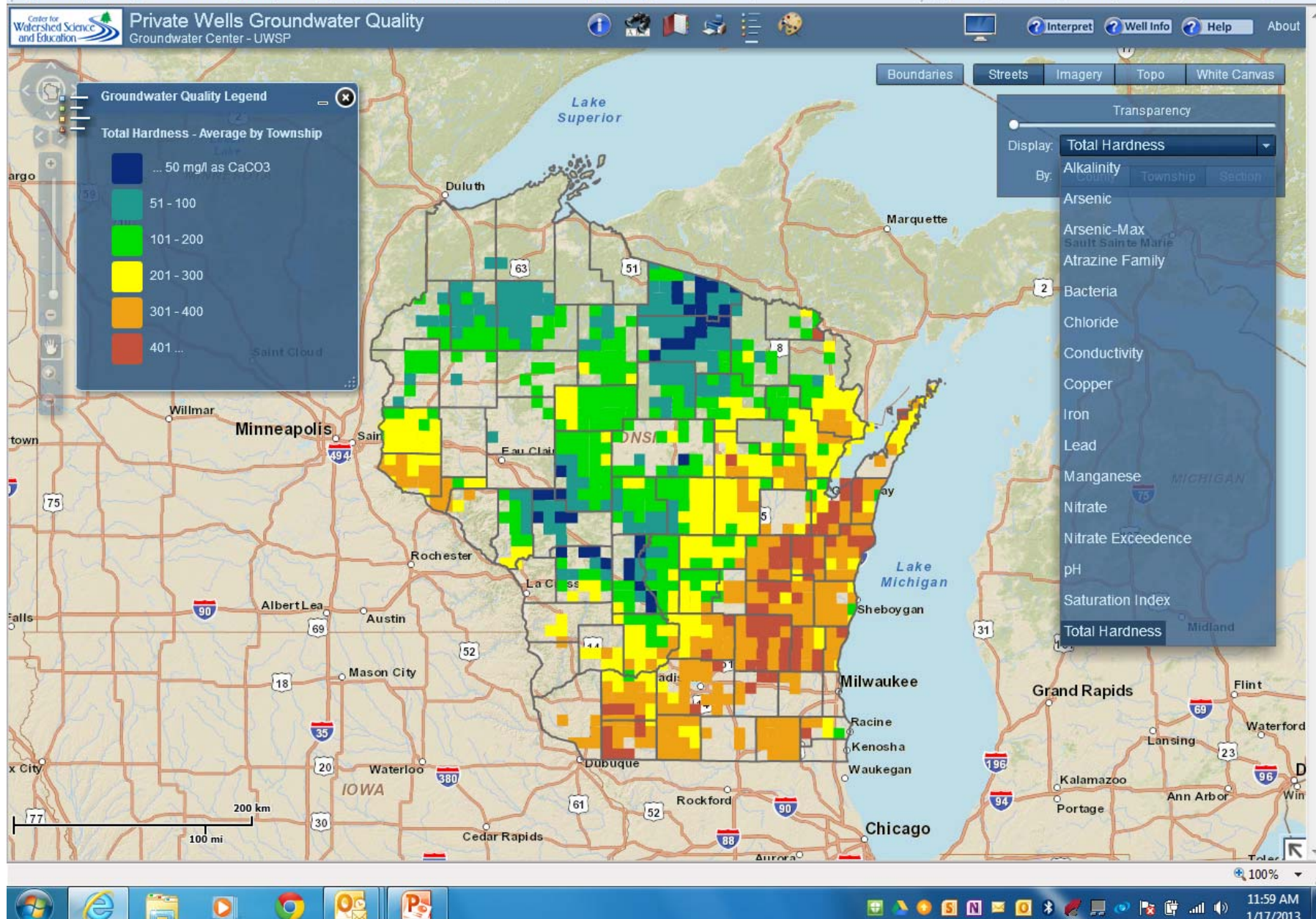


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