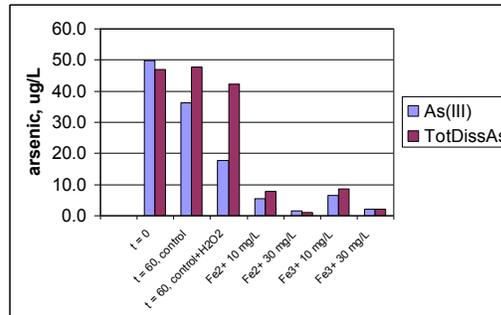


## Arsenic Problem Concerns Several Midwestern States, Issue a Priority for MTAC Research Efforts

MTAC has attacked the arsenic problem in three ways. First of all, MTAC sponsored a number of educational workshops for small system operators and administrators several years ago in advance of the new rule coming into effect. Secondly, MTAC researchers have investigated novel treatment approaches and the improvement of existing methods to increase arsenic removal efficiency. The other projects have sought to increase our understanding of variables that contribute to arsenic release in the groundwater.

Two projects were recently completed, and the final reports have been reviewed and should be posted soon. *Simultaneous Removal of Viruses and Arsenic from Ground Water by Granular Media Coated with Nanoporous Aluminum Oxide* investigated the potential for simultaneous removal of two serious contaminants in one step for surface water systems. *Development of Low Cost Treatment Options for Arsenic Removal in Water Treatment Facilities* achieved excellent results with a low cost improvement that improves the oxidation and filtration removal efficiency for iron and arsenic. This project was so successful it warranted the award of additional funds to test the process with other water chemistries at other plants. Phase II is in progress and initial results continue to be encouraging.

MTAC has three research efforts underway that seek to increase our understanding of the processes that govern the release rate of arsenic into the groundwater supply. One of the studies, *Chemical Addition for Arsenic Removal*, seeks to



Effect of additional iron on arsenic removal. H<sub>2</sub>O<sub>2</sub> dose 20 mM. Control had no Fe or H<sub>2</sub>O<sub>2</sub>. TotDissAs is total dissolved arsenic. The estimated chemical costs for treatment totaled about \$0.07/thousand gallons. Equipment required to update the existing plant would be two pumps and two tanks.

quantify the effects of adding KMnO<sub>4</sub> and FeCl<sub>3</sub>, either alone or in combination, on the removal efficiency of arsenic. *Microcosm Experiments for Arsenic Solubility Determination* attempts to measure the effect of adding various amounts of sulfate, nitrate, and acetate on the chemistry of groundwater from the Mahomet Aquifer. This aquifer has high local variability of arsenic and these constituents, and the study is looking for a correlation. Some supplies have reported temporal variability in the arsenic concentration found in their wells. MTAC seeks to document this phenomena with the project: *Time Series Sampling and Resampling Facilities with High Particulate Arsenic to Evaluate the Variability of Arsenic Concentration in Small Community Water Supplies*.

## MTAC Addresses Security Planning for Small Public Water Systems

MTAC has two projects focused on assisting Small Public Water Systems address security planning issues. The first project is a continuing education course *Thinking Critically About Security Needs for Small Water Supply Systems*. This is being developed by the Office of Continuing Education

at the University of Illinois. The project will take advantage of partnerships with local government and utilities to offer the course via a web portal. Small system managers will review and make suggestions for improvement of the module as it is in development. MTAC has also funded a project with

the Illinois Environmental Resource Training Center to survey the existing Vulnerability Assessment and Emergency Response Plans at four small systems in Illinois. The surveys will be used to evaluate the effectiveness of the implemented security measures.

### MTAC-Sponsored Training Opportunities

Cross Connection Control Administrative Workshop  
**Early 2006**

Based upon success of the workshops already offered in Illinois and Missouri, additional sessions were scheduled for Missouri and Indiana. (see our Web site at <http://mtac.sws.uiuc.edu> or the SIUE-ERTC web site at <http://www.siu.edu/ERTC/>)

Pilot Scale Flow Apparatus installed on site at a small drinking water plant in Central Illinois. Iron and peroxide solutions are added to increase arsenic removal efficiency.



### MTAC Info...

- MTAC is one of eight Technology Assistance Centers for Small Public Water Systems.
- MTAC encompasses the ten states defined by USEPA Regions 5 & 7.
- >95% of all Public Water Systems in the MTAC region serve < 10,000 people.

