State of Illinois
Pat Quinn, Governor

Illinois Environmental Protection Agency
Douglas P. Scott, Director

Illinois Groundwater Protection Program

Biennial Comprehensive Status and Self-Assessment Report

The State of Illinois recognizes the essential and pervasive role of groundwater in the social and economic well-being of the state, and its vital importance to the general health, safety, and welfare of its citizens.

--Illinois Groundwater Protection Act

Prepared by the
Interagency Coordinating Committee on Groundwater

January 2010

Illinois Environmental
Protection Agency
Bureau of Water

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ACRONYM GLOSSARY

Act	Illinois Environmental Protection Act
AGO	Attorney General's Office (Illinois)
AWWA	American Water Works Association
Board	Illinois Pollution Control Board
BOL	Bureau of Land
BOW	Bureau of Water
CMAP	Chicago Metropolitan Agency for Planning
CWS	Community Water Supply
DEM	Digital Elevation Model
DNP	Dedicated Nature Preserve
EPA	Environmental Protection Agency
GAC	Groundwater Advisory Council
GIS	Geographic Information System
GPS	Global Positioning System
GWQS	Groundwater Quality Standards
GWR	Groundwater Rule
HHW	Household Hazardous Waste
IAGP	Illinois Association of Groundwater Professionals
ICCG	Interagency Coordinating Committee on Groundwater
IDA	Illinois Department of Agriculture
IDNR	Illinois Department of Natural Resources
IDOT	Illinois Department of Transportation
IDPH	Illinois Department of Public Health
IGA	Illinois Groundwater Association
IGPA	Illinois Groundwater Protection Act
IRWA	Illinois Rural Water Association
ISGS	Illinois State Geological Survey
ISWS	Illinois State Water Survey
LIRB	Lower Illinois River Basin
MAC	Mahomet Aquifer Consortium
MCL	Maximum Contaminant Level
MRL	Minimum Reporting Level
NAWQA	National Water Quality Assessment
NCPWS	Non-community Public Water Supply
RTK	Right-To-Know
RWSPC	Regional Water Supply Planning Committee
SDWA	Safe Drinking Water Act
SDWIS	Safe Drinking Water Information System
TCR	Total Coliform Rule
UIRB	Upper Illinois River Basin
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WHPA	Well Head Protection Area

CHAPTER I. INTERAGENCY COORDINATING COMMITTEE ON GROUNDWATER OPERATIONS

The Illinois Groundwater Protection Act (IGPA) required the creation of the Interagency Coordinating Committee on Groundwater (ICCG). The ICCG is required to report biennially to the Governor and General Assembly on groundwater quality and quantity and the state's enforcement efforts related to groundwater. In summary, the ICCG is responsible for:

- Reviewing and coordinating the state's policy on groundwater protection;
- Reviewing and evaluating state laws, regulations, and procedures that relate to groundwater protection;
- Reviewing and evaluating the status of the state's efforts to improve the quality of the groundwater, the state enforcement efforts for protection of the groundwater, and make recommendations in improving the state's efforts to protect the groundwater;
- Recommending procedures for better coordination among state groundwater programs and local programs related to groundwater protection;
- Reviewing and recommending procedures to coordinate the state's response to specific incidents of groundwater pollution and coordinate dissemination of information between agencies responsible for the state's response;
- Making recommendations for and prioritizing the state's groundwater research needs; and
- Reviewing, coordinating, and evaluating groundwater data collection and analysis.

The ICCG is chaired by the Director of Illinois Environmental Protection Agency (EPA) and is comprised of members from ten state agencies/ departments that have some jurisdiction over groundwater (Table 1). The ICCG continues to review and update an Implementation Plan and Regulatory Agenda pursuant to the IGPA. Detailed minutes are taken at every meeting and are available from Illinois EPA.

Environmental Protection Agency (Chair)	Marcia Willhite, designee
Department of Natural Resources Office of Water Resources Office of Mines and Minerals	Todd Rettig, designee Gary Clark, designee Vickie Broomhead, designee
Department of Public Health	Jerry Dalsin, designee
Office of the State Fire Marshal	Shelly Bradley, designee
Department of Agriculture	Dennis McKenna, designee
Emergency Management Agency, Division of Nuclear Safety	Gary McCandless, designee
Department of Commerce and Economic Opportunity	John Knittle, designee
Also attending the ICCG meetings are: Steve Gobelman, Illinois Department of Transportation's Division of Highways; Allen Wehrmann, Illinois State Water Survey; David Larson, Illinois State Geological Survey; and Doug Yeskis, United States Geological Survey.	

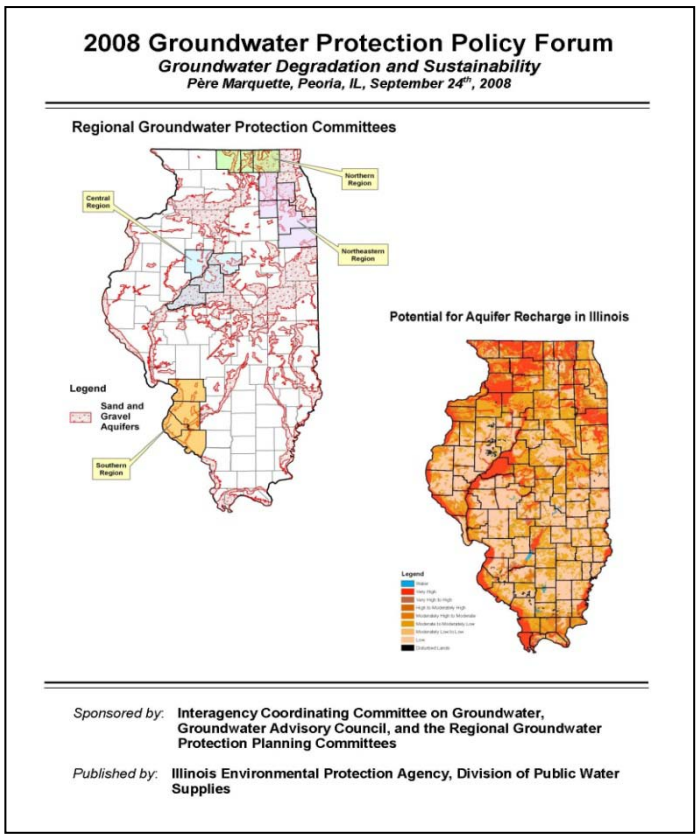
Table 1. Members of the Interagency Coordinating Committee on Groundwater

Section 1. Continue to review and update the Implementation Plan and Regulatory Agenda.

A total of six joint ICCG meetings were held over the past two-year reporting period. These meetings included discussions on the review and development of recommendations pertaining to groundwater quality and quantity issues and to obtain input on draft revisions to the Illinois Pollution Control Board (Board) groundwater quality standards (GWQS).

Section 2. Work with the Groundwater Advisory Council and the regional groundwater protection and planning committees to sponsor a Groundwater Protection Policy Forum.

The Groundwater Advisory Council (GAC), ICCG, and regional groundwater protection planning committees sponsored a Groundwater Protection Policy Forum on September 24, 2008, in Peoria, Illinois. The theme of the Policy Forum was "Groundwater Degradation & Sustainability," and was designed to address and assess groundwater issues that the State of Illinois is currently facing, and will become increasingly important in the near and distant future. The rapid population growth of the urban areas of the state relies on the availability, sustainability, and quality of our groundwater resources.



The 2008 Groundwater Forum objectives were geared towards assessing where we are in our sustainability journey, what we have found out along the way, and the assessment of real and potential degradation issues. The response of the state in managing the quality and quantity issues is paramount to the proper use and preservation of groundwater resources. In addition, the engagement of key governmental, planning, and citizen stakeholders is critical in this evaluation of our groundwater resources.

The 2008 Groundwater Forum goals were to bring groundwater experts together and share experiences and approaches to groundwater issues, discuss contaminant trends and emerging contaminants, develop approaches to addressing these new issues, and lay the groundwork for establishing priority initiatives and new policies.

The 2008 Groundwater Forum was comprised of presentations and concurrent working sessions. The morning consisted of a plenary session that addressed statewide

groundwater issues including emerging contaminants, water quantity resources, and GWQS. The lunch speaker, Cassandra McKinney, provided a summary of McHenry County's Groundwater Protection Program. The afternoon concurrent breakout sessions focused on regulatory, local government, and agricultural issues. The purpose of this open forum format was to encourage diversified, open dialog pertaining to perspectives, plans, ideas, and anticipated outcomes of the 2008 Groundwater Forum. The proceedings of the 2008 Groundwater Protection Policy Forum can be found at: http://www.epa.state.il.us/water/groundwater/groundwater-protection/policy-forum-proceedings.pdf.

Section 3. Continue to assist the Groundwater Advisory Council in the review and development of recommendations pertaining to groundwater quality and quantity issues.

Joint meeting presentations provided updates from the Illinois Department of Natural Resources (IDNR) on water quantity planning initiatives. These initiatives, under the Governor's Office directive outlined in Executive Order #1-2006, implemented the so-called "Texas model" for locally based water supply planning by setting up two priority planning regions in Illinois, the North Eastern Illinois 11 county area and the 15 county East Central Illinois Mahomet aquifer area. These plans are developed through locally formed and managed regional water supply planning committees that are set up to represent diverse local interests and needs. The IDNR Office of Water Resources provided overall project management and provides coordination among IDNR, the Illinois State Water Survey (ISWS) and Illinois State Geological Survey (ISGS), other state agencies, interest groups, as well as assistance to local interests in the formation and management of a local/regional water supply planning committee. The plans developed by these two regional groups are now available at http://chicagoareaplanning.org/watersupply and http://www.rwspc.org.

Section 4. Continue the policy discussion regarding prevention versus remediation.

As a continuation of this issue from the last biennial reporting period, the testimony supporting amendments to the Board GWQS regulation included an extensive history of the nondegradation requirements that apply to groundwater in Illinois. These amendments were filed with the Board on February 19, 2008 *In the Matter of: Proposed Amendments to Groundwater Quality Standards, 35 Ill. Adm. Code 620 (R2008-018).* The case details are provided on the Board's Web page at: http://www.ipcb.state.il.us/COOL/external/PendingRulemakings.aspx. For further detail, see pages 3-11 of the Illinois EPA's pre-filed testimony submitted on May 29, 2008. The Board held two hearings on this matter but has not yet gone to first notice.

Section 5. Continue the policy discussion concerning the integration of wellhead protection areas with Tiered Approach for Corrective Action Objectives.

As a continuation of this issue from the last biennial reporting period, the testimony supporting amendments to the Board's GWQS regulation, referenced in Section 4 above, also included an extensive history of wellhead protection area (WHPA) modeling used for community water supply (CWS) wells in Illinois. This testimony was provided to support amending the compliance point requirements of Section 620.505 to include WHPAs. Pages 3-11 of Illinois EPA's pre-filed testimony provide the detail.

A Groundwater Contamination Response Strategy and legislation (Public Act 92-652, effective July 11, 2002) were developed and adopted, setting forth procedures to be used by state agencies in their responses to existing and potential groundwater contamination of private wells by volatile organic compounds (VOCs). This strategy and legislation were developed to notify private well owners about potential groundwater problems of nearby CWS wells with VOC detections. Illinois EPA's Bureau of Water (BOW) and Bureau of Land (BOL) continue to implement this strategy. Table 2 lists the sites where notification has been provided and follow-up Illinois EPA efforts are being conducted.

Table 2. EPA Follow-up on Well-centric Notification Based on Detections in Community Water Supply Wells

Facility Name	County	Illinois EPA Status
Antioch	Lake	Did not get referred to Illinois EPA BOL
Beardstown	Cass	Illinois EPA BOL managing Bohn Heat site
Belvidere	Boone	Illinois EPA BOL conducted investigation
Bradley Heights	Winnebago	No Illinois BOL sites possible candidates for contamination
Byron	Ogle	Illinois EPA no further action.
Carpentersville	Kane	Illinois EPA BOL to continue overseeing
Crest Hill	Will	Illinois EPA PWS found 2 businesses with active private wells within 1-mile radius—Arro Lab Inc. & Toyal America Inc. There appear to be no active private wells for individual residences.
Crestwood	Cook	Illinois EPA BOL conducting investigation
Crystal Lake	McHenry	Illinois EPA BOL conducted investigation
Downers Grove	DuPage	Did not get referred to Illinois EPA BOL
East Alton	Madison	Illinois EPA BOL did review – No letter to IDPH Illinois EPA BOL managing
East Dundee	Kane	Did not get referred to Illinois EPA BOL
East Peoria	Tazewell	Continue to monitor public well. Illinois EPA FOS/BOW to contact Public Water with Illinois EPA status.
Edwardsville	Madison	Illinois EPA no further action
Fairmount	Vermilion	Illinois EPA no further action

Table 2 (cont'd)		
Facility Name	**County**	**Illinois EPA Status**
Ford Heights	Cook	Illinois EPA no further action
Fox Lake	Lake	Illinois EPA managing
Fox River Grove	McHenry	Illinois EPA managing
Freeport	Stephenson	Illinois EPA OCR: The City of Freeport has not received any comments, questions, or requests for private water well sampling in response to the March 1, 2008, Community RTK packet of information, which was sent on City letterhead with Illinois EPA approval.
Grafton	Jersey	Illinois EPA no further action
Harvard	McHenry	Illinois EPA BOL managing
Hebron	McHenry	Illinois EPA BOL conducted investigation
Hennepin	Putnam	Illinois EPA managing
Heritage Environmental (Lemont)	Cook	Illinois EPA managing
Hiatts Hideaway MHP	Tazewell	Illinois EPA no further action
Hinckley	DeKalb	Illinois EPA no further action
Hull	Pike	Illinois EPA no further action
Il American - Sterling	Whiteside	Illinois EPA BOL to do reconnaissance
Island Lake	Lake	Illinois EPA BOL to manage Citgo project
Kershaw MHP	Henry	Illinois EPA conducted investigation- No private wells
Lake Marian	Kane	Did not get referred to BOL
Libertyville	Lake	Did not get referred to BOL
Lima	Adams	Illinois EPA no further action
Loves Park	Winnebago	BOL conducted an extensive groundwater investigation-No source located
Mackinaw	Tazewell	Illinois EPA no further action
Mendon	Adams	Illinois EPA BOL review 05/08- No letter to IDPH
Milan	Rock Island	Illinois EPA no further action- Did not get referred to BOL
Mill Creek PWD	Adams	Illinois EPA no further action
Momence	Kankakee	Illinois EPA BOL managing
Montgomery	Kane	Illinois EPA overseeing project
Morrison	Whiteside	Illinois EPA BOL managing City of Morrison well contamination
Naperville	DuPage	Illinois EPA no further action
New Lenox	Will	Illinois EPA no further action

Table 2 (cont'd)		
Facility Name	**County**	**Illinois EPA Status**
Nokomis	Montgomery	Illinois EPA BOL managing
North Park PWD	Winnebago	U.S. EPA managing-Illinois EPA no further action
Petersburg	Menard	Illinois EPA no further action
Plano	Kendall	City of Plano took over site-No funds and no action since April
Princeville	Peoria	Illinois EPA no further action
Roanoke	Woodford	Illinois EPA BOL managing project
Sandwich	DeKalb	Illinois EPA BOL managing project-Funds currently not available to conduct corrective actions
Sauk Village	Cook	Illinois EPA no further action
Scales Mound	Jo Daviess	Illinois EPA no further action
Sheffield	Bureau	Illinois EPA no further action
Six Oaks MHP	Winnebago	Illinois EPA no further action
South Chicago Heights	Cook	Illinois EPA no further action
South Elgin	Kane	Under review
Union-York PWD	Clark	Illinois EPA no further action
Valley Run MHP	Vermilion	Illinois EPA no further action

Section 6. Establish a subcommittee led by Illinois Department of Public Health to discuss tracking and registering groundwater monitoring wells.

During 2009, a monitoring well subcommittee was established and consists of representatives from Illinois Department of Public Health (IDPH), ISGS, ISWS, Illinois EPA, Illinois Department of Transportation (IDOT), Illinois Department of Agriculture (IDA), Illinois Rural Water Association (IRWA), Northern Illinois Public Health Consortium, and a private consulting geotechnical firm. The major issues discussed include the following:

- The definition of a monitoring well is not clear in the present regulatory language;
- There is very limited information on who constructs monitoring wells in Illinois, since there are no requirements for licensing or registration of monitoring well contractors;
- Since monitoring wells are not permitted or inspected as are water wells, the data pertaining to their construction is limited, particularly their locations;
- Over time, monitoring wells are subject to damage, e.g., struck by off-road vehicles, or construction equipment, thereby creating an open conduit to groundwater contamination;
- There is no tracking system to assure that monitoring wells are sealed after they become abandoned;
- In some instances, new or replacement monitoring wells are constructed in the same area where monitoring wells were already in place, at times creating confusion as to where the previous wells were constructed, and what wells are active as opposed to those that are abandoned; and

- Whether monitoring wells installed by government agencies should be subjected to the same regulations as private entities.

To help resolve these issues, the monitoring well subcommittee made the following recommendations:

- Provide changes to the Illinois Water Well Construction Code (415 ILCS 30/ and 77 Ill. Admin. Code 920), the Illinois Water Well and Pump Installation Contractor's License Act (225 ILCS 345/), and the Illinois Water Well and Pump Installation Contractor's License Code (77 Ill. Admin. Code 915) to clarify the definitions of monitoring well and water well, and to ensure that they are consistent;
- Determine if monitoring well contractor registration should fall under the Illinois Water Well Construction Code or the Water Well and Pump Installation Contractor's License Act;
- Establish rules for local health department monitoring, e.g., require notification prior to monitoring wells construction and after they are no longer used or become abandoned;
- Develop an efficient electronic method to register, track, and locate monitoring wells by establishing a centralized agency to administer monitoring well data collection and distribution. In addition to legal land descriptions, use global positioning system (GPS) coordinates for their location, and begin collecting monitoring well data electronically, e.g., pdf smart forms; and
- Invite representatives from Illinois EPA's BOL to participate in monitoring well initiatives.