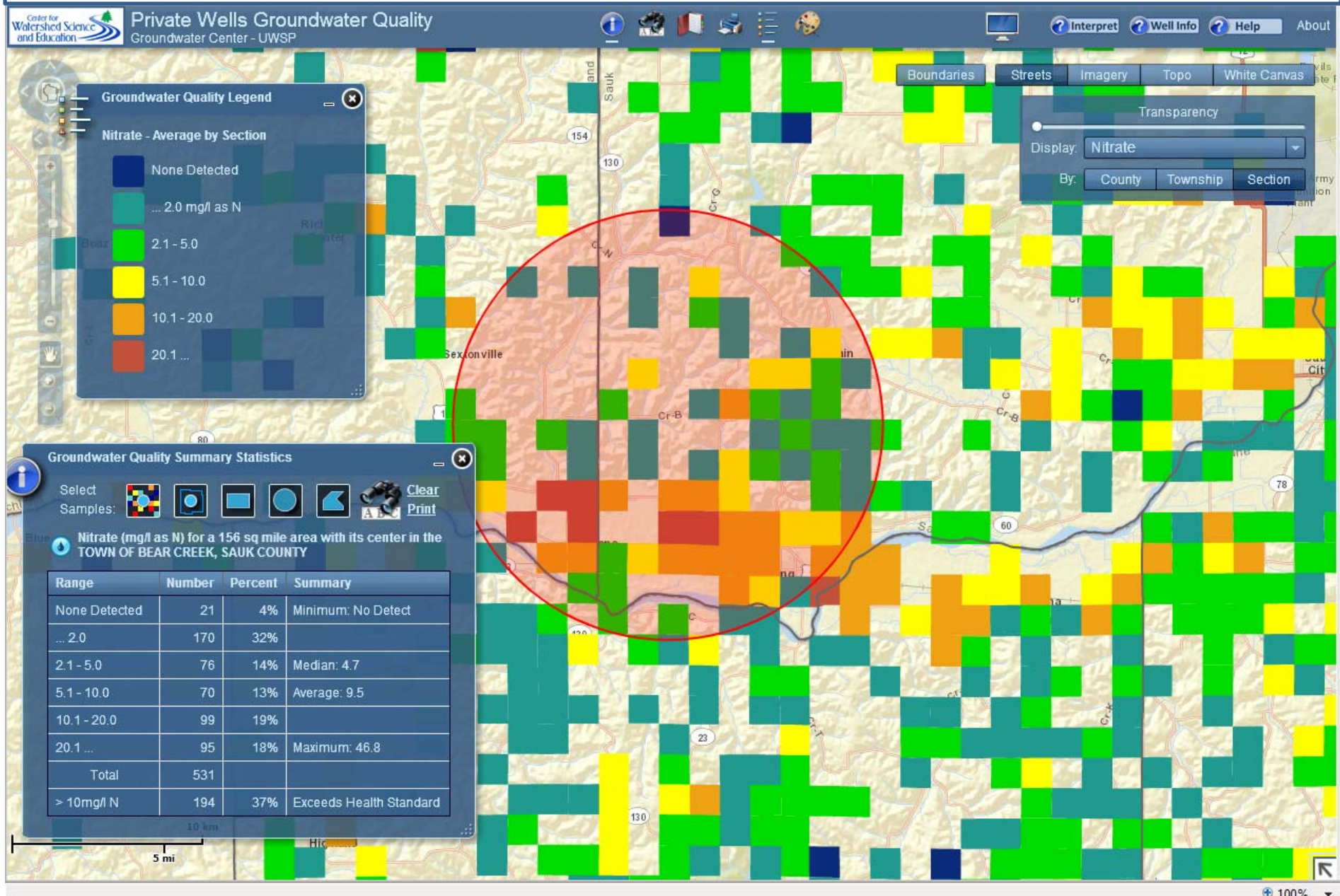
View water quality information by County, Town or Section