## MTAC: Promoting Capacity Development for Small Public Water Systems

Illinois State Water Survey  
2204 Griffith Dr.  
Champaign, IL 61820

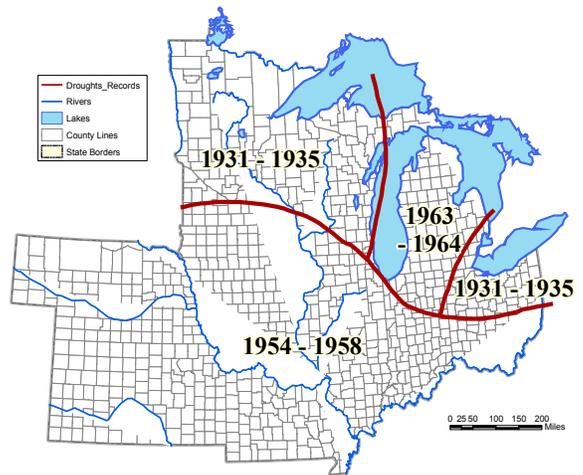
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We're on the Web!  
<http://mtac.sws.uiuc.edu>

## About MTAC...

The Midwest Technology Assistance Center for Small Public Water Systems (MTAC) cooperates closely with other regional technology assistance centers established by the USEPA, and with other partner agencies and organizations in order to ensure efficient response to the highest priority needs of small public water systems and Indian Tribal systems in the Midwest. MTAC is a joint effort of the University of Illinois at Urbana-Champaign and the Illinois State Water Survey. The Illinois State Water Survey is a part of the Illinois Department of Natural Resources. University of Illinois participation is led by the Illinois Water Resources Center, a member of the Environmental Council at the University of Illinois.

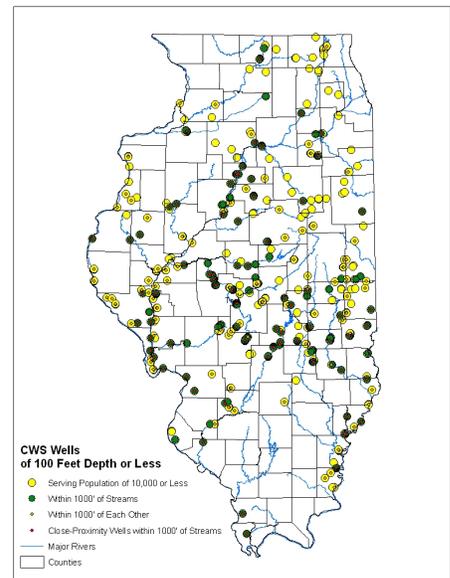


Hydrologic Droughts of Record in the Midwest. Serious droughts were more frequent in the first half of the last century.

## Water Supply and Drought Planning Process Critical for Long-term Viability of Small Systems

Two companion documents, *Countywide Projections of Community Water Supply Needs in the Midwest* and *County-Level Forecast of Water Use in Illinois*, were produced to evaluate the existing capacity and projected demand for water supply in the Midwest. These documents (one funded by MTAC, and one by the Illinois State Water Survey) report on the existing infrastructure capacity and projected demands for 2010, 2015, 2020, and 2025 on a county level basis for the Midwest. While the Midwest is thought of as "water rich", there are several areas that could experience serious shortages in the coming years if nothing is done. This includes Northeastern Illinois and the Greater Chicago Area. These reports were important tools used by business and community action groups and state and local government agencies to help them secure the support of the State of Illinois in the form of an Executive Order and funding for two regional water supply plans for the most critical areas in Illinois.

*Assessment of the Needs, Requirements, and Available Tools for Drought Planning for Small Public Water Systems in the Midwest* sought to evaluate the state of drought preparedness in the Midwest. While there is some drought response planning, there appears to be virtually no *drought preparedness* planning or evaluation. Small community water supply managers and operators should take steps to evaluate the capabilities of their systems to cope with severe and protracted droughts. The establishment of a drought preparedness plan by a community need not be complex. An awareness and compilation of material regarding 1) state drought plans, 2) state water regulations, 3) an idea of the historical droughts for the area, 4) system behavior in previous drought periods, and 5) an assessment of current and near-future supply and demand, and will go a long way towards a functional plan. The final project report is in preparation and will be posted on our web site soon.



Location of Illinois Community (<10,000 population) wells less than 100 feet deep within 1,000 feet of a stream and/or 1,000 feet of another shallow well. These are the supplies most likely impacted by an extended drought.