Section 7. Establish a subcommittee to discuss registering closed-loop heat pump wells and licensing drillers.

During 2008 and 2009, IDPH met with the Illinois Association of Groundwater Professionals (IAGP), representing the water well industry, the Illinois Groundwater Association (IGA), and the Water Well and Pump Installation Contractors Licensing Board to discuss proposed requirements for registering closed-loop well contractors and permitting closed-loop well systems. During 2009, legislation was introduced during the 96th General Assembly to enact those requirements.

The proposed legislation amends the Water Well and Pump Installation Contractors License Act to establish a six-member Closed-Loop Contractors Certification Board. Appointments would be made by the Director of IDPH upon recommendation by the newly formed Geothermal Alliance of Illinois, representing the closed-loop well industry in Illinois. The primary duties of the Closed-Loop Contractors Certification Board would be to advise and aid IDPH in:

- Preparing, grading, and holding examinations for closed-loop contractor certification;
- Preparing subject matter for continuing education sessions relating to closed-loop wells and closed-loop well systems;
- Promulgating rules related to closed-loop wells and closed-loop well systems, continuing education requirements, examinations, hearings for the suspension or

revocation of a certification, and construction of closed-loop wells or closed-loop well systems;
- Holding hearings for the suspension or revocation of a certification; and
- Conferring with the Water Well and Pump Installation Contractors Licensing Board in matters relating to the installation of closed-loop wells.

The proposed legislation also amends the Illinois Water Well Construction Code by establishing a requirement for the registration of closed-loop well contractors and the permitting of closed-loop well systems. The registration consists of two separate certifications. Applicants would have to be certified by IDPH by passing an examination to assure qualifications for the location, construction, and grouting of closed-loop wells. An additional certification would be required by the International Ground Source Heat Pump Association to assure their qualifications for designing and installing closed-loop well systems. A person would have to be registered through IDPH as a closed-loop well contractor by January 1, 2010, in order to engage in the occupation of a closed-loop well contractor. All applicants for registration would have until November 1, 2010, to become certified by the International Ground Source Heat Pump Association, and to become certified by IDPH.

If the legislation becomes enacted, beginning January 1, 2010, a permit would be required by IDPH prior to a constructing closed-loop well system. The legislation further establishes that the two-fold purpose of water well and closed-loop well system construction permit fees is to review the water well or closed-loop well system permit application and issue the permit.

CHAPTER II. GROUNDWATER ADVISORY COUNCIL OPERATIONS

The IGPA also required the creation of the GAC. The GAC is responsible for:

- Reviewing, evaluating, and making recommendations regarding state laws, regulations, and procedures that relate to groundwater protection;
- Reviewing, evaluating, and making recommendations regarding the state's efforts to implement the IGPA and protect groundwater;
- Making recommendations relating to the state's needs for groundwater research; and
- Reviewing, evaluating, and making recommendations regarding groundwater data collection and analyses.

The GAC, established in 1988, continues to be integral to development and implementation of effective groundwater protection programs in Illinois. The GAC is comprised of nine members who represent public, industrial, agricultural, environmental, and local government interests. The IGPA mandates that the council members be appointed by the Governor to serve three-year terms. Table 3 provides the members of the GAC.

Vacant	Business Interest
Bill Compton (Chair)	Public Water Supply Interest (Groveland Public Water District)
Jack Norman	Environmental Interest (Sierra Club)
George Czapar	Agricultural Interest (University of Illinois - Extension)
Paul McNamara	Local Government Interest (Southwestern Illinois Planning Commission)
Vacant	Business Interest (Industry Consultant)
Vacant	Regional Planning Interest
John Liberg	Water Well Drilling Interest (Illinois Association of Groundwater Professionals)
Robert Kohlhase	Environmental Interest (Farnsworth Group)

Table. 3. Groundwater Advisory Council Members

Section 1. Conduct policy-related meetings in order to review and make recommendations regarding groundwater issues and policies.

The GAC conducted three meetings over the past two years (one additional meeting was held, however, there was not a quorum), and provided technical expertise and guidance on several priority policy-related issues including:

- Right-to-Know (RTK) notification process;
- Statewide groundwater monitoring and evaluation efforts;
- GWQS and nuclear power plant inspection regulations; and
- Water quantity planning studies.

In addition, The GAC worked together with regional groundwater planning protection committees and the ICCG to sponsor and participate in the Groundwater Policy Protection Forum held in Peoria, Illinois on September 24, 2008. A number of recommendations regarding groundwater protection issues and policies were developed and are posted on the Illinois EPA's Web page at

http://www.epa.state.il.us/water/groundwater/groundwater-protection/policy-forum-proceedings.pdf.

Section 2. Provide input to programs, plans, regulatory proposals, and reports, as appropriate.

Members of the GAC continue to provide significant input to programs, plans and reports. The GAC sponsored a regulatory development session to obtain input from stakeholders prior to submitting the GWQS amendments to the Board. The Illinois EPA proposed to the Board on February 19, 2008, amendments to the GWQS (Docket R2008-018). This proposal recommended groundwater standards for 39 new contaminants, and amendment of the existing arsenic groundwater standard to be parallel with the drinking water standard.

CHAPTER III. EDUCATION PROGRAM FOR GROUNDWATER PROTECTION

Section 1. Develop and promote a Safe Well Water Initiative with IDPH.

The Illinois EPA and IDPH launched a new joint initiative, "Safe Well Water Initiative 2009," to increase awareness of private well owners in Illinois of the need to have regular testing for VOCs that potentially may have historically contaminated groundwater sources. The purpose of the effort is to ensure that citizens across our state who obtain drinking water from an estimated 400,000 private wells do not have a potential health risk from contamination.

VOCs are increasingly being found in groundwater in many areas of our state, and across the nation, as a result of the breakdown of cleaning solvents and fuels that were historically associated with sources such as gas stations, dry cleaners, auto and boat engine repair shops, printing shops, and metal parts fabrication facilities.

As part of this initiative, the "Testing Private Well Water" brochure was updated with a new fact sheet, "Safe Well Water Initiative 2009," which was sent via e-mail with a cover memo to many organizations who work with groundwater and public health issues, including municipal and business leaders. Illinois EPA has posted several helpful documents on our Web site, http://www.epa.state.il.us/community-relations/fact-sheets/safe-water-wells/index.html, including instructions on private well testing, the reasons that groundwater becomes contaminated, and information on Illinois' RTK laws that keep the public informed about their public and private drinking water sources.

Section 2. Market the new source water protection standards.

The Illinois EPA and the Illinois Section-American Water Works Association (AWWA) co-sponsored on October 29, 2008, a source water protection workshop in Rochelle, Illinois, that included the promotion of the AWWA's source water protection standard (ANSI/AWWA G300-07). Additional workshop topics included: Illinois EPA's source water protection CD and interactive Web site, new CWS well permit application amendments, and other tools available for implementing a source water protection program. Additional water quality issues that were discussed included: emerging contaminants, VOC trends, bacteria occurrence in CWS wells, and an update on implementing the United States Environmental Protection Agency (U.S. EPA) Groundwater Rule (GWR). The workshop was attended by more than 35 people. Attendees earned renewal training credits hours or professional development hours.

Section 3. Conduct source water protection workshops.

The Illinois EPA sponsored source water protection workshops at Kankakee and McHenry Community Colleges on May 28, 2009, and August 27, 2009, respectively. These presentations focused on the use of Illinois EPA's interactive Web site and a demonstration of a source water protection CD developed specifically for small CWSs in Illinois. Illinois EPA also participated in IRWA's annual conferences in Rockford, and Effingham, Illinois.

Section 4. Continue to develop and enhance Web-based educational materials, including ordering and distribution systems.

The IDNR Web site offers a number of educational resources for teachers and kids at https://dnr.state.il.us/teachkids/ordertype.asp.

The ISGS, Illinois State Natural History Survey, ISWS, and Illinois Sustainable Technology Center (formerly the Waste Management and Research Center) merged with the University of Illinois in 2008 as the Institute of Natural Resource Sustainability. As a result, the ISGS and ISWS have updated their Web sites to better reflect their organizational position within the University and the Institute.

The ISGS Web site (http://www.isgs.uiuc.edu/) has been improved for accessing maps, data, and publications related to groundwater and other geologic topics. It has implemented a site for ordering maps and publications at https://shop.isgs.illinois.edu/index.html. The ISGS Web site for hydrogeology, http://www.isgs.illinois.edu/research/hydrogeology.shtml, includes updated feature articles, explanations of basic hydrogeologic concepts such as the hydrologic cycle, maps of Illinois' aquifers, and using science to locate a groundwater supply. The Web site also provides links related to hydrogeology.

The ISWS maintains a Web page on domestic well general information, http://www.isws.illinois.edu/gws/domesticwell.asp, with links to publications and agency Web sites concerning proper construction of domestic wells, private drinking water systems, and private wellhead protection. The ISWS continues to add material to a water supply planning Web page, http://www.isws.illinois.edu/wsp/ with updates on regional water supply planning results, presentations, and reports. Relatively new to the ISWS Web pages, shallow groundwater level (water table) data collected from a statewide observation-well network is now available at http://www.isws.illinois.edu/warm/sgwdata/wells.aspx. Data can be viewed on-line graphically or downloaded. Monthly data are available for 17 wells; daily data are available from another 18 observation wells co-located at Illinois Climate Network sites. All ISWS reports are avilalble on-line as pdf documents at http://www.isws.illinois.edu/pubs/isearch.asp.

Section 5. Integrate groundwater education efforts into other state environmental planning and protection programs.

The Governor's state water supply planning initiative, pursuant to Executive Order #1-2006, called for the creation of two regional stakeholder planning committees. A water supply planning Web page has been developed to provide a variety of information to users, especially the stakeholder planning committees. This information may be found at http://www.sws.uiuc.edu/wsp/

Section 6. Work toward enhancing the groundwater protection education resources on a priority basis.

The ISGS provides information on geology and hydrogeology, annual geological field trips, free downloadable short reports, a glossary of geologic and hydrogeologic terms, and an "Ask-An-Expert" interface at http://www.isgs.illinois.edu/education. The ISWS continues to maintain an on-line domestic well resource, including links to private well information and groundwater protection at http://www.isws.illinois.edu/gws/domesticwell.asp.

CHAPTER IV. GROUNDWATER EVALUATION PROGRAM

Section 1. Continue to conduct a program of basic and applied groundwater research programs that allow decisions to be made on sound scientific principles.

Illinois EPA Ambient Monitoring Network – Section 13.1 of the Illinois Environmental Protection Act (Act) (415 ILCS 5/) requires the Illinois EPA to implement a groundwater monitoring network to assess current levels of contamination in groundwater and to detect future degradation of groundwater resources.

Further, Section 7 of the IGPA (415 ILCS 55/) requires the establishment of a statewide ambient groundwater monitoring network comprised of CWS wells, non-community water supply wells, private wells, and dedicated monitoring wells. This ambient network is rotated every other year. The purpose of the rotating monitoring network is to maximize resources and increase groundwater quality monitoring cover at CWS wells. Illinois EPA is able to concentrate on specialized monitoring at high priority areas during alternate years. From the experience gained from these prototype networks, implemented pursuant to Section 13.1 of the Act, Illinois EPA designed a probabilistic monitoring network of CWS wells. The design of this network was completed in coordination with the United States Geological Survey (USGS), the ISGS, and the ISWS, with USGS performing the detailed design. The goal of the network is to represent contamination levels in the population of all active CWS wells.

The network wells were selected by a random, stratified probability-based approach using a 95 percent confidence level (CWS probabilistic network). This results in an associated plus or minus 5 percent precision and accuracy level. Further, to improve precision and accuracy, the random selection of the CWS wells was stratified by depth, aquifer type, and the presence of aquifer material within 50 feet of land surface. Illinois EPA used geological well log and construction log detail to perform this process.

The random, stratified selection process included nearly 3,000 CWS wells resulting in 356 fixed monitoring locations **(**see Figure 1**)**. Additionally, in order to prevent spatial or temporal bias, 17 random groups of 21 wells, with alternates, were selected from all the 356 fixed station wells. To further assure maximum temporal randomization within practical constraints, the samples from each sample period are collected within a three-week timeframe.

This probabilistic network is designed to:

- Provide an overview of the groundwater conditions in the CWS wells;
- Provide an overview of the groundwater conditions in the principle aquifers (e.g., sand and gravel, Silurian, Cambrian-Ordovician, etc.,);
- Establish baselines of water quality within the principle aquifers;
- Identify trends in groundwater quality in the principle aquifers; and
- Evaluate the long-term effectiveness of the IGPA, Clean Water Act, and Safe Drinking Water Act (SDWA) program activities.

All Community Water Supply Wells In Illinois

Community Water Supply Probabilistic Network Wells

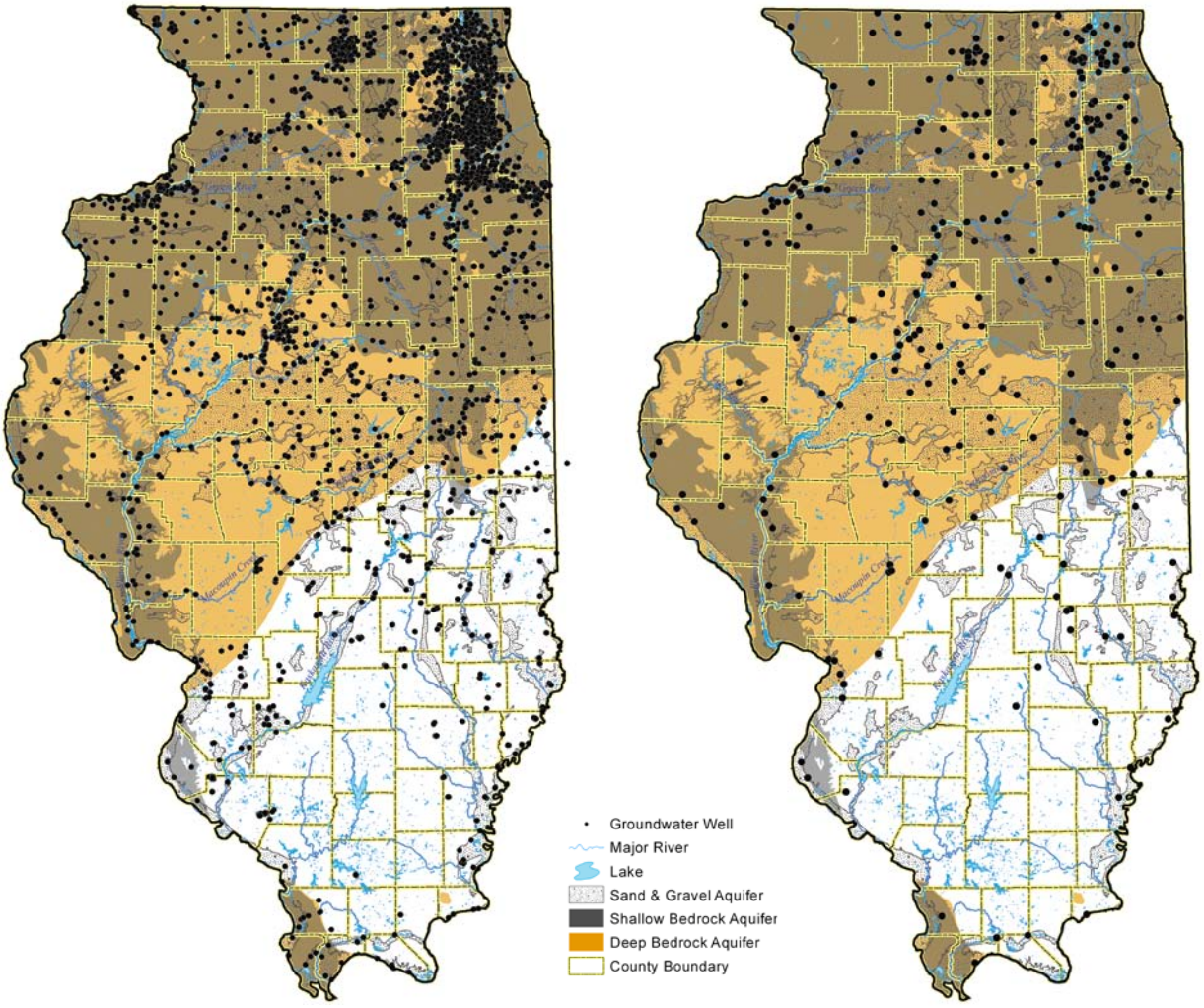


Figure 1. Active Community Water Supply Wells and Community Water Supply Probabilistic Network Wells

Illinois EPA Pathogen Monitoring Program – The U.S. EPA published the GWR in the Federal Register on November 8, 2006. By December 1, 2009, all CWSs must comply with this new regulation. The purpose of the GWR is to provide for increased protection against microbial pathogens, particularly fecal contamination, in public water systems that use groundwater sources. The GWR provides for "triggered monitoring" of representative source (wells), based on one Total Coliform Rule (TCR) positive detection in the distribution system.

Illinois drinking water law and regulations have dealt with the threats posed by bacteria and pathogens for quite some time. State law and regulations are more stringent than the GWR in that they address not only monitoring pertaining to sanitary quality, but also the

use of the best available source, as well as treatment of groundwater with unfavorable characteristics.