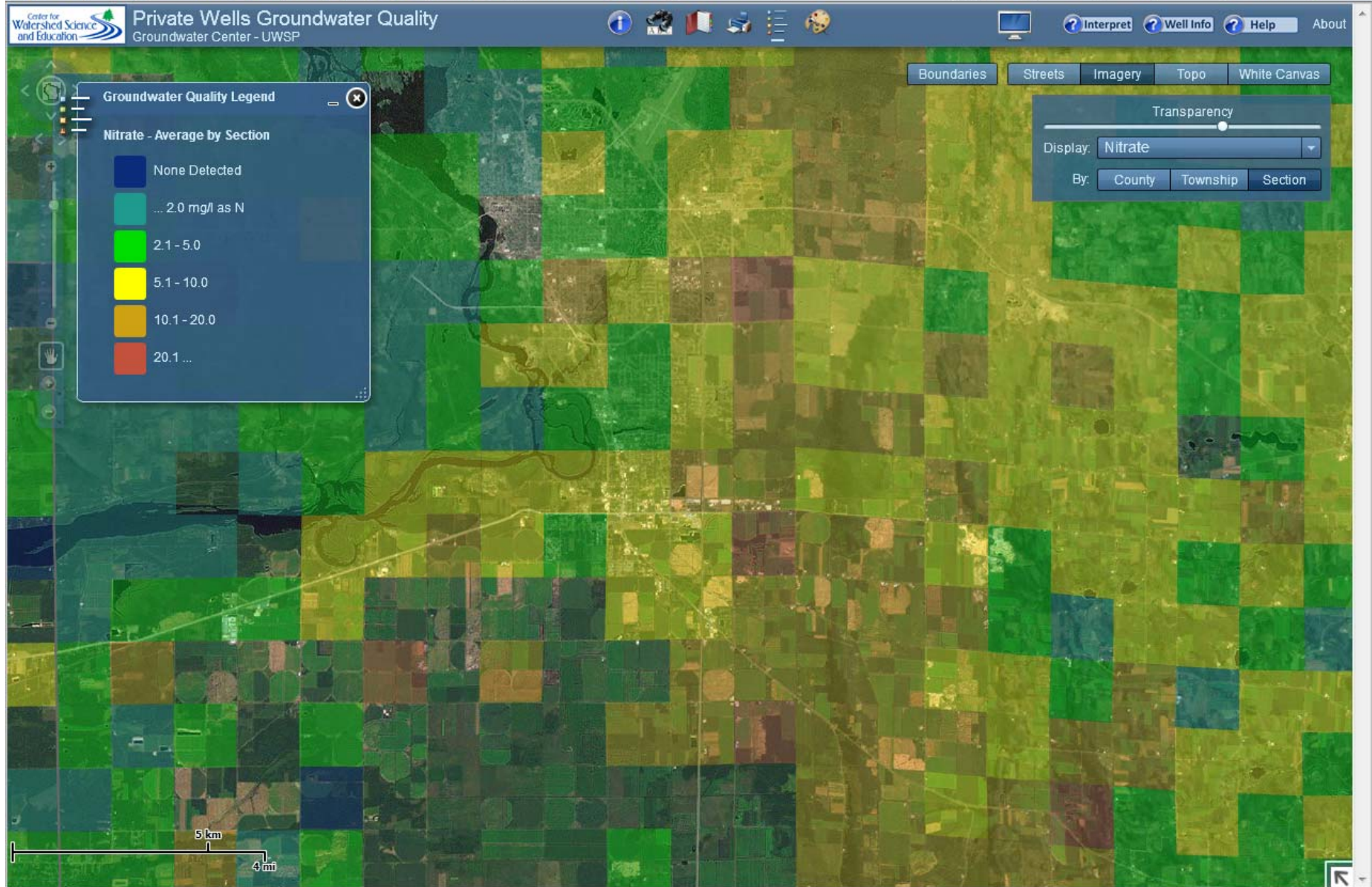
Select from 14 different water quality parameters



Generate water quality summaries for a County, Town or any user defined area

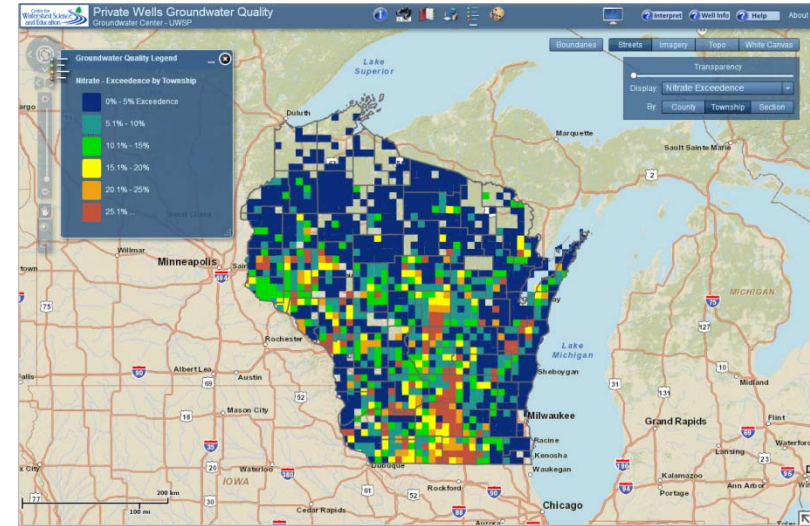


Allows you to look for land uses that may be impacting water quality in certain areas.