Beginning in 2007, Illinois EPA began requiring sampling at all wells on a monthly basis for total coliform and Escherichia coli (*E. coli*) bacteria. This source water sampling was done concurrently with the existing TCR distribution system sampling requirements. The benefit of this monitoring is two-fold: (1) this data have identified wells at risk which, in most cases, has led to mitigation efforts; and (2) this approach has allowed Illinois EPA to compare source water monitoring to TCR distribution system monitoring to evaluate the efficacy of a triggered monitoring approach.

Triggered monitoring based on TCR positives would have:

- missed 76% of potential source water issues; and
- misdirected water system resources to 81% of sources that were not susceptible to microbial pathogens.

To date, 3,828 wells have been, and continue to be, tested and evaluated at CWSs across the state. Based upon available data, 3,604 (94 percent) of these wells are currently viewed as using a sanitarily safe source of groundwater. Of the 224 (6 percent) CWS wells that have shown bacterial contamination, 207 wells have addressed, or are addressing, sanitary defects or corrected monitoring location concerns. The remaining 17 wells are in the process of being evaluated for necessary corrective actions. Table 4 describes the corrective actions undertaken to address bacterial detections in the samples collected.

Remedy/Action/Investigation	Number
Installed new sample taps	62
Installed appropriate long term treatment	4
Quit using the well source	24
Drilled a new well	3
Detections as a result of well rehabilitation	17
Wells were shock chlorinated	17
Targeted treatment for speciated bacteria	5
Deficiency (e.g., holes in the casing)	32
Investigation is on-going	16
Determined to be groundwater under the direct influence of surface water	3
Received Violation Notice and submitted CCA (Compliance Commitment Agreement)	24
Total	**207**

Table 4. Pathogen Monitoring, Remedies, Actions, and Investigations

To further focus outreach and technical assistance efforts, the Illinois EPA has initiated evaluation of potential correlations among bacteria occurrence, hydrogeology, and other factors. As a first step, occurrence data was referenced to wells using geologically confined or unconfined aquifers. Of the 3,604 wells that are currently viewed as having sanitarily safe source water, 2,352 (or 65 percent) utilize geologically confined aquifers.

Further analysis indicates that 136 (or 61 percent) of the 224 wells, initially viewed as having bacterially contaminated water, use confined aquifer systems (Figure 2), and 125 of these wells have been addressed. Bacterial sample detections for 58 of these confined wells were determined to be related to improper collection procedures and/or devices or integrity issues. The remaining 11 CWS wells continue to be evaluated.

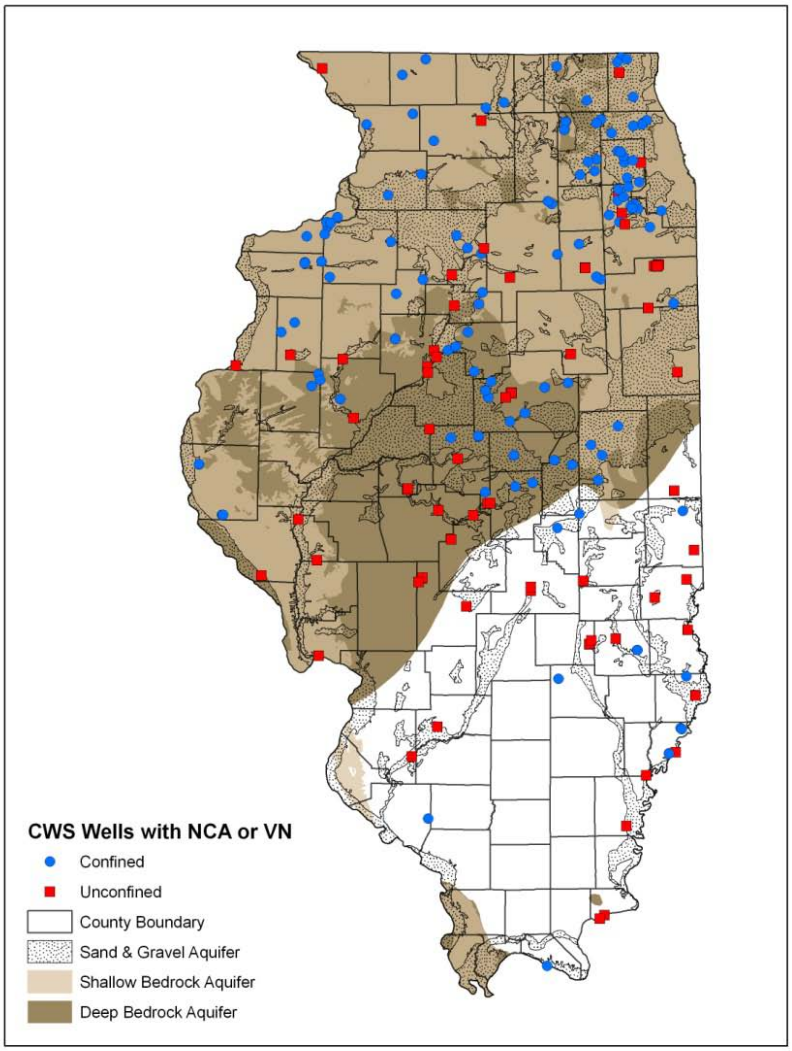


Figure 2. Community Water Supply Wells Assessed for Pathogenic Contaminants in Confined and Unconfined Aquifers

Additionally, evaluation shows a high percentage of CWS wells with bacterial contamination to be in proximity of a river or stream. If the 94 detections (from Table 4) determined to be related to improper collection procedures and well deficiencies are subtracted, it results in a total of 130 wells with bacteria detections.

Of these 130 wells, 61 (46 percent) were located within 1,000 feet of a stream or river. These can be further characterized, as described in Table 5:

Stream buffer distance	0 – 199 feet	200 – 499 feet	499 – 1,000 feet
Number of wells	20 wells	21 wells	20 wells

Table 5. Distribution of Community Water Supply Wells Using Unconfined Aquifers with Bacterial Detections in Proximity to Streams or Rivers

The age of the 224 CWS wells that have shown bacterial contamination was also analyzed. Figure 3 illustrates that there is a strong correlation between the increasing age of the well and detections in sample results for CWS wells using a confined aquifer. With this said, the data analyzed to this point appears to show that certain geologic conditions can provide an effective hydrologic barrier (assuming proper engineering controls) to protect groundwater sources of drinking water from pathogenic contaminants.

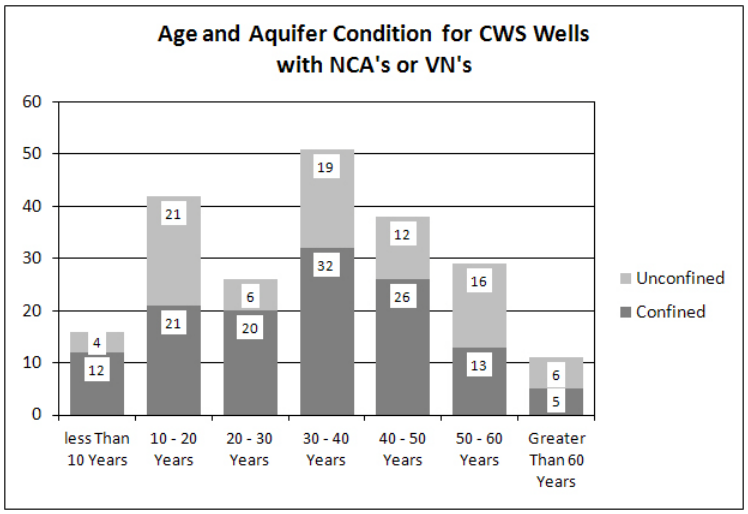


Figure 3. Correlation between Age of Well and Aquifer Condition for Sampling Detections

Groundwater Resource Assessment – The occurrence, extent, availability, and quality of groundwater resources continue to be of significant interest in several parts of the state. During the 2008 and 2009 reporting period, ISGS and ISWS scientists were very involved with studies pertaining to the availability of groundwater resources in several areas of the state, especially northeastern and east-central Illinois, as well as the occurrence, fate, and transport of anthropogenic and natural contaminants in groundwater.

Northeastern Illinois – During 2008 and 2009, the ISGS continued geological studies that provide the data and analyses to the development of three-dimensional (3D) mapping of the geologic and hydrogeologic framework of Kendall, Lake, and McHenry Counties. The results of the mapping will help identify, characterize, manage, and protect the

counties' groundwater resources. The technical information from the mapping provides the basis for addressing groundwater issues faced by the counties.

The study of the geology and groundwater resources of Kendall County by the ISGS and ISWS continued during 2008 and 2009. Preliminary results of the ISGS part of the study suggest that sand and gravel deposits are relatively scarce in Kendall County. This indicates that aquifers in the glacial deposits overlying the bedrock are most likely rather limited. The ISGS part of the study also provided a more detailed understanding of the character of the Sandwich Fault Zone as well as the occurrence of the Silurian bedrock at shallow depths over much Kendall County. The results of this 3D hydrogeologic mapping study will assist the county in identifying, characterizing, managing, and protecting its groundwater resources.

Measurements of groundwater levels and sampling of selected wells within Kendall County by ISWS document 2008 groundwater conditions for comparison in the future. ISWS groundwater modeling suggests that 2050 water demands in Kendall County cannot be met solely by increasing withdrawals of the deep (Cambrian-Ordovician) bedrock. Given the lack of new developable sand and gravel resources in the county, alternative sources of water may be needed (e.g., by use of surface sources such as the Fox River) in concert with demand management strategies (e.g., water conservation). A final report on the results of these investigations is pending. All of this work will aid Kendall County in examination of groundwater resource sustainability.

Accurately understanding the geology and hydrogeology of an area is essential to determining the long-term yield of an aquifer, and developing strategies for sustainable groundwater-resource management. Developing a groundwater flow model can lead to a refined understanding of the geology and hydrogeology of an area, as well as groundwater recharge, can be refined through the development of a groundwater flow model. During 2008 and 2009, the ISGS continued assessing the use of an analytical element groundwater flow model of the Blackberry Creek watershed to test several interpretations of the geologic and hydrogeologic characteristics of the basin (Mehnert, 2009). Quantifying groundwater recharge is difficult, but it is essential for developing useful models of groundwater flow. The analytical element groundwater flow model of the Blackberry Creek watershed was used to evaluate estimates of groundwater recharge (Mehnert, 2008).

An assessment of groundwater resources supplying water to Kane County was completed by ISWS (Meyer et al., 2009). The study assimilated available hydrogeologic data into a set of computer models of groundwater flow in regional and local aquifers, quantifying the components of the hydrologic cycle and assessing the impact of historical and projected pumping. The modeling study was part of a comprehensive project (in cooperation with ISGS) assessing surface water, geology, and groundwater in Kane County. The work will provide planners and stakeholders insights on the impacts of county development scenarios. The ISWS has created a Web page for more information about the study and access to the reports generated, http://www.isws.illinois.edu/gws/kaneco/kaneco.asp.

Mahomet Aquifer – The Mahomet aquifer is the major groundwater resource in east and central Illinois, extending from the Indiana state line to the Illinois River. Investigation of

the hydrogeology of the Mahomet aquifer and the aquifers overlying it continued to be a high priority at the ISWS and ISGS in 2008 and 2009. The ISGS drilled 42 boreholes for a total of 9,163 feet at 24 locations in the eastern half of the aquifer. The 24 locations included sixteen in Champaign County, five in Piatt County, and one each in Vermilion, Ford, and McLean Counties. A total of 39 monitoring wells were constructed at 21 of the locations; six of the locations have a single well, 12 of the locations have a nest consisting of two wells, and three of the locations have a nest consisting of three wells. Core of the geologic materials was retrieved from the initial borehole at each location using the wireline method to drill through the entire thickness of unconsolidated sediment and a few feet into the underlying bedrock. A natural gamma geophysical log of the borehole was completed when drilling was finished. The geophysical log complements the descriptive log of the core that is prepared by the geologist during the drilling process.

Seismic and electrical earth resistivity surveys were conducted in Champaign and Piatt Counties in support of the drilling. Analysis of the data collected by these surveys greatly assists in correlating the data obtained from one borehole to the next and in determining the continuity and properties of sedimentary units between boreholes. Downhole seismic profiles were acquired from several of the boreholes. Data from these profiles helps to characterize the velocity of seismic waves through the geologic materials adjacent to the borehole. These velocities are subsequently used in analyzing the data acquired in seismic surveys.

The data acquired support ongoing geological and hydrogeological research of the Mahomet aquifer and the shallower aquifers that include the development of 3D geological and hydrogeological maps and contribute to improving a groundwater-flow model of these aquifers being developed by the ISWS (see the discussion on Regional Water Supply Planning). With continued development of the groundwater resources found in east-central Illinois, the understanding gained from the research is integral to addressing issues of groundwater planning and management as is currently being accomplished through the Governor's state water supply planning initiative. The ISGS, ISWS, USGS Illinois Water Science Center, and IDNR Office of Water Resources continue to serve as technical advisors to Mahomet Aquifer Consortium (MAC), which continues to seek support for studying the Mahomet aquifer. For more information, see the MAC's Web site at http://www.mahometaquiferconsortium.org.

Statewide and Regional Water Supply Planning – A three-year pilot program for comprehensive regional water-supply planning and management was initiated in July 2006 under the direction of Executive Order #1-2006. Two areas were selected for pilot planning: an 11-county region in northeast Illinois and a 15-county region in east-central Illinois. Two regional stakeholder planning committees were created, a 35-member Northeastern Illinois Regional Water Supply Planning Group and a 12-member East-Central Illinois Regional Water Supply Planning Committee (RWSPC), to make recommendations about meeting their region's water supply demands to the year 2050. The ISWS and ISGS served as technical lead agencies to the two regional stakeholder planning committees. Third-year funding (FY09) for the ISWS and ISGS, amounting to $1.5M, was cut completely from the state budget. Extraordinary efforts were made by local stakeholder agencies to assemble "gap-funding" for the ISWS and ISGS, who also contributed significant internal resources to complete the effort.

The ISGS compiled existing information about the hydrogeology of northeastern and east-central Illinois and made it available to the two regional planning groups. Additional data were collected from scientific test drilling and geophysical exploration within the Fox River watershed in northeastern Illinois and in the Mahomet aquifer region in east-central Illinois. These data were collected for projects other than the water-supply planning. The data were analyzed and used in 3D mapping to delineate and characterize the geologic materials from land surface to bedrock in order to better delineate and understand the groundwater resources of each region. Existing downhole geophysical logs of the bedrock were compiled for the northeastern Illinois water-supply planning region. The logs were analyzed for properties of the bedrock that would help better characterize the hydraulic parameters of the rock, such as porosity and permeability, the presence and orientation of fractures and joints.

Modeling results indicate that for east-central Illinois, surface reservoir capacities are insufficient to meet increasing demands under drought conditions and potentially-limiting drawdown impacts on the Mahomet aquifer will be experienced in the Champaign County area. For northeast Illinois, Lake Michigan will continue to be the major water source; however, it cannot be relied upon to solve supply shortfalls beyond its current service area. The deep bedrock aquifers beneath northeast Illinois are being pumped at unsustainable rates. Shifting groundwater withdrawals to shallow aquifers is important but not without problems, as increasing shallow groundwater withdrawals will impact wetlands and streamflow. However, analysis also suggests the Fox River can provide additional water to meet future demand.

A report of the analysis of the impacts of future water demands for both the northeastern and the east-central Illinois water-supply planning regions is in preparation by the ISWS and ISGS. The ISGS completed a thorough description of the hydrogeologic framework of both the northeastern and the east-central Illinois water-supply planning regions. The ISGS and ISWS provided geologic and hydrogeologic expertise to the Northeast Illinois Regional Water Supply Planning Group, the East-Central Illinois RWSPC, IDNR's Office of Water Resources, Chicago Metropolitan Agency for Planning (CMAP), and the MAC. The ISGS maintains the web site for the East-Central Illinois RWSPC http://www.rwspc.org and the MAC http://www.mahometaquiferconsortium.org

The ISWS maintains a Web site on water supply planning, http://www.isws.illinois.edu/wsp/, with links to all involved agencies and organizations. Continuing work is needed to improve model interpretations in the pilot regions and examine the feasibility of water resource development alternatives. Water supply planning needs to expand beyond just the two pilot areas and is critical, for example, for the state's energy development in southern Illinois. ISWS also published a paper examining water availability in Illinois in relation to ethanol production (Wehrmann, 2009).

Assessment Techniques – Collecting and analyzing data, synthesizing the analyses, and displaying the results with the use of maps is the fundamental process for determining the geologic and hydrogeologic frameworks that are essential for delineating and characterizing groundwater resources, the foundation for addressing groundwater resource issues. ISGS geologic mapping remains focused on the collar counties around Chicago, the Metro East St. Louis area of southwestern Illinois, along the Illinois River valley, and southern Illinois. Published maps can be found on the ISGS Web site at http://www.isgs.illinois.edu/maps-data-pub/maps.shtml.

The ISWS continues to offer aquifer testing and analysis services to communities and industries seeking new or expanded groundwater resource pumping capacity. Often, aquifer testing follows ISGS-conducted geophysical exploration, especially electrical earth resistivity, that can delineate potentially higher-producing locations and depths. The ISWS is particularly interested in testing previously undeveloped aquifers and previously untested areas of large highly-productive aquifers. In 2008, a seven-day aquifer test was conducted for the Kaskaskia Springs Water Company in Vandalia. The aquifer, of interest to both the ISWS and ISGS, is a ridge-drift deposit, very shallow and under water table conditions, situated above the Kaskaskia River bottoms.