Strengths of the viewer

- Detailed picture of shallow groundwater quality
- Identification of groundwater quality
- Transparency – provides easy access to data for general public and local gov't
- Able to integrate data sets of varying quality



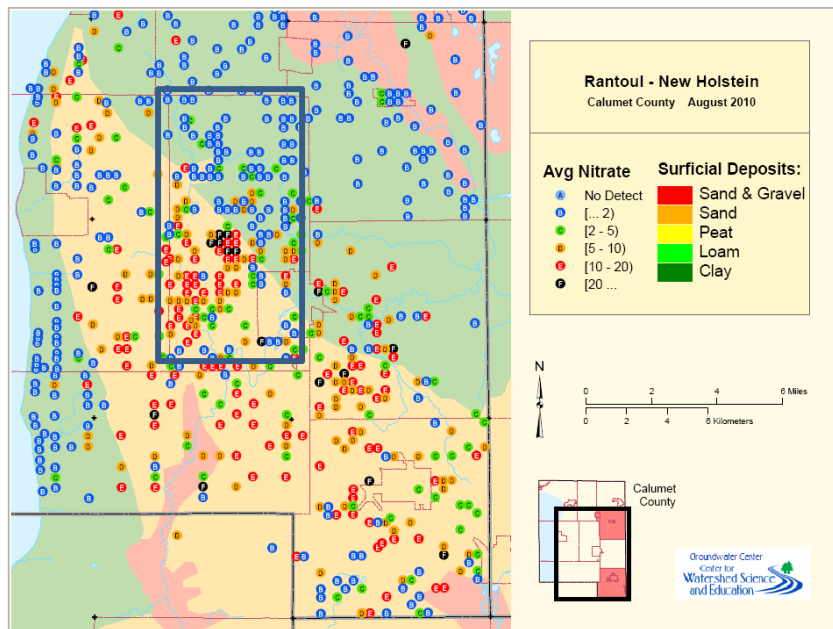
Limitations

- Most wells only have only been sampled once
- Well construction for a lot of wells largely unknown

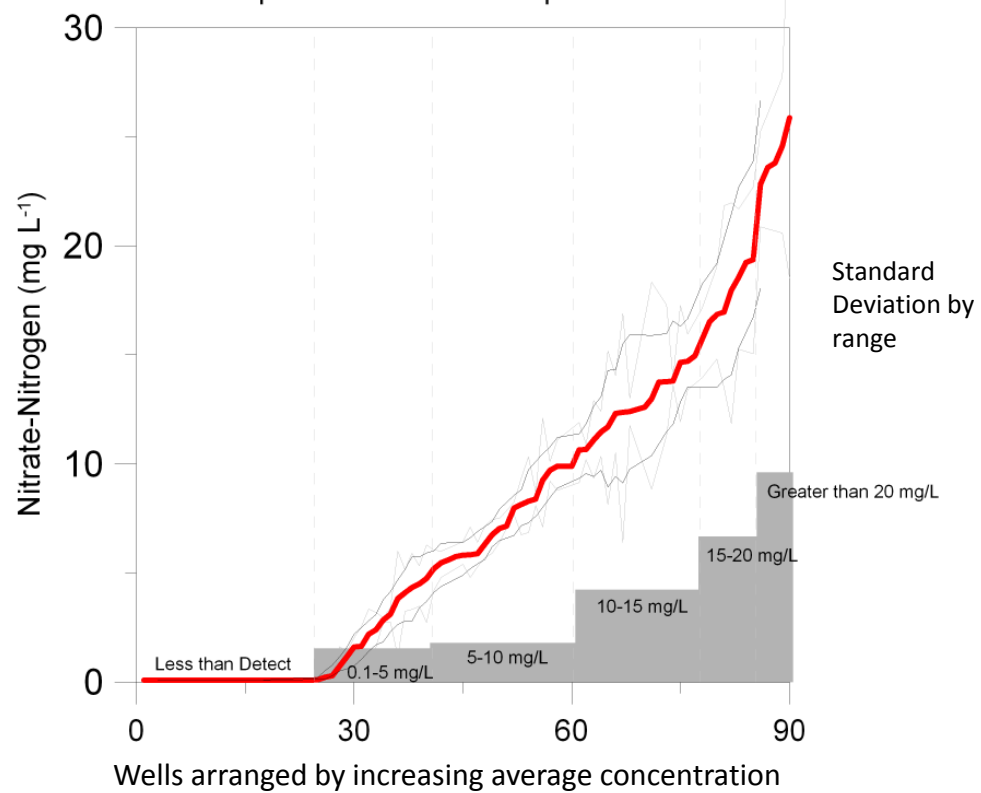
Not designed to answer certain questions:

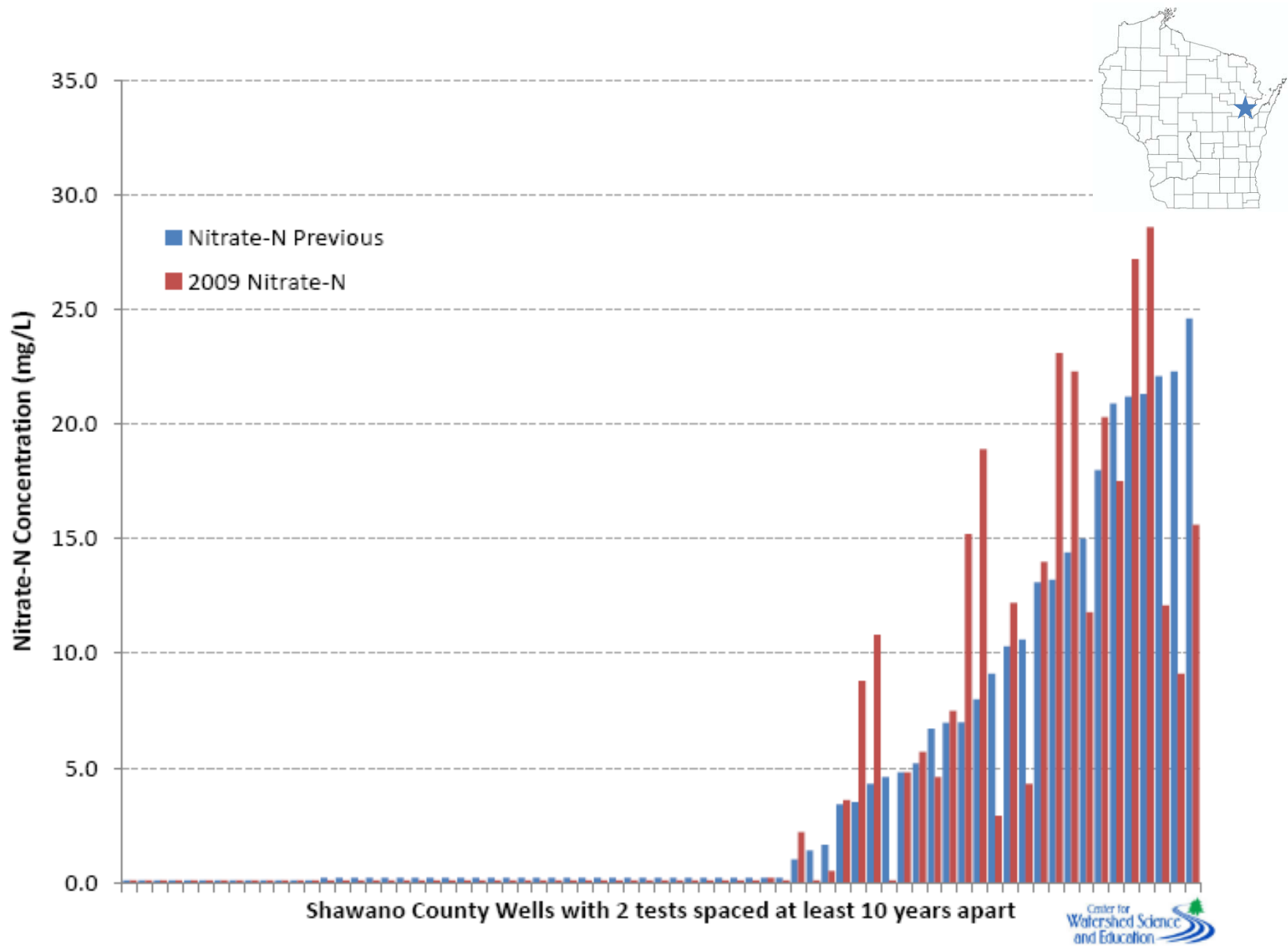
- Is water quality better or worse?
- Trends?
- Shallow vs. deep wells?
- Sort out new vs. old well construction?

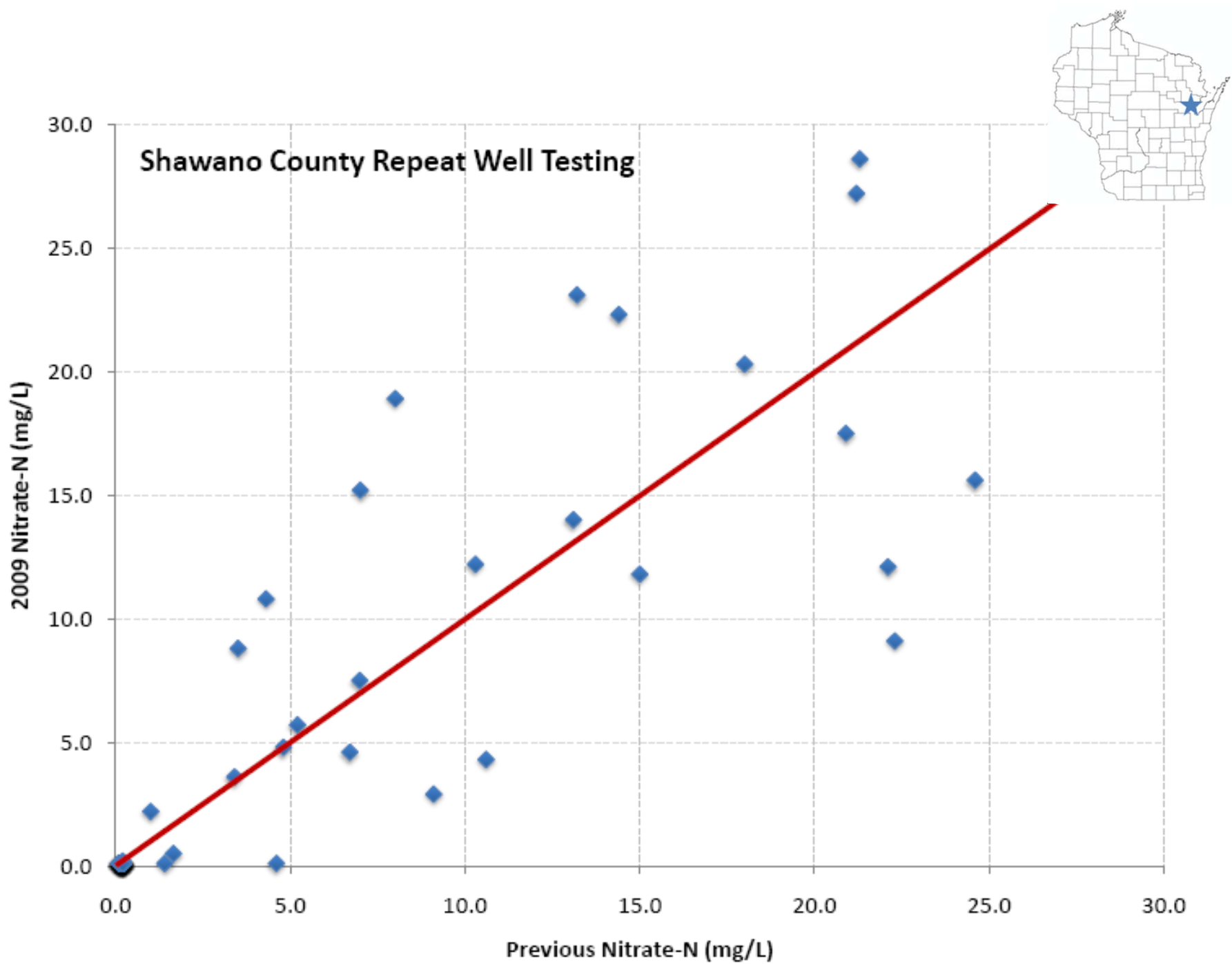




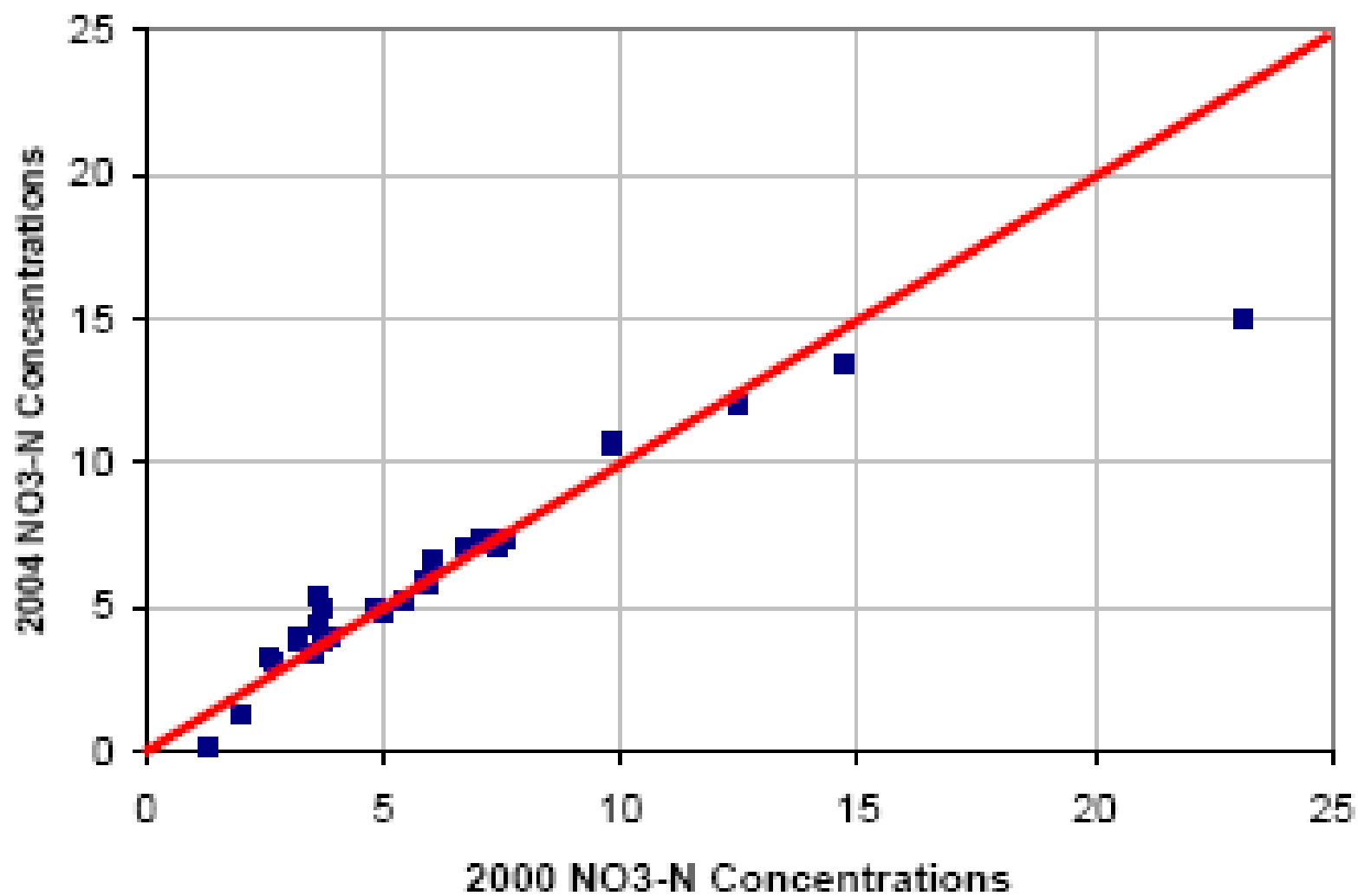
Town of Chilton, Calumet County
Repeat Well Water Samples