Groundwater Recharge – The ISWS has been actively engaged in estimating shallow groundwater recharge using a geographic information system (GIS) approach coupled with pattern recognition (Lin et al., 2008a, 2008b, 2008c). Posters developed for presentation of this research are available at http://www.isws.illinois.edu/iswsdocs/gws/posters/AGU2007-poster-left.pdf and http://www.isws.illinois.edu/iswsdocs/gws/posters/AGU2007-poster-right.pdf. Recharge estimation software is available for download at http://www.isws.illinois.edu/gws/sware/.

Groundwater Quality and Agriculture – The land application of livestock wastes presents some unique challenges. ISGS scientists completed an assessment of the geology and hydrogeology of the bedrock and overlying unconsolidated materials in an area of Jo Daviess County where a large dairy operation is being located (Panno and Luman, 2008). ISWS scientists are working with faculty at Illinois State University to examine the effects of manure applications on groundwater quality (Walker et al., 2009). ISGS and ISWS also have examined the sources and fate of nutrients in the Illinois River (Panno et al., 2008) and bacterial contamination of karst from mixed agricultural/residential land uses (Kelly et al., 2009).

A recent report provides a comprehensive overview of the fate and transport of antibiotic residues in livestock wastes, as well as the environmental persistence, mobility, and transferability of antibiotic resistance determinants and their bacterial hosts. This report, with contributions of the ISGS and ISWS, is part of the effort to determine the ecological impact of antibiotics and antibiotic resistance genes on entry into natural environments (Chee-Sanford et al., 2009).

The ISGS recently published soil cleanup objectives regarding the unintentional releases of fertilizers that contain nitrogen that would protect groundwater quality (Roy and Krapac, 2009).

Groundwater Quality and CO_2 Sequestration – As part of assessing the long-term viability of the geologic sequestration of CO_2, the potential of the stored CO_2 to affect the quality of groundwater in aquifers above the target CO_2 storage reservoir is being evaluated at three sites in the Illinois Basin. ISGS scientists continued to work with a groundwater monitoring network that is part of the monitoring, verification, and accounting program for the Archer Daniel Midland Phase III CO_2 sequestration site. The quality of groundwater samples and the gas concentrations in monitoring wells are used to assess any impact on shallow groundwater (Wimmer et al., 2009). The other two sequestration sites are located Indiana and Kentucky.

Groundwater Quality / Arsenic – ISWS continues to examine the occurrence, and spatial and temporal variability of arsenic in Illinois groundwater, as well as treatment for removal of arsenic from groundwater. Several publications were produced in 2008 and 2009 (Holm and Wilson, 2009; Li et al., 2009; Sanford et al., 2009; Holm et al., 2008a and 2008b).

Groundwater Quality / Northeastern Illinois – Although the water supply planning effort emphasized water supply quantity, it is recognized that water quality plays an important role in water availability. Several studies by ISWS examined radium and barium in deep (Cambrian-Ordovician) bedrock aquifers (Kelly, 2008a) and shallow aquifer quality degradation, most apparently due to road salt runoff (Kelly, 2008b and 2008c; Kelly and Wilson, 2008).

Illinois Natural Resources Geospatial Data Clearinghouse – The Illinois Clearinghouse is a trusted digital repository which provides on-line access to geographic map data and remote sensing resources. Since its initial launch in July 1997, the Illinois Clearinghouse data catalog has been steadily expanded to meet the needs of professional mapping and scientific communities. Recent additions include land cover data for Illinois, Illinois historic aerial photographs for 20 counties, and light detection and ranging and derivative digital elevation model (DEM) data for Boone and Winnebago Counties. The Illinois Clearinghouse serves as a gateway to topographic maps, orthoimagery collections, historic aerial photography, infrastructure and natural resource data, and scientific data for aquifers and aquifer sensitivity to contamination. Access to a variety of interactive map services, including the popular Illinois water and related wells service, is also supported. All data and services are available on-demand and free-of-charge to on-line customers. These data can be used to support a variety of GIS and remote sensing applications.

The Illinois Clearinghouse receives enthusiastic support from the GIS user community. To date, over $1.64 million dollars has been dedicated to data catalog expansions and web resource upkeep. Financial support has been sustained through 45 separate grants and contracts from state and county agencies, universities, and federal programs.

In 2008, over 312,700 visitors accessed an average of 10,500 Web pages per day. This average increased to about 19,000 Web pages per day in 2009. During its 12-year history, customers of the Illinois Clearinghouse have enjoyed access to tens of thousands of data files and historic aerial photos. In total, over 50 terabytes of information has been accessed. A Web search for the keywords “Illinois” and “GIS” offers the Illinois Clearinghouse as the first Web site returned at Google, AOL, and Ask.com.

By providing open access to framework GIS data set for the state, the Illinois Clearinghouse fosters a climate of data sharing and multi-agency coordination. The Illinois Natural Resources Geospatial Data Clearinghouse may be found at http://www.isgs.illinois.edu/nsdihome.

Illinois Height Modernization Program – A statewide network of survey benchmarks that is datum-consistent vertically and horizontally is critical to providing accurate elevation data that, along with a statewide high-resolution DEM, are essential to a broad range of application in Illinois. Illinois currently ranks in the bottom ten states in the quality of its elevation data. Two different statewide networks of benchmarks were installed many years ago by the U.S. Coast and Geodetic Survey and the USGS. The two networks are tied to different vertical datums that make it difficult to accurately connect surveying between the two datums. Almost half of these important survey markers in Illinois have been found to be damaged, displaced, or destroyed by construction, farming, housing developments, or other activities.

Through the federal Height Modernization Program, the National Geodetic Survey, which is part of the National Oceanic and Atmospheric Administration, provides funding to states to improve the quality of elevation data. The improvement is achieved through the use of light detection and ranging and GPS technologies in conjunction with traditional leveling, gravity, and modern remote sensing. Illinois became part of the National Geodetic Survey Height Modernization Program in 2008. The ISGS and IDOT are leading a consortium of federal and state agencies, and private organizations, to upgrade the statewide network of survey benchmarks and to develop a statewide high-resolution DEM data set. The long-term goals for the project are to establish a datum-consistent vertical and horizontal statewide network of survey benchmarks, a statewide high-resolution DEM of the Earth's surface based upon the updated network of survey benchmarks, and an outlet for distribution of elevation data for Illinois. The initial focus of the project is northern Illinois, extending from the Chicago metro area westward to the Mississippi River Valley. Funding has been received for the first two years of the project.

ILWATER Interactive Mapping Service – With its release in 2004, the ISGS has provided an on-line interactive mapping service called ILWATER that allows access to a database of over 309,000 Illinois water-well and related records. By using ILWATER, anyone with access to the Internet can readily retrieve information from the ISGS database through an interactive map Web site at http://www.isgs.illinois.edu/maps-data-pub/wwdb/launchims.shtml. The information provided through ILWATER is compiled from water-well and other records available at the ISGS.

Using a point and click technique with the ILWATER interactive map service, users can navigate to specific areas in Illinois, or define an area of interest and find out what wells are in the area. By clicking on individual well locations, more information about the well location can be viewed in addition to drillers' logs, well construction, and water levels. A driller's log may provide descriptions of the geologic materials (sand, gravel, silt, clay, limestone, sandstone, shale, etc.) that were drilled through for the well as well as the depth of the top and bottom of each layer of geologic material. Information from coal test borings and engineering test borings is also available. Geographic references, such as highways, county and township boundaries, lakes, municipalities, and air photos, make ILWATER relatively easy to use. Maps of aquifers, bedrock topography, drift thickness,

and land-surface topography are part of ILWATER. Limited data on outcrops are also part of the ILWATER reference map layers.

The ILWATER Web site continues to provide a valuable service, especially to engineers, well drillers, and homeowners. In 2008 an average of 610 unique visitors per month accessed information through ILWATER. The brochure that describes ILWATER and how to use it has proven to be a valuable aid to prospective users of ILWATER.

USGS Illinois River Basin National Water Quality Studies – As part of the National Water Quality Assessment (NAWQA) program, the USGS is assessing both the Lower and Upper Illinois River Basins (LIRB and UIRB, respectively). A summary report of the LIRB data collection is available (USGS Circular 1209); a similar summary of the UIRB activities (USGS Circular 1230) was completed in December 2003.

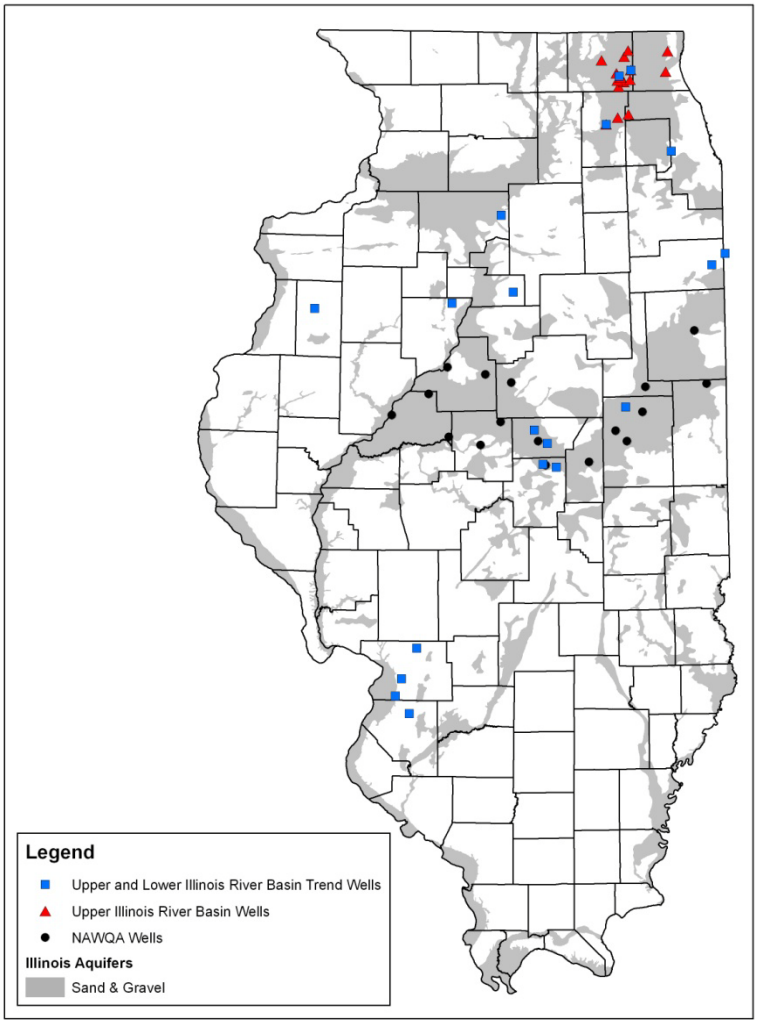


Figure 4. National Ambient Water Quality Network Wells

In 2009 a five-well subset of the Mahomet aquifer network was re-sampled for suites of pesticides (including selected transformation products), trace elements, and VOCs. The wells are mostly private water supplies and a few production wells. The subset of five wells is re-sampled in odd-numbered years. Five-well subsets of the NAWQA land-use monitoring networks in northeastern Illinois and the five-well subset of the Cambrian-Ordovician aquifer system were re-sampled in 2009 (Figure 4). The five-well sample subsets of the land-use studies will be collected in odd-numbered years. The data are available in the NAWQA data warehouse Web site that provides for data delivery and mapping http://infotrek.er.usgs.gov/traverse/f?p=NAWQA:HOME:0. In the summer of 2010,

USGS will completely re-sample the entire NAWQA urban land-use network in northeast Illinois/ southeast Wisconsin. Analyses will include selected natural and anthropogenic organic compounds that may be wastewater indicators or pharmaceuticals.

Groundwater Climate Response Network – Climate response network continues as described. The USGS Illinois Water Science Center is working with the ISWS to install telemetry on several ISWS observation wells in the Mahomet aquifer and across the state to include in the USGS active-well network monitoring page—a Web mapping display showing the locations of observation and the water-level measurements. http://groundwaterwatch.usgs.gov/StateMaps/IL.html

Section 2. Strive to implement monitoring for emerging contaminants.

Dedicated Monitoring Well Network for Illinois Generic Management Plan for Pesticides in Groundwater – The IDA, under authority of the Illinois Pesticide Act (415 ILCS 60/1 et seq.) and a performance partnership grant agreement with U.S. EPA regarding the Federal Insecticide, Fungicide and Rodenticide Act, is the state lead agency for the regulation of pesticide use in Illinois. The IDA is responsible for managing pesticide use to prevent adverse effects to human health and the environment.

U.S. EPA's approach for addressing concerns about pesticides in groundwater is the nationwide regulation of pesticide use, supported by strong state and tribal roles in the local management of pesticide use to protect groundwater. Illinois, like many states, is voluntarily implementing the U.S. EPA-recommended provisions of pesticide management plans to protect groundwater. In June 2000 under the leadership of the IDA, the Pesticide Subcommittee of the ICCG approved the *Illinois Generic Management Plan for Pesticides in Groundwater*. The management plan, which was revised in 2006 (IDA 2006), describes the framework to be used by the State of Illinois for addressing the risks of groundwater contamination by pesticides.

The Illinois management plan relies on the IDA's groundwater monitoring well network and the Illinois EPA's public water supply well pesticide-monitoring sub-network to determine the occurrence of pesticides in groundwater and whether there are significant, spatial or temporal trends in pesticide concentrations. The management plan requires action by the IDA when pesticides are reported at concentrations greater than 10 percent of the groundwater reference value (or the minimum reporting level (MRL) if 10 percent of the reference value is less than the MRL). If pesticides are present at concentrations greater than the "action level" the IDA will conduct, with assistance from the Interagency Committee on Pesticides, the ICCG, the registrant, and other state and federal agencies, an evaluation to determine the appropriate course of action. At the very least, the presence of a pesticide in groundwater in concentrations greater than the action level would initiate a cause investigation. The components of the response plan in the *Illinois Generic Management Plan for Pesticides in Groundwater* that apply to the groundwater monitoring network are:

- Notify pesticide registrant;
- Identify cause;
- Perform vulnerability assessment and define response areas;
- Expand monitoring;
- Encourage adoption of voluntary best management practices;

- Impose use restrictions; and
- Prohibit use.

The *Illinois Generic Management Plan for Pesticides in Groundwate*r targets areas where aquifer materials occur within 50 feet of land surface (Figure 5). These aquifers have been demonstrated to be vulnerable to contamination by pesticides as a result of labeled uses (Goetsch, Bicki and McKenna 1992; Schock and others 1992). As described by McKenna and Keefer (1991), the distinction between aquifer materials and aquifers is that aquifer materials have the hydrogeologic characteristics to be classified as aquifers, but the materials may not be saturated. Aquifers, as defined in the IGPA, are saturated. In Illinois, the water table generally occurs within 20 feet from ground surface. Below this depth, aquifer materials are generally saturated and capable of yielding water to a well. Sand and gravel greater than 5 feet thick, sandstone greater than 10 feet thick and fractured carbonates (limestone and dolomite) greater than 20 feet thick are considered to be aquifer materials. Loess, glacial till, shale, and non-fractured carbonate rocks have relatively low hydraulic conductivities and generally will not provide a sufficient volume of water to a drilled well and are not considered aquifer materials.

In 1995, the IDA contracted with the ISGS and the ISWS to construct a statewide dedicated groundwater monitoring well network for use with future pesticide management plans. The monitoring well network is designed to provide statistically reliable estimates on the occurrence of selected pesticides in groundwater within shallow aquifers (depth to the top of aquifer material less than 50 feet below land surface) in areas of corn and soybean production. Occurrence is defined as the presence of a specific pesticide at a concentration above the MRL.

The network was designed to determine the regional impacts of pesticide leaching from non-point sources, not the impacts of site-specific point sources. The network is not a research program, but a tool for the management of pesticides in Illinois. Consequently, the pesticides selected as analytes are those with high use in Illinois that were previously detected in groundwater in Illinois or other Midwestern states. Also reflecting the management tool approach is the decision to set MRLs at a maximum of 5 percent of the groundwater reference value when possible, but not to expend limited laboratory resources on determining the presence of pesticides at very low concentrations. The monitoring well network and the IDA's pesticide laboratory operate in compliance with U.S. EPA-approved quality assurance project plans.

The network currently consists of 144 shallow groundwater-monitoring wells located throughout the state (Figure 6) at well depths varying from 10 to 83 feet. Wells are constructed of 2-inch inside diameter polyvinyl chloride well casing. Most wells have a 5-foot long slotted well screen. All wells are located in public rights-of-way adjacent to row-crop fields, and are installed in areas where aquifer materials occur within 50 feet of land surface.

Each well in the network is sampled once during a two-year period. The ISGS and ISWS conducted a one-time sampling of the network beginning in the fall of 1998 and sampled the network from September 2000 through June 2001. IDA assumed responsibility for all sampling in July 2001.

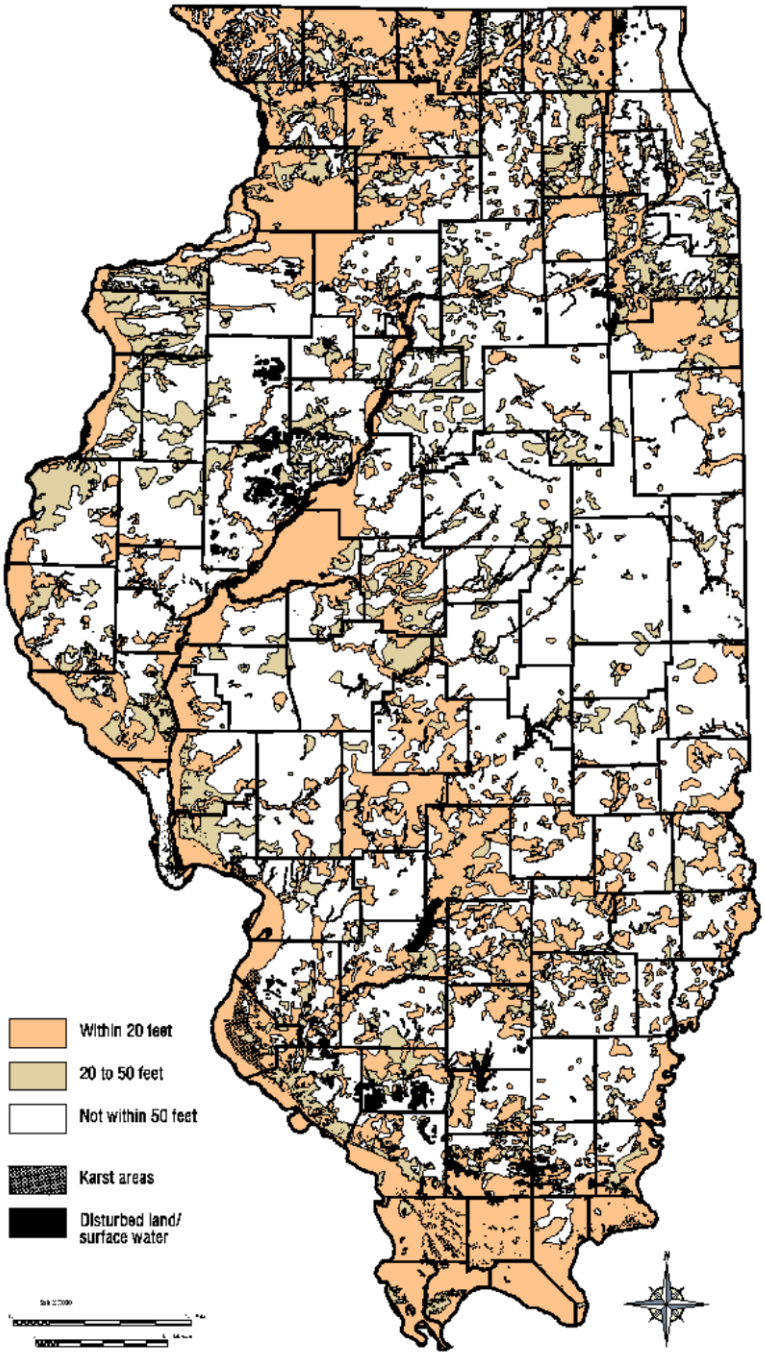


Figure 5. Depth to Uppermost Aquifer within 50 Feet of Land Surface (Keefer 1995)

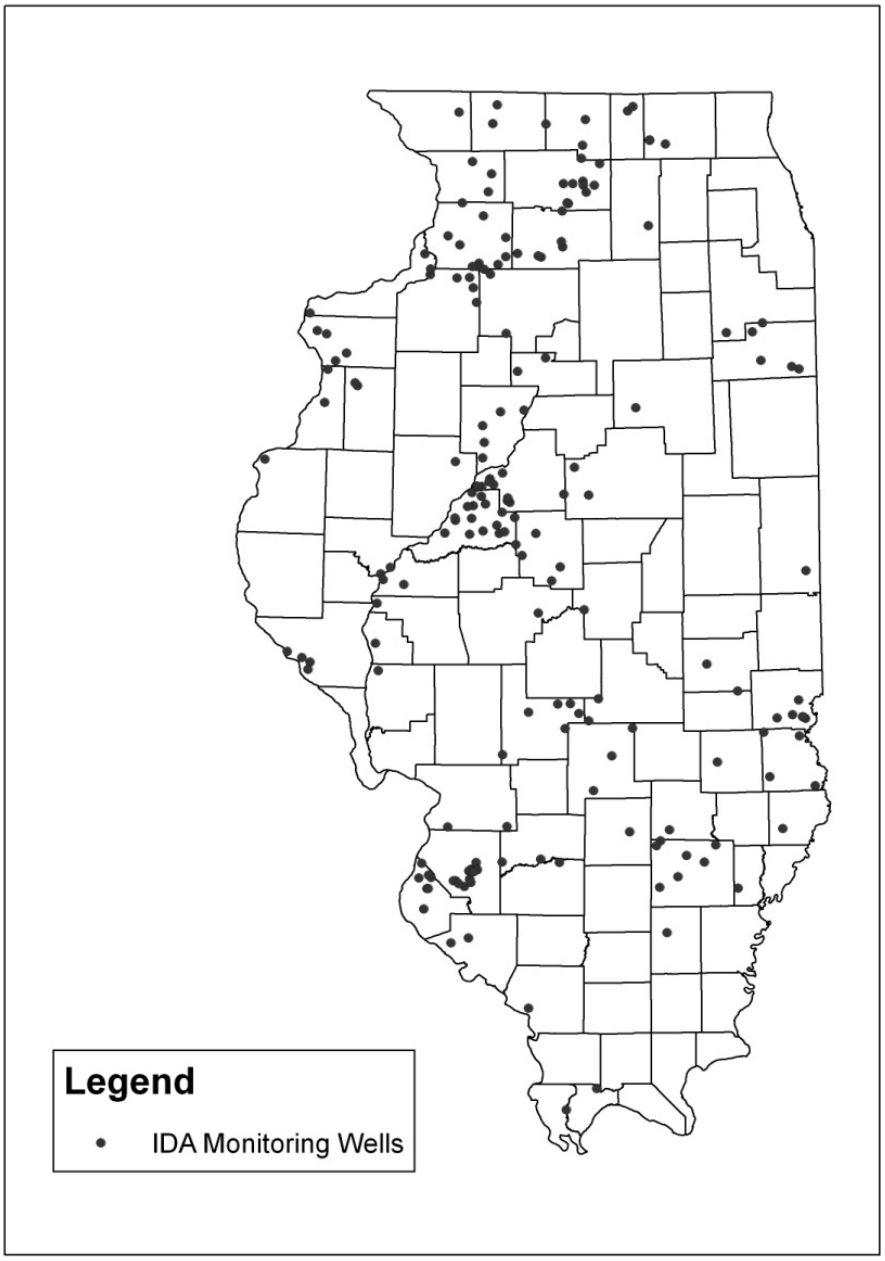


Figure 6. Location of Illinois Dept. of Agriculture Dedicated Pesticide Monitoring Wells

Five rounds of sampling of the monitoring wells have been completed (Table 6). During these periods, MRLs have varied. In order to allow comparison between the sampling periods, the data on the frequency of occurrence reflect the presence of a pesticide at or above the MRLs used in the most recent sampling round (Table 7). The overall frequency of occurrence refers to the presence of any pesticide, or multiple pesticides, from a single groundwater sample. For example, the occurrence of two pesticides present in a single well sample at concentrations above the MRL is considered a single detection above the MRL.

Sampling period	Parent pesticides	Atrazine metabolites	Chloroacetanlide metabolites
1998-1999	6.3±3.8	N/A	N/A
2000-2002	3.4	N/A	N/A
2002-2004	2.1	18.4±6.4	N/A
2004-2006	5.8±3.9	14.5±5.9	58.0±8.2
2006-2008	3.0	11.9±5.5	58.5±8.3

Table 6. Summary of Frequency of Occurrence of Pesticides with 95% Confidence Intervals (Note: Confidence interval not calculated if frequency of occurrence is less than 3.6%.)

Analyte	Minimum reporting level (ug/L)	Frequency of occurrence and 95% C.I.	Maximum concentration (ug/L)	Groundwater reference value (ug/L)
acetochlor	0.10	0	--	140
acetochlor ESA	0.30	3.7±3.2	2.3	
acetochlor OXA	0.30	0.7	0.58	
alachlor	0.10	0	--	2[1]
alachlor ESA	0.30	27.4±7.5	11	
alachlor OXA	0.30	0	--	
atrazine	0.15	2.2	0.22	3[1]
desethylatrazine (DEA)	0.15	8.2±4.6	0.63	
desisopropylatrazine (DIA)	0.15	10.4±5.2	1.7	
desethyldesisopropylatrazine (DEDIA)	0.15	1.5	0.30	
metolachlor	1.0	0.7	1.3	700[2]
metolachlor ESA	0.30	51.9±8.4	18	
metolachlor OXA	0.30	10.4±5.2	3.2	
metribuzin	1.0	0	--	70[2]
prometon	1.0	0	--	100[2]
simazine	.40	0	--	4[1]
total chlorotriazines	NA	12.7±5.6	1.9	37.5[3,4]

Table 7. Minimum Reporting Levels, Frequency of Occurrence with 95% Confidence Intervals, Maximum Concentrations, and Groundwater Reference Values for Analytes during 2006-2008 (Note: Confidence interval not calculated if frequency of occurrence is less than 3.6%.)

1) Groundwater Quality Standards for Class I: Potable Resource Groundwater, Illinois Administrative Code Part 620.410

2) U.S. EPA lifetime health advisory level. An HA is an estimate of acceptable drinking water levels for a chemical substance based on health effects information; a health advisory is not a legally enforceable federal standard, but serves as technical guidance to assist federal, state and local officials. http://www.epa.gov/waterscience/drinking/standards/dwstandards.pdf

3) U.S. EPA Office of Pesticide Programs

4) Total chlorotriazines are reported as the sum of the concentrations of atrazine, DEA, DIA, DEDIA and simazine.

Results of the most recent sampling period (135 samples collected from October 2006 through September 2008) indicate that parent pesticides were detected in four of the samples (three percent). Atrazine was detected in three samples, and metolachlor was detected in one sample. None of those samples had concentrations above levels of concern. One or more of the atrazine degradation products was present above the MRL in 11.9 percent of the samples. One or more of the metabolites of the chloroacetanlide

herbicides was detected in 58.5 percent of the samples. None of those samples had concentrations above levels of concern.

Pesticides are more likely to be present in monitoring wells in areas where aquifer materials occur within 20 feet of the land surface than in areas where aquifer materials are more than 20 feet below land surface (Figure 7).

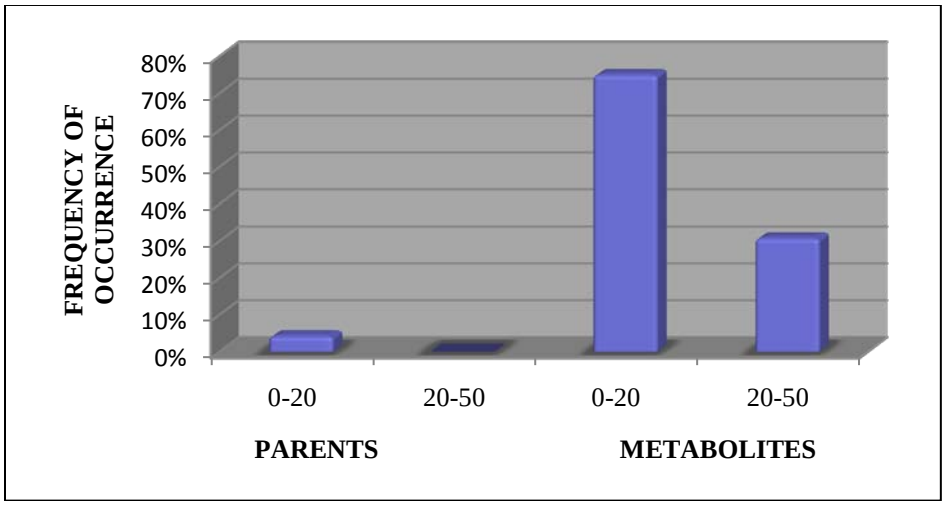


Figure 7. Comparison of the Effect of Depth to Aquifer Materials on the Frequency of Occurrence of Parent Pesticides and Metabolites

The *Illinois Generic Management Plan for Pesticides in Groundwater* requires the IDA to conduct an investigation of the cause if pesticides are detected at concentrations greater than the action level. If selected, pesticides for which preventive notification is required under the IGPA are detected in groundwater, e.g., atrazine, the IDA is required to resample the well within 30 days of receipt of laboratory results. Since U.S. EPA concurrence with the Pesticide Management Plan in February 2001, only one monitoring well sample contained a pesticide at a concentration greater than the action level (atrazine parent compound). The IDA immediately re-sampled the well and found the atrazine concentration to be less than the action level. The IDA also notified the registrant and conferred with the IDPH, which agreed that no further action was necessary.

IDA intends to continue to follow the sampling and analysis plan laid out in the generic management plan and the quality assurance project plan for the foreseeable future. If current trends in the occurrence of pesticides continue, some adjustments to the sampling plan may be considered.

CHAPTER V. RIGHT-TO-KNOW INITIATIVES

Section 1. Continue efforts of providing notification for off-site potable resource groundwater users threatened by groundwater contamination.

Illinois EPA continued to issue CWS well-centric RTK notices in coordination with the IDPH. A total of 17 well-centric notifications were completed pursuant to the 2002 RTK requirements adopted in 415 ILCS 55/9.1 during this reporting period. The 2002 RTK law was developed to notify private well owners based on detection of VOCs in public water supply wells. The assumption used when developing this legislation was that public water supplies were already covered under existing monitoring, compliance, public notice, consumer confidence reporting, and enforcement requirements under the federal SDWA, whereas private wells are not.

Figure 8 provides a list of notifications performed since 2002, and shows the location of each of these supplies. The 17 public water supplies, emboldened in the Figure 8 legend, were notified during the past two-year reporting period. A summary of each notification listed is provided under the RTK Web page at http://www.epa.state.il.us/right-to-know/.

A total of 81 percent of the well-centric notices, issued since 2002, were based on detections of perchloroethylene or its break down products (i.e., trichloroethylene; cis 1,2 dichloroethylene; trans 1,2 dichloroethylene; 1,1 dichloroethylene; and vinyl chloride).

The RTK notification issued on August 13, 2008, to "potential" private well owners in the vicinity of the Village of Crestwood, triggered by detections of vinyl chloride in what was thought to be their emergency well, led to an issue which attracted national media attention.

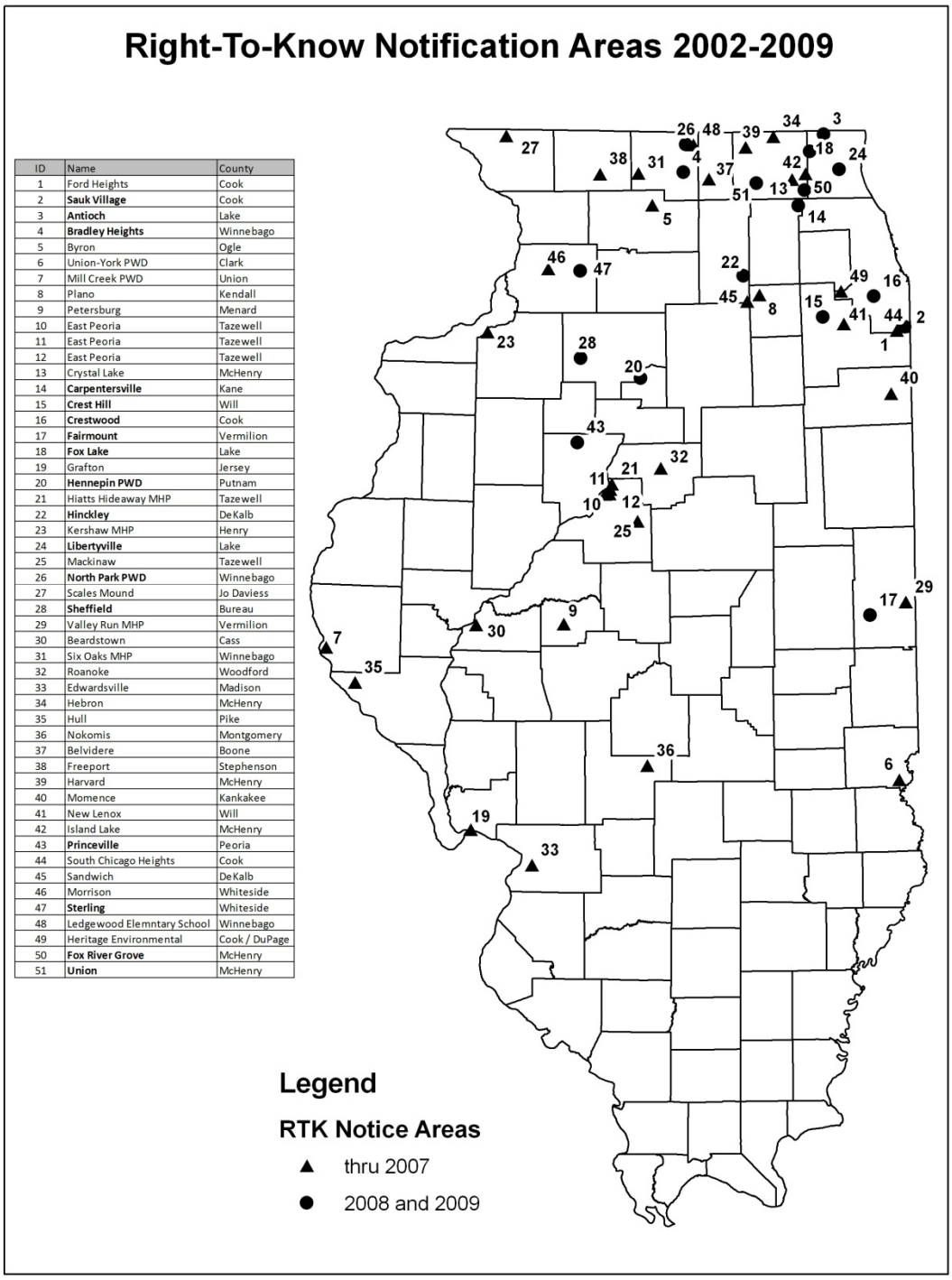
As a result of this issue, Governor Quinn, the Attorney General's Office (AGO) and the Illinois EPA worked on development of the new RTK law. The changes included in Public Act 96-603 increase both responsibility and accountability of a public water supply to notify water customers of water quality issues that could have potential health concerns.