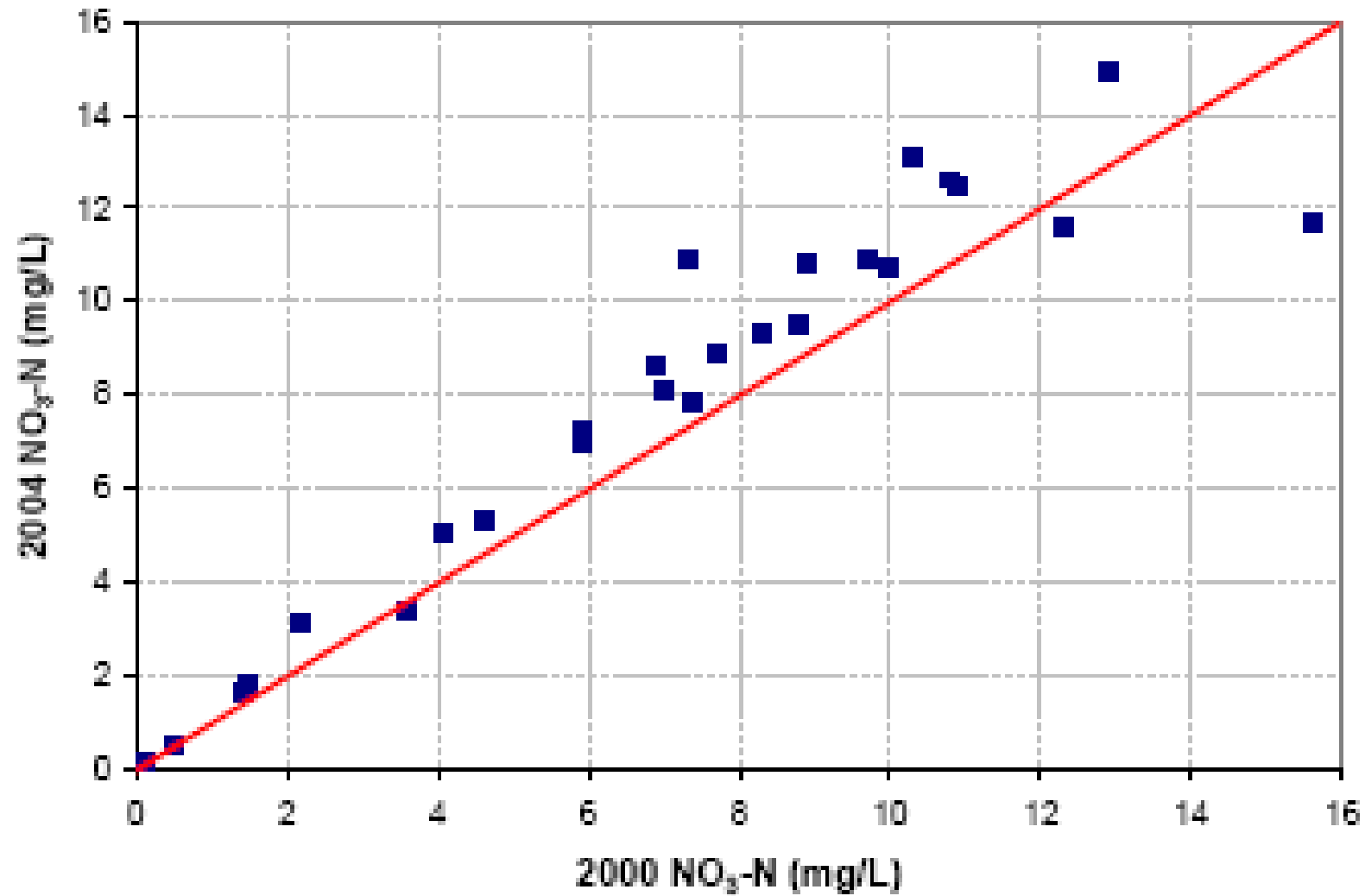




Town of Troy, St. Croix County

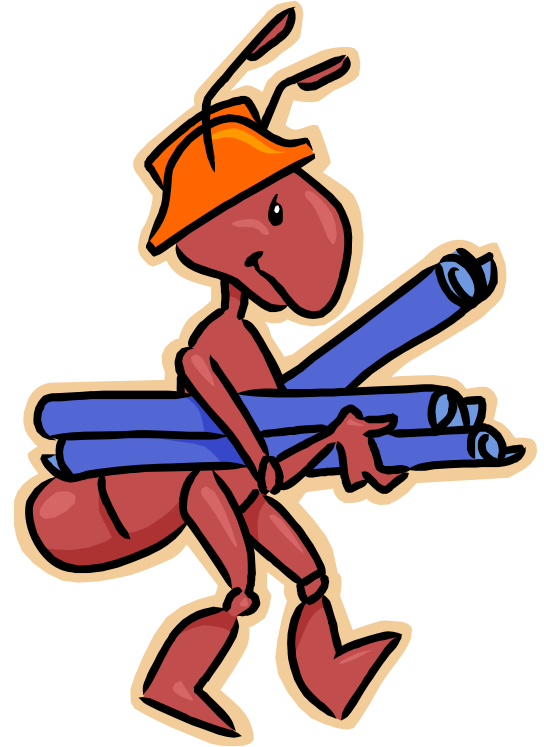


Town of Warren, St. Croix County



Future directions

- Think about long-term approach for looking into changes in well water quality over time
 - Focus on areas where problems have been identified
 - Smaller study areas – more detail
 - Think longer than 2-3 year study
 - Take advantage of citizen driven interest - maintain voluntary aspect
- Community wells have longer term data to potentially gain insight into trends
- Landscape equilibrium? - monitor $\text{NO}_3\text{-N}$ concentrations in headwater streams or springs



Questions?



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Most used search terms to access the viewer