Five major changes result from this new law:

1. Requires owners or operators of public water supplies to maintain, on their premises for Illinois EPA inspection, all records, reports, and other documents required for the operation of the public water supply for a minimum of 10 years, including but not limited to all billing records and other documents related to the purchase of water from other public water supplies.
2. Requires the Illinois EPA to provide public notice within two days, via press release and the posting of information on the Illinois EPA's Web site, if: (1) the Illinois EPA refers a community water system-related matter to the AGO for enforcement; (2) the Illinois EPA issues a seal order for such a public water system facility; or (3) the Illinois EPA determines that there exists any groundwater contamination that poses a threat of exposure to the public above the Class I GWQS.

3. Requires the Illinois EPA to provide the written notice described above to the public water system, as well as to all community water systems connected to the community water system at issue, within five days of: (1) the Illinois EPA referring a CWS-related matter to the AGO for enforcement; (2) the Illinois EPA issuing a seal order for the public water supply facility; or (3) the Illinois EPA determines that there exists any groundwater contamination that poses a threat of exposure to the public above the Class I GWQS, regardless of whether or not the threat of exposure has been eliminated. Sets forth the form and content of such notice to be sent.
4. Within 5 business days of receiving such a notice from the Illinois EPA, requires the community water system to provide notice (either by first-class mail or email, or, if approved by the Illinois EPA, by postcard, email, text message, or telephone) to all of its affected customers as well as to the owners and operators of any connected community water systems. Where the notice sent is not written, requires the community water system to include a copy of the notice sent by the Illinois EPA to its customers in their next water bills. Sets forth the form and content of such notice to be sent. Within seven days after sending its customers the notice, requires the public water supply to provide proof to the Illinois EPA that it has done so.
5. Makes it Class 4 felony for any person to knowingly make any false, fictitious, or fraudulent or material statement (either orally or in writing) to either the Illinois EPA or a unit of local government that has a delegation agreement with the Illinois EPA that is used for the purpose of compliance with **ANY** provision of the Act, any federal law or regulation for which the Illinois EPA has responsibility for enforcing, or any permit condition there under. Makes any such second or subsequent conviction of such an offense a Class 3 felony.

Under this new law, the Illinois EPA issued the first public notification letters on November 20, 2009, to the City of Rockford, the Village of Fox River Grove, Hennepin Public Water District, and Six Oaks Mobile Home Park. The Illinois EPA sent public notification letters to City of Crystal Lake and Oakbrook Estates Mobile Home Park on December 3, 2009. A new Web site was developed for press releases issued pursuant to the new RTK law at http://www.epa.state.il.us/water/drinking-water-watch/pws-well-contamination/index.html.



ID	Name	County
1	Ford Heights	Cook
2	**Sauk Village**	Cook
3	**Antioch**	Lake
4	**Bradley Heights**	Winnebago
5	Byron	Ogle
6	Union-York PWD	Clark
7	Mill Creek PWD	Union
8	Plano	Kendall
9	Petersburg	Menard
10	East Peoria	Tazewell
11	East Peoria	Tazewell
12	East Peoria	Tazewell
13	Crystal Lake	McHenry
14	**Carpentersville**	Kane
15	**Crest Hill**	Will
16	**Crestwood**	Cook
17	**Fairmount**	Vermilion
18	**Fox Lake**	Lake
19	Grafton	Jersey
20	**Hennepin PWD**	Putnam
21	Hiatts Hideaway MHP	Tazewell
22	**Hinckley**	DeKalb
23	Kershaw MHP	Henry
24	**Libertyville**	Lake
25	Mackinaw	Tazewell
26	**North Park PWD**	Winnebago
27	Scales Mound	Jo Daviess
28	**Sheffield**	Bureau
29	Valley Run MHP	Vermilion
30	Beardstown	Cass
31	Six Oaks MHP	Winnebago
32	Roanoke	Woodford
33	Edwardsville	Madison
34	Hebron	McHenry
35	Hull	Pike
36	Nokomis	Montgomery
37	Belvidere	Boone
38	Freeport	Stephenson
39	Harvard	McHenry
40	Momence	Kankakee
41	New Lenox	Will
42	Island Lake	McHenry
43	**Princeville**	Peoria
44	South Chicago Heights	Cook
45	Sandwich	DeKalb
46	Morrison	Whiteside
47	**Sterling**	Whiteside
48	Ledgewood Elemntary School	Winnebago
49	Heritage Environmental	Cook / DuPage
50	**Fox River Grove**	McHenry
51	**Union**	McHenry

Figure 8. Well-centric Right-to-Know Notifications

CHAPTER VI. GROUNDWATER QUALITY REGULATIONS

Section 1. Continue with proposed changes to the groundwater quality standards and continue efforts of protecting future beneficial uses of drinking water.

Groundwater Standards Amendments – The Illinois EPA proposed to the Board on February 19, 2008, amendments to the GWQS (Docket R2008-018). This proposal recommended groundwater standards for 39 new contaminants, and amendment of the existing arsenic groundwater standard to be parallel with the drinking water standard. The first hearing on this proposal was held on June 18, 2009, in Chicago, and a second hearing was held in Springfield on July 16, 2008. The Board has not yet gone to first notice on this proposal. For further information on these amendments, see: http://www.ipcb.state.il.us/COOL/external/PendingRulemakings.asp

Class III Groundwater Designations – To protect groundwater that is particularly sensitive and ecologically vital, the ISWS has continued efforts to delineate the areas contributing groundwater to a dedicated nature preserve (DNP). The Illinois Nature Preserve Commission has petitioned the Illinois EPA to designate the groundwater recharge areas associated with nine additional DNPs as Class III Groundwater. The proposed Class III areas are located in Cook, Lake, McHenry, Monroe and Will Counties. Figure 9 illustrates the Class III areas established since 1991. During this two-year period no new areas were designated.

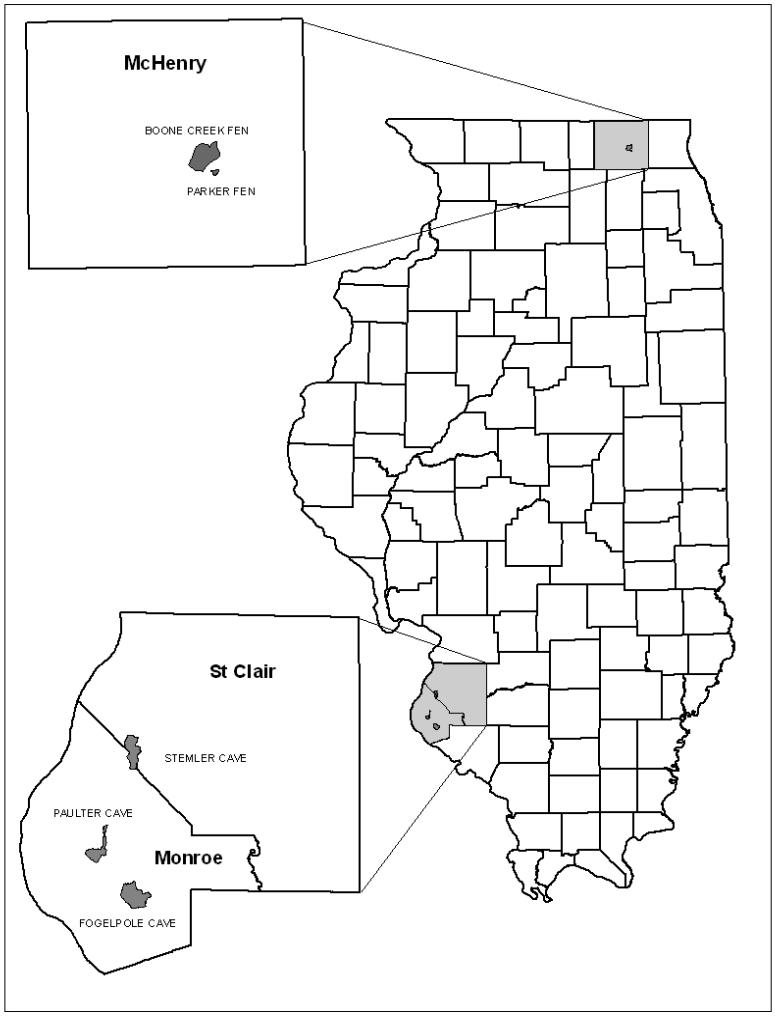


Figure 9. Class III: Special Resource Groundwater for Dedicated Nature Preserve Designations

Groundwater Compliance Activities – The Illinois EPA continues to monitor the following contaminated sites:

Road District 5 Salt Pile, Monroe County – The road district stored de-icing agents in an open pile within the minimum setback zone of several private wells. This resulted in the contamination of the wells with chloride and total dissolved solids. The road district provided all effected homeowners with a connection to a CWS and relocated their storage area to resolve the problem.

Amoco Creve Coeur, Tazewell County – After 20 years of remediation including soil vapor extraction, free product removal, and a groundwater pump and treat system, BP has been meeting with the BOW Groundwater Section to finalize their Remedial Action Completion Report. Most of the site is in compliance with Class I GWQS, although institutional controls will be used to eliminate the possibility of exposures in isolated areas. BP plans to offer the site for redevelopment and has expressed interest in a joint press release to highlight the success of the remediation.

BP Pipeline Company Hydrocarbon Release, Henderson County – A violation notice was issued to BP Pipeline Company due to detections of aliphatic hydrocarbons in groundwater. BP has completed two phases of work to identify the source and delineate the extent of contamination. As an interim measure, BP provided point of use water treatment and bottled water to all residents in the release area. These residents have now been connected to a CWS. During the delineation process, BP has also performed the interim remedial actions of bailing free product, when present, from monitoring wells and using sorbent socks to collect smaller amounts of free product. BP has developed a final remedial plan and will present it to the Illinois EPA in late 2009.

Hicks Oils/Hicks Gas Fuel Release, Tazewell County – Hicks has applied to and has been accepted in the Site Remediation Program. Hicks will complete remedial activities under that program.

Buckeye Pipeline Gasoline Release, Macon County – The remedial activities at this site are now subject to review and approval by the BOL State Sites Unit.

Prince Agri Products Commercial Pesticide Storage, Adams County – Prince is conducting post-closure monitoring pursuant to 35 Ill. Admin. Code 616. Prince has had no GWQS exceedences. It is anticipated that the post-closure care period will end in 2010.

Banner Day Camp Waste Water Spray Irrigation, Lake County – Banner installed additional monitoring wells. Initial monitoring indicates elevated sulfate concentrations could be either from natural conditions or other sources not related to the spray irrigation site.

Exelon Nuclear Plants at Braidwood, Byron, and Dresden – Work continues on tritium groundwater contamination incidents which occurred at the Dresden, Braidwood, and Byron Exelon nuclear power generating facilities located in Grundy, Will, and Ogle Counties, respectively. Progress is being made at the Braidwood facility on the groundwater impacts caused by multiple releases of waste water mixed with tritium, which was released from leaking vacuum breaker vaults along a blow down line to the Kankakee River. Past leaks of tritium from underground piping resulted in groundwater

contamination at Exelon's Dresden station. Exelon is addressing leaks from underground piping at Dresden and groundwater monitoring continues. At Exelon's Byron station, groundwater monitoring continues at vacuum breaker vaults along a blow down line where groundwater was contaminated with tritium. An Interim Agreed-to Order is in place to facilitate remediation at Braidwood. Negotiations with the AGO are focused on completing consent decrees for Braidwood, Byron, and Dresden.

Consolidated Coal Company Rend Lake Mine, Franklin County – Consolidated is preparing for final reclamation of several cells at an unlined refuse disposal area. Groundwater monitoring indicated the potential of GWQS exceedences. Consolidated performed further investigation to determine if mine-related contaminants have migrated from the disposal area. Results indicated mine-related contaminants may have migrated off-site. Consolidated will propose a plan to determine the extent of contamination in late 2009.

Black Beauty Coal Company Vermilion Grove Portal, Vermilion County – In cooperation with IDNR's Office of Mines and Minerals, the Illinois EPA reviewed groundwater monitoring data from monitoring wells near the refuse disposal area at the Vermilion Grove Portal. Chloride and total dissolved solids appeared to exceed GWQS. Black Beauty believed the elevated concentrations were caused by leakage from a ditch used to dewater the disposal area. Since quarterly monitoring results indicated some decrease in concentration, Black Beauty requested a monthly monitoring schedule to demonstrate a quick return to compliance. Chloride and total dissolved solids concentrations have continued to decline in the down gradient monitoring well. Monitoring will continue until decreased contaminant concentrations are reasonably confirmed.

Quarterly Inspections and Reporting Releases of Radionuclide at Nuclear Power Plants – Section 13.6 of the Act requires the Illinois EPA and the Illinois Emergency Management Agency to conduct quarterly inspections of nuclear power plants for compliance with reporting requirements and rules adopted by the Board. Section 13.6 was added to the Act following a series of leaks at the Braidwood nuclear power station in Will County, Illinois. The leaks involved releases of tritiated water from several vacuum breakers along an underground pipe line. This underground line carries tritiated water and other liquid effluent from the Braidwood Station to the Kankakee River, where it is discharged. The tritium leaks resulted in groundwater contamination and impacted a nearby residential well. Several other nuclear power stations have also experienced tritium leaks that have resulted in groundwater contamination.

On May 1, 2008, the Board adopted Part 1010, "Procedures For Reporting Releases of Radionuclides at Nuclear Power Plants." These rules were required by Section 13.6 of the Act which required the detection and reporting of unpermitted releases of any radionuclides into groundwater, surface water, or soil at nuclear power plants. This rule carries out this purpose by requiring that "within 24 hours after an unpermitted release of a radionuclide from a nuclear power plant, the owner or operator of the nuclear power plant where the release occurred shall report the release to the Illinois EPA and the Illinois Emergency Management Agency." An unpermitted release of a radionuclide is defined as "any spilling, leaking, emitting, discharging, escaping, leaching, or disposing of a radionuclide into groundwater, surface water, or soil that is not permitted under State or federal law or regulation." One release, which originated from underground piping,

was reported on June 6, 2009, at Exelon's Dresden nuclear power station. On July 14, 2009, Exelon completed repairs on the leaking piping.

Coal Ash Impoundment Strategy – In response to last year's massive coal ash spill at a Tennessee Valley Authority facility in Kingston, Tennessee, Illinois EPA developed an aggressive strategy to assess ash impoundments at coal fired power plants.

Since the early 1990s, new ash ponds have been required to be lined and groundwater monitoring wells have been installed at many of these new ash impoundments. There are also older ash ponds at many of these facilities. An inventory of power plants with ash impoundments permitted by the Illinois EPA under the National Pollutant Discharge Elimination System permit program has been created.

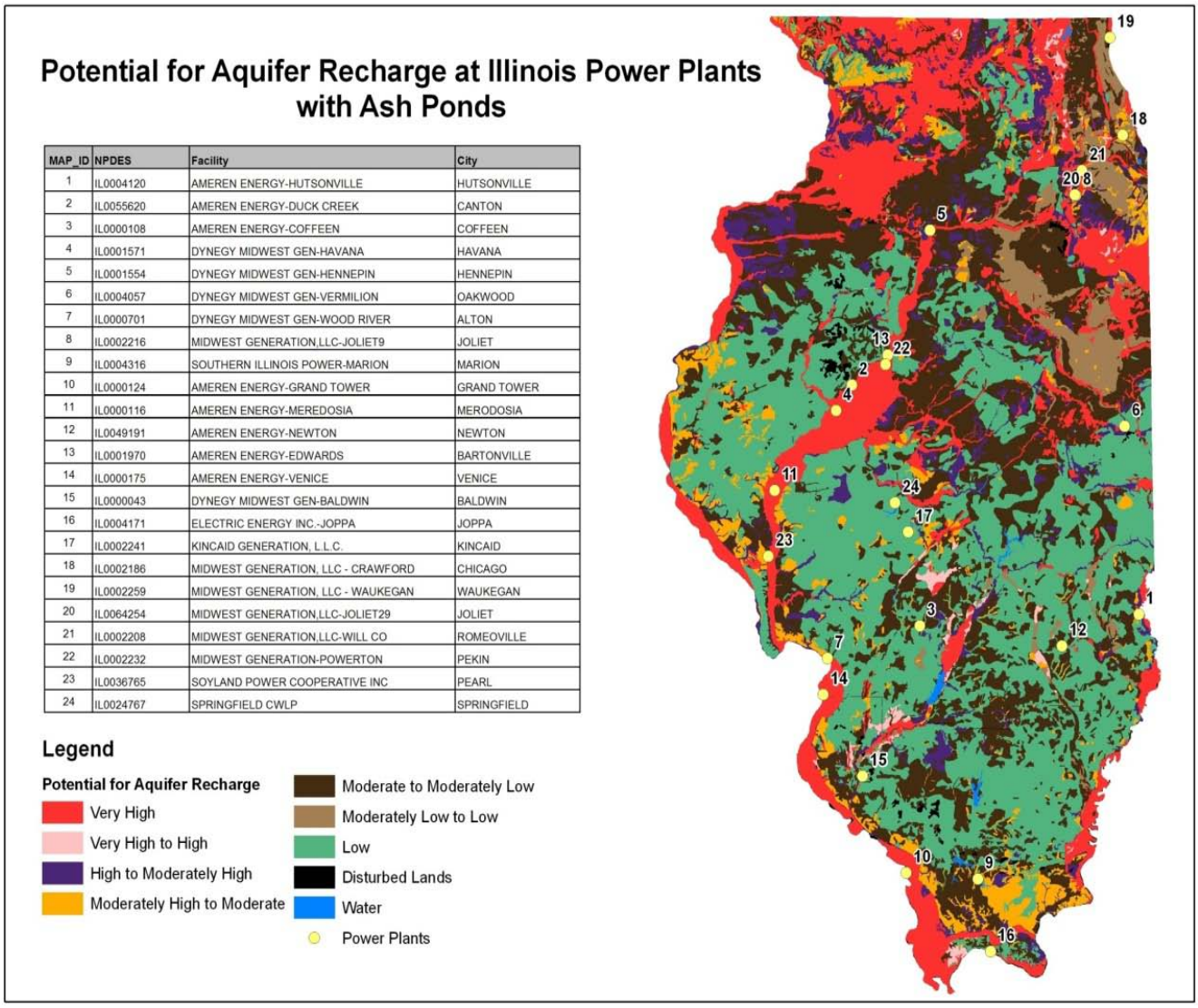
There are 24 power plants in Illinois with a total of 83 ash impoundments. Table 8 below indicates the number of impoundments that are active, those that have low permeability liners, and those that have groundwater monitoring.

Total Impoundments	Active Impoundments	Inactive Impoundments	Lined Impoundments	Impoundments with Groundwater Monitoring
83	68	15	31	28

Table 8. Number of Impoundments that are Active, have Low Permeability Liners, and Groundwater Monitoring Systems

The geologic vulnerability of groundwater at the 24 power plants was assessed using the Illinois' "Potential for Aquifer Recharge" map which classifies the potential for precipitation to infiltrate the surface and reach the water table. This map can also be used to determine the potential for groundwater contamination on a regional scale. Figure 10 shows the location of each power plant and the potential for aquifer recharge at each plant. This information, along with the presence of potable wells identified near the plants, was used to determine the potential contamination threat to those wells. The contamination potential ranges from "very high" to "low."

The aforementioned criteria were used to develop assessment priorities for these facilities under an action-oriented strategic plan. The plan was finalized and implementation began on February 26, 2009.



MAP_ID	NPDES	Facility	City
1	IL0004120	AMEREN ENERGY-HUTSONVILLE	HUTSONVILLE
2	IL0055620	AMEREN ENERGY-DUCK CREEK	CANTON
3	IL0000108	AMEREN ENERGY-COFFEEN	COFFEEN
4	IL0001571	DYNEGY MIDWEST GEN-HAVANA	HAVANA
5	IL0001554	DYNEGY MIDWEST GEN-HENNEPIN	HENNEPIN
6	IL0004057	DYNEGY MIDWEST GEN-VERMILION	OAKWOOD
7	IL0000701	DYNEGY MIDWEST GEN-WOOD RIVER	ALTON
8	IL0002216	MIDWEST GENERATION,LLC-JOLIET9	JOLIET
9	IL0004316	SOUTHERN ILLINOIS POWER-MARION	MARION
10	IL0000124	AMEREN ENERGY-GRAND TOWER	GRAND TOWER
11	IL0000116	AMEREN ENERGY-MEREDOSIA	MERODOSIA
12	IL0049191	AMEREN ENERGY-NEWTON	NEWTON
13	IL0001970	AMEREN ENERGY-EDWARDS	BARTONVILLE
14	IL0000175	AMEREN ENERGY-VENICE	VENICE
15	IL0000043	DYNEGY MIDWEST GEN-BALDWIN	BALDWIN
16	IL0004171	ELECTRIC ENERGY INC.-JOPPA	JOPPA
17	IL0002241	KINCAID GENERATION, L.L.C.	KINCAID
18	IL0002186	MIDWEST GENERATION, LLC - CRAWFORD	CHICAGO
19	IL0002259	MIDWEST GENERATION, LLC - WAUKEGAN	WAUKEGAN
20	IL0064254	MIDWEST GENERATION,LLC-JOLIET29	JOLIET
21	IL0002208	MIDWEST GENERATION,LLC-WILL CO	ROMEOVILLE
22	IL0002232	MIDWEST GENERATION-POWERTON	PEKIN
23	IL0036765	SOYLAND POWER COOPERATIVE INC	PEARL
24	IL0024767	SPRINGFIELD CWLP	SPRINGFIELD

Figure 10. Illinois Power Plants with Ash Impoundments

Priority 1 facilities (i.e., high potential for aquifer recharge, and existing or future potable uses) were requested, under a modified BOW permit, to install a groundwater monitoring well system, implement a monitoring program, and submit electronic compliance reports to the Illinois EPA. This information was requested at these 10 facilities, identified in Table 9, because they did not have groundwater monitoring systems. Additionally, the five facilities classified as Priority 2 because of the low potential for aquifer recharge and existing or future potable uses in the area, were requested to assess the potential for contaminant migration at their respective sites.

Priority 1	Priority 2
Ameren - Edwards Station, IL0001970	City Water Light and Power, IL0024767
Ameren - Grand Tower Station, IL0000124	Kincaid Generation, IL0002241
Ameren - Meredosia Station, IL0000116	Ameren - Newton Station, IL0049191
Ameren - Venice Station, IL0000175	Midwest Generation EME - Crawford Station, IL0002186
Dynegy Midwest - Baldwin Energy Center, IL0000043	Midwest Generation EME - Waukegan Station, IL0002259
Electric Energy Inc., IL0004171	
Midwest Generation EME - Powerton, IL0002232	
Midwest Generation EME - Joliet 29, IL0064254	
Midwest Generation EME - Will County Station, IL0002208	
Prairie Power Inc., IL0036765	

Table 9. Priority 1 and 2 under Illinois EPA's Ash Impoundment Strategy

The following provides a summary of the progress for each of the Priority 1 and 2 facilities:

Priority 1

- Ameren Facilities - Hydrogeologic assessments plans for Edwards Station, Meredosia Station, and Grand Tower are due by the end of 2009. A hydrogeologic assessment plan for Venice Station has been received and has been approved.
- Dynegy Midwest, Baldwin Energy Center - A hydrogeologic assessment plan has been provided and approved.
- Electric Energy Facility – A hydrogeologic assessment plan for this facility is due by the end of 2009.

- Midwest Generation Facilities - Hydrogeologic assessments for Will County Station, Powerton Station, and Joliet 29 Station have been received and are being reviewed.
- Prairie Power - A hydrogeologic assessment plan has been provided and approved.

Priority 2

- Ameren Facility - Hydrogeologic assessments plans for Newton Station are due by the end of 2009.
- Midwest Generation EME Facilities - Hydrogeologic assessments for Crawford Station and Waukegan Station have been received and are being reviewed.
- City Water Light and Power - A hydrogeologic assessment plan for City Water Light and Power has been received and has been approved.
- Kincaid Generation - A hydrogeologic assessment plan for Kincaid Generation has been received and has been approved.

In addition to the priorities described above, Illinois EPA concurrently continues to work with the nine facilities listed in Table 10 below to assess and remediate groundwater impacts.

Facility	Status
Ameren -Coffeen Station, IL0000108	Further Assessment Underway
Ameren -Duck Creek Station, IL0055620	Remedial Action Under Development
Ameren -Hutsonville Station, IL0004120	Site Specific Rule Making
Dynegy Midwest - Havana Station, IL 0001571	Approved Groundwater Management Zone
Dynegy Midwest - Hennepin Station, IL0001554	Approved Groundwater Management Zone
Dynegy Midwest - Vermillion Station, IL0004057	Further Assessment Underway
Dynegy Midwest - Wood River Station, IL0000701	Approved Groundwater Management Zone
Midwest Generation EME - Joliet 9, IL0002216	Remedial Action Under Development
Southern Illinois Power, IL0004316	Further Assessment Underway

Table 10. Facilities with On-going Groundwater Assessment and Remediation Activities

CHAPTER VII. WELLHEAD PROTECTION PROGRAM

Section 1. Amend rules to require the development of source water protection and planning (unless already developed) considering the current state of the art.

Revised CWS New Well Permit Applications – Using existing authority, the Illinois EPA modified the construction and operating permit applications for new CWS wells to require enhanced hydrogeologic information to assist in the delineation of WHPAs. This information includes well log boring information and aquifer property data, which can be used to construct groundwater flow models for determining the capture zone for wells utilizing unconfined aquifers. The C-I construction permit application can be found on the Web site at http://www.epa.state.il.us/water/permits/drinking-water/forms/schedule-c-i-well-construction.pdf.

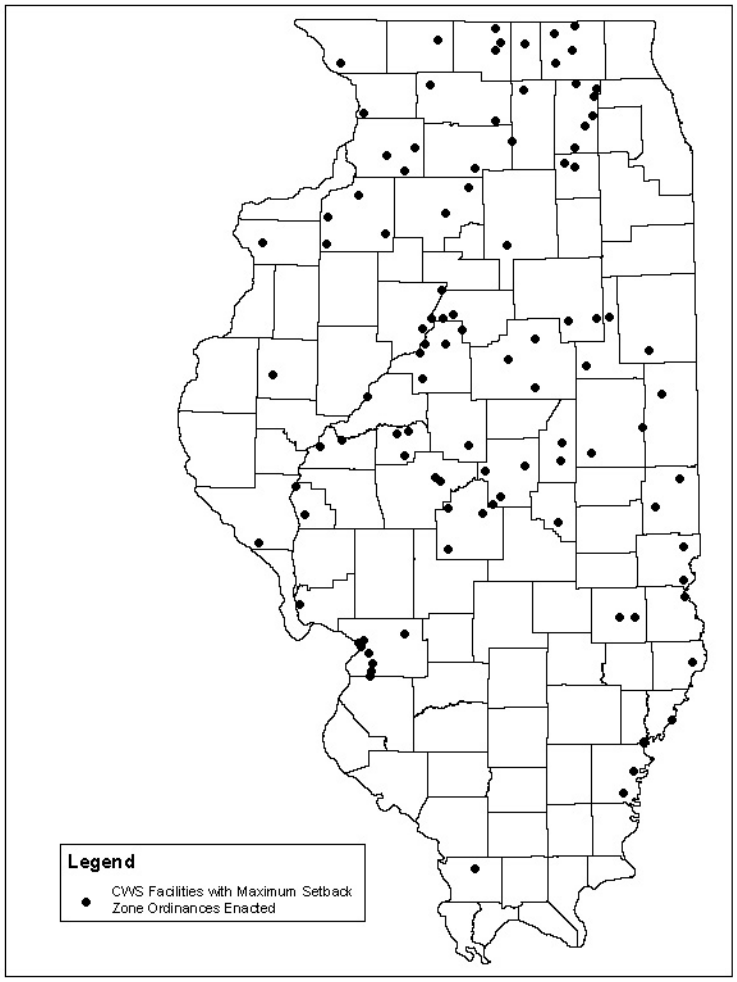


Figure 11: Maximum Setback Zones Adopted

Maximum Setback Zones – A maximum setback zone is a tool used to expand protection in a WHPA and lower potential for groundwater contamination. Maximum setback zone protection is becoming increasingly important because of RTK legislation. The increasing trend of VOC contamination shows that the voluntary wellhead protection approach is effective and may prevent future treatment costs. The locations of the CWSs that have adopted maximum setback zones are shown in Figure 11. A total of 101 CWSs with a total of 318 active wells have maximum setback zone protection. During this two-year reporting period, the communities of Arthur and Galena have pursued adopting maximum setback zones for six CWS wells.

WHPA Delineations – Historically, completion of these delineations has focused on CWS wells located within Illinois' priority groundwater protection planning regions and under vulnerability monitoring waiver programs as allowed by the SDWA to encourage groundwater protection program implementation. All unconfined supplies for which reasonably available data exist have completed delineations. The total number of facilities with completed delineations is 245, representing 955 wells. Further evaluation of available hydrogeologic data for other unconfined CWS wells is being conducted to determine the recharge area delineation potential for these supplies. New CWS wells continue to be evaluated. Illinois EPA has conducted groundwater modeling to delineate contributing recharge areas or WHPAs beyond applicable setback zones for 17 new CWSs, and 20 CWS WHPA delineations were updated during this two-year reporting period.

Water Well Decommissioning – The Illinois Water Well Decommissioning Program has been expanded to allow 12 well sealing projects in each local soil and water conservation district and to permit the sealing of abandoned irrigation wells at a higher cost-share rate than cost-share for traditional well sealing projects. In addition, a special projects category has been adopted through the Partners for Conservation Program for cost-sharing high priority environmentally-friendly projects. This category provides an opportunity to fund well decommissioning projects beyond the statewide docket limit of twelve well projects in each soil and water conservation district for Fiscal Year 2009.

Section 2. Implement principles developed under the national Source Water Protection Collaborative (e.g., "Marketing for Change") as part of outreach efforts.

The concepts of "Marketing for Change" were promoted at the source water protection workshop sponsored by the Illinois EPA and the Illinois Section-AWWA, discussed in Chapter III. However, significant effort of applying "Marketing for Change" concepts is needed to enhance source water protection in Illinois.

CHAPTER VIII. REGIONAL GROUNDWATER PROTECTION PLANNING PROGRAM

Illinois EPA continues to work very closely with the regional priority groundwater protection planning committees to establish groundwater protection programs at the local level. Although each region has specific priorities and areas of concern, their general mission statements all have common goals and objectives.

GOALS:

1. Provide education materials and programs regarding general groundwater protection.
2. Promote the use of groundwater protection tools to county and other local units of government that implement groundwater protection programs throughout the region.
3. Assist the state jurisdictions in accomplishing specific regional groundwater protection programs.
4. Provide a forum for the development of recommendations that address committee recognized regional protection needs.

Section 17.2 of the IGPA requires Illinois EPA to establish a regional groundwater protection planning program. Illinois EPA utilized recharge area mapping (completed in 1990 by IDNR), groundwater pumpage data, population affected, water supply characteristics, solid waste planning efforts, and other factors to select the four existing priority groundwater protection planning regions (see Figure 12).

OBJECTIVES:

1. Maintain an ongoing general education subcommittee to work with citizen groups, schools, governing agencies, and other interested parties on the importance of groundwater protection.
2. Promote the use of voluntary best management and pollution prevention programs for businesses and residences located within groundwater recharge areas.
3. Work with county, municipal, and other special units of local government to implement groundwater protection tools such as local zoning, maximum setback zones, technology control regulations, and defining recharge areas.

A committee is appointed for each region by Illinois EPA's Director and includes a cross-section of representatives from the region including county and municipal officials, owners or operators of public water supplies which use groundwater, at least three members of the general public who have an interest in groundwater protection, and Illinois EPA and other state agencies, as appropriate.

The Northern and Central Groundwater Protection Planning Committees were first established in 1991, followed thereafter by the Southern Groundwater Protection Committee in 1992. The Northeastern Groundwater Protection Planning Committee was initially appointed in 1995 and later amended to include DuPage County in 2001.

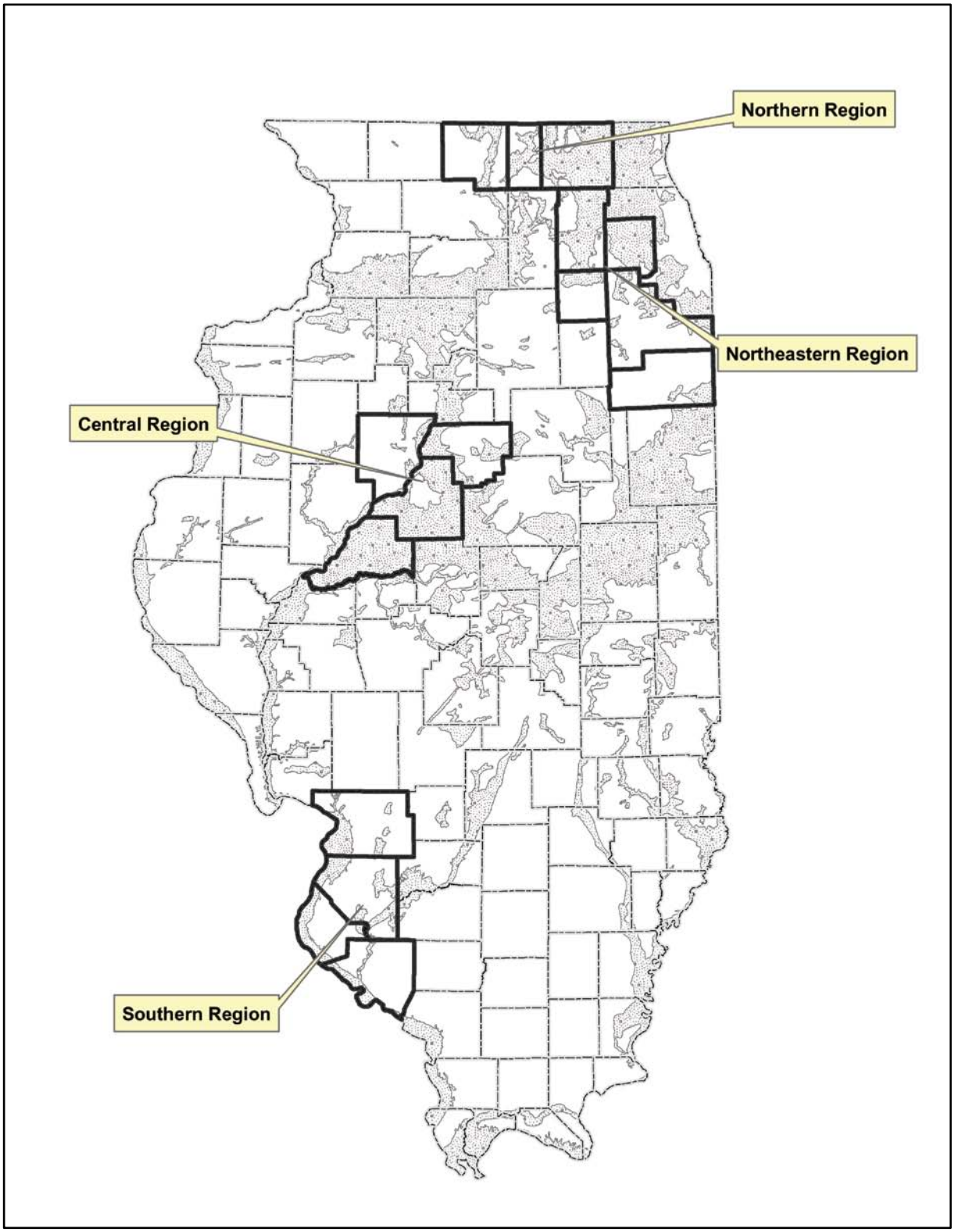


Figure 12. Priority Groundwater Protection Planning Regions

The BOW Groundwater Section continues to coordinate with the regional groundwater protection planning committees to implement programs and assist with targeting local contacts and interest groups. Most of the regional committees have adopted specific mission goals and objective statements to advocate groundwater protection practices and procedures to municipal, county, state, and other local units of government throughout their respective regions. These goals and objectives are useful in the prioritization and development of local groundwater protection programs, many of which are described in this chapter.

The regional groundwater protection process has resulted in successful local coordination and outreach efforts that have benefited both private citizens and businesses in these high priority areas of the state (e.g., pollution prevention interns, Groundwater Protection Field Days, well sealing demonstrations).

***STRATEGIES**:*

1. Act as a catalyst for implementation of groundwater protection tools including presentations or meeting with local officials and businesses.
2. Conduct groundwater protection and education workshops for the general public or target audiences.
3. Focus on educating middle school teachers on the importance of incorporating groundwater science into their curricula.
4. Perform an annual self-evaluation review of program effectiveness.

Cooperative efforts with entities such as the Groundwater Guardian program has assisted the regional groundwater protection process by providing national attention and recognition to CWSs developing groundwater protection programs. Illinois EPA continues to promote the Groundwater Foundation's Groundwater Guardian Affiliate program. Illinois EPA worked with each of the four priority groundwater protection planning regions to become Groundwater Guardian Affiliates and to commit to a series of result-oriented services. These result-oriented services include working with communities within their respective regions to implement local source water protection programs and recruit new Groundwater Guardian communities.

During the past two years, Illinois EPA and members of the priority groundwater protection planning committees have met with local stakeholders to encourage the development of groundwater protection programs and to implement activities to protect CWS recharge areas. The following information provides a summary of community outreach programs that the regional committees have targeted for groundwater protection efforts.

Section 1. Continue to assist and advocate local groundwater protection, education, and marketing.

<u>Northern Groundwater Protection Planning Region (Winnebago, Boone, and McHenry Counties)</u> – The Northern Groundwater Protection Planning Committee (Northern Committee) have assessed their efforts, and provide the following summary of these actions:

City of Loves Park – The City of Loves Park and the Northern Committee collaborated on a well sealing program for residents of Loves Park Public Water District. Over 223 abandoned wells have been properly sealed since the program began in 2002. The City of

Loves Park in conjunction with the Rockford Park District plan to abandon 36 more private wells. These properties were affected by a plume of contamination from the Sand Park landfill. In an effort to close the wells, the City adopted a Groundwater Restricted-Use Ordinance area prohibiting the use of groundwater as a potable water supply. The Groundwater Ordinance boundary area was submitted to and approved by the Illinois EPA's BOL. Currently, the City is waiting for approval from the Rockford Park District prior to requesting bid proposals from the four pre-approved contractors. Additional wells were closed in Winnebago, Boone and McHenry Counties for eight private individuals through a reduced-cost bentonite program developed by the Northern Committee. The Loves Park Drinking Water Protection Program aids in educating residents about groundwater. Word of mouth and positive media attention have helped the well sealing program gain respect and recognition throughout the community.

McHenry County Groundwater Resources Management – The geology of McHenry County is made up of many sand and gravel, limestone, and sandstone formations. These aquifers serve as the source of all of McHenry County's drinking water. As the population grows, the demand for water is rising, the potential for contaminating aquifers increases, and wastewater disposal becomes more difficult. This combination of factors made it essential for McHenry County to develop a Groundwater Resources Management Plan that addresses the complete cycle of source, use, disposal and reuse. Effective, economical options are being devised that reflect the needs of the interested public, municipalities and officials of McHenry County. The plan was developed with the input of county and municipal officials, environmental groups, development-oriented organizations, interested businesses, citizens and members of the Northern Committee in active discussions of the issues so that a plan could be created that would receive wide support. The plan is a useful tool for balancing supplies and demands and reducing the potential of groundwater contamination. Throughout the project, regular input from the community was important and public awareness was built through their Web site and press releases. The final Groundwater Resources Management Plan was completed in November 2006 and consists of five reports that are described below:

- Report 1: Groundwater Resources Management Framework - describes the rules of law that apply to groundwater in McHenry County and the development of management recommendations for consideration by the Board;
- Report 2: Groundwater Resources Information for Planning - provides a compilation of available land uses, water demands and hydrogeological information for the purposes of estimating the impacts of growth, capacities of the aquifers, and potential of groundwater contamination;
- Report 3: Countywide Groundwater Protection Plan - provides a discussion of groundwater quality and recommendations for actions that can be taken to prevent contamination in the future;
- Report 4: Countywide Wastewater Management Plan - includes recommendations for the management of decentralized wastewater systems and to recommend a plan for the management of septage generated within McHenry County; and

- Report 5: Chlorides and Agricultural Chemicals: Problem Assessments & Corrective Action - discusses the impacts of chlorides, agricultural chemicals and stormwater runoff on groundwater and sensitive ecosystems and recommendations to minimize future impacts.

More information on the development of McHenry County's Groundwater Resources Management can be found at http://www.co.mchenry.il.us/departments/waterresources/Pages/ManagementPlan.aspx.

According to a 2006 study by Baxter and Woodman, McHenry County aquifers can provide 120 million gallons of water per day. While this may seem more than adequate to meet the need, water isn't necessarily where the people are. Much of the water is in rural areas and not in the county's more densely populated southeast corner. The study further predicts by 2030, Algonquin and Grafton Townships' water demands could far outstrip their supply. Further, the study concluded that if every municipality realizes the full potential of what their comprehensive plans allow, the daily demand would jump to 164 million gallons per day, far exceeding what aquifers can provide. In an effort to avoid a worst-case scenario of water rationing and dry faucets, McHenry County hired a Water Resource Manager in 2007 to develop and lead an effort to protect groundwater quantity and quality county-wide. The resulting Groundwater Protection Program Task Force recently concluded two years worth of collaborative meetings that aimed at unifying the county and its municipalities in protecting their water resources. In October 2009, final revisions to the Groundwater Protection Program were completed and ready for review and consideration by the McHenry County Board and governments. For more information on the Groundwater Protection Program, see www.mchenryh2o.com.

Youth Groundwater Festival – The 15th annual Youth Groundwater Festival was held March 11, 2009, at Rock Valley College. More than 600, 4th and 5th graders from 21 schools within the greater Rockford area attended the free-of-charge festival. Several presentations, including the groundwater flow model, Dripial Pursuit card game, water testing and water science were conducted. Students learned to identify where drinking water comes from, common contaminants in drinking water, a few screening methods for water testing, observations of microorganisms through a microscope, and modern methods of water supply protection. Approximately 100 people volunteered to help put on the Youth Groundwater Festival, including members of the Northern Committee, area educators, two high school science departments, and various environmental agencies and groups. The Burpee Museum of Natural History, Winnebago County Health Department, Rock Valley Foundation, Lifescape Community Services, The League of Women Voters, Rock Valley College, and the Northern Committee sponsored the one-day festival.

Water Table Management Structure – The Northern Committee helped support a water table management structure along with the Boone County Conservation District. The purpose for this project was to install a practice that will demonstrate the benefits of managing the shallow water table for crops, wildlife, increased groundwater recharge, and improved water quality. A special project grant from the IDA was awarded to remedy the damages caused by last year's heavy rainfall events. Recently, eroded areas have been re-graded, a culvert stream crossing has been removed, and a Texas style ford type crossing has been installed according to the United States Department of Agriculture's Natural Resource Conservation Service designed plans. The special project

grant had also included funds to install additional drain tile, but the long wet spring precluded the tile work to occur in time, and the balance of the funds had to be returned to the IDA.

Chicago Metropolitan Agency for Planning – CMAP formed the Northeastern Regional Water Supply Planning Group. Some Northern Committee members continue to participate by attending meetings, reviewing and commenting on draft documents. The goal is to develop water demand scenarios to 2050; generate water management options; and do outreach and education. A summary of the regional water supply planning groups is provided in Chapter IV, Section 1.

School Outreach Program in Partnership with the Illinois Section-AWWA – Northern Committee members have volunteered to work on the development of a partnership with the Illinois Section-AWWA and the Northeastern Regional Groundwater Protection Planning Committee to get "water" into the classrooms. Outreach efforts are being developed for area teachers and schools with offers of field trips and in-class demonstrations on water-related issues including, watershed protection programs, demonstration of groundwater flow models, and basic water chemistry lessons.

Northeastern Groundwater Protection Planning Region (Kane, Kendall, DuPage, Will, and Kankakee Counties) – The Northeastern Groundwater Protection Planning Committee (Northeastern Committee) have assessed their efforts, and provide the following summary of these actions:

Abandoned Well Sealing Program – The Northeastern Committee has developed a well sealing program to promote and assist with the proper abandonment of inactive water supply wells. Well abandonment guidelines and a tracking spreadsheet have been created to facilitate the implementation of this program. In addition, advertising brochures have been printed and distributed to each of the county health departments to assist in promoting this effort. Furthermore, the Northeastern Committee provides each county health department with up to $300 to promote/publish the well sealing program or to offer free/reduced prices for a well sealing permit. The well sealing program involves the purchase of large amounts of bentonite, at a reduced cost, and providing it to private well owners at cost, or free of charge, to seal their well. Any monies collected are then used to purchase additional bentonite such that the program becomes self-supporting. The Northeastern Committee also maintains an adequate inventory of bentonite at each county health department so that materials are readily available. The tracking spreadsheet provides minimal statistics to document the success of this program on a county-by-county level. To date, steady progress has been observed, and recent activities and management changes should help to further promote this program.

2008 DuPage County Fair – The Northeastern Committee, in partnership with the IAGP, secured a booth at the DuPage County Fair in July 2008 to provide demonstrations and educational materials to the general public relating to the protection of groundwater. The booth included hands-on demonstrations of a tabletop groundwater flow model, groundwater trivia, and question-and-answer sessions with the attendees. Over 750 people, many of them school children from the communities of DuPage County, visited the booth over the five-day event.

2009 Kankakee County Source Water Assessment Program Workshop – In May 2009, the Northeastern Committee successfully trained 50 water operators and public health personnel on the use and features of the Illinois EPA's source water assessment mapping tool and database. This online resource is available to water professionals to monitor and assess the presence, use, and condition of Illinois' groundwater resources at local and regional levels. The design, layout, and use of the database were reviewed in depth with the attendees, many of whom were not familiar with its value. A well-sealing demonstration was also held for the attendees that provided useful insights into the workings of a water supply well and the importance of their proper sealing. The meeting received high marks on the evaluation forms obtained from the attendees.

Groundwater Education Lending Libraries – The Northeastern Committee continues their effort to maintain high-quality groundwater education materials and to keep its lending libraries up to date. Currently, the two available lending libraries are housed at the Kendall County Health Department. The Northeastern Committee continues to promote the availability of the libraries to the region's teachers, its soil and water conservation districts, and the public. Members of the Northeastern Committee also developed an inventory of the groundwater education materials to provide to the press and other media outreach mechanisms, for listing in monthly newsletters, and to feature in public service announcements.

Groundwater Research Student Grant Program – Pat Baldwin, a graduate student in hydrogeology at Northern Illinois University in DeKalb, was awarded a $500 research grant by the Northeastern Committee in May 2008. The goal of his research was to determine the validity of several tree species for use in identifying heavy metal contamination transport routes and to determine which year a contamination event took place using tree ring analysis. With the assistance of previous research partially supported by the Northeastern Committee in 2007, Mr. Baldwin was able to trace the historic movement of heavy metal-laden groundwater through the site, located in Plano, Illinois. A tree survey was also conducted to establish which trees will be optimal for the collection of the heavy metals. Mr. Baldwin presented his findings to the Northeastern Committee at their November 2009 bi-monthly meeting.

The Northeastern Committee will continue to provide financial assistance to students whose research area or residence is within the five-county priority groundwater region as a continuing contribution to the region and the state.

Kane County Water Resources Study – The Kane County Water Resources Study was initiated in 2002 by using the services and expertise of the ISWS and the ISGS. The planned five-year study consisted of the development of a conceptual model of the geology and hydrogeology of Kane County, the compilation of a comprehensive database of digital geologic and hydrogeologic information for the county, the design of a three-dimensional numerical model of the aquifers below the county, and the creation of detailed geologic maps and cross-sections of the subsurface geology of the county. This information was used for planning and management purposes upon the completion of the study in late 2007 and early 2008. Significant progress has been achieved in understanding the complex nature of the groundwater resources of the county. Members of the Northeastern Committee and the communities of Kane County participated in the study through the review of monthly updates provided by the ISWS and ISGS as well as

attendance at biannual update meetings. Through this participation, the communities of Kane County provided input to the study, inquired as to the status of the various aspects of the study, and provided updates on water supply planning, development, and management activities in the county to the researchers for inclusion in the study. The resulting fully-operational digital model of Kane County was used by CMAP in their work with the Northeastern Illinois Regional Water Supply Planning Group to forecast water demands in northeast Illinois through 2050. A summary of the Kane County water resources study is provided in Chapter IV, Section 1.

Kendall County Groundwater Study – The ISGS and ISWS conducted a scientific study of the geology and groundwater resources of Kendall County, Illinois. The project, contracted by the county and many local communities, has been under way since June 2005. The purpose of the study is to provide technical information and support for the sustainable management and protection of the county's groundwater. The scientists are especially interested in evaluating the groundwater's long-term availability and sensitivity to contamination. Preliminary results of the geologic study and hydrologic investigations indicate that no additional sources of groundwater have been identified in the glacial deposits overlying the bedrock. Results from geophysical testing and subsurface borings conducted by the ISGS and ISWS, and county-wide mapping of existing well borings showed no significant sand and gravel deposits present. The lack of additional groundwater resources from unconsolidated materials means that Kendall County will need to continue to rely on existing bedrock aquifer sources, which are already being impacted by continued lowering of water levels in the region. Preliminary mapping of the unconsolidated deposits and creation of an aquifer vulnerability map indicate that the County may be a poor choice for landfill sites currently proposed or under consideration. Both groups were reminded of the primary importance of long-term management and conservation of the groundwater resource. The Northeastern Committee continues to be of assistance with this effort and will monitor the effort through 2010.

Northeastern Regional Water Supply Planning Group – To consider the future water supply needs of Northeastern Illinois and develop plans and programs to guide future use that provide adequate and affordable water for all users, including support for economic development, agriculture and the protection of our natural ecosystems, a regional water supply planning group was formed in 2006. The Northeastern Committee continues to monitor the workings of the planning group and assist with its efforts to quantify future regional water demand and to determine the proper courses of action to ensure the viability of the region's water resources. A summary of the regional water supply planning groups is provided in Chapter IV, Section 1.

Community Outreach – Many Northeastern Committee members participated in regional community outreach by promoting groundwater awareness through the following events:

- Open houses at their place of business, (e.g., water plants, health departments, soil and water conservation district offices);
- Community events, (e.g., Kendall County Natural Resource Tour, KishHealth Wellness Fair);
- The 2010 Envirothon training meeting;
- School group meetings;

- Earth Day celebrations;
- Master naturalist programming for the U of I Extension office; and
- Source water awareness presentations at the 2009 Indiana and Illinois AWWA conferences.

Members of the Northeastern Committee have access to groundwater flow models, an Enviroscape, display board/tables showing an interactive water cycle, and other printed materials. Brochures were developed to promote the activities of the Northeastern Committee and the resources available were distributed at all events and also provided to local health departments for distribution. The Northeastern Committee also provided various giveaways (recycled pens, pencils, note pads, etc.) to increase public awareness and groundwater protection endeavors. Feedback from visitors who attended the various functions has been positive in that many questions were asked for further information. Additional feedback from event organizers was also positive in that invitations were extended for future events. Teachers, community leaders, and children also provided positive and constructive feedback regarding presentations to smaller groups.

Well-Sealing Demonstrations – Two well sealing demonstrations were held within the region during November and December 2008 in Campton Township/Kane County and Lombard/DuPage County. The demonstrations were open to the public and well attended. Licensed well drillers showed the attendees the methods used to permanently seal abandoned wells, as well as what the working parts of a water supply well look like. Future demonstrations are in the planning stages. Attendees at both events noted that this type of information and education is not often obtainable. A working knowledge of the construction, operation, and decommissioning of abandoned wells assists the community and public health personnel identify and mitigate concerns related to these wells.

Kendall County Private Well Education and Mapping Project – With financial assistance from the Northeastern Committee, the Kendall County Health Department initiated the Private Well Education and Mapping Project. The focus of this project is the protection of the region's groundwater supply through homeowner education, wellhead protection, and GIS mapping. As part of this ongoing effort, health department staff walks door-to-door in older unincorporated areas of the county to deliver well and septic maintenance materials to homeowners. The staff also requests permission to add the well location to the county-wide GPS database using a handheld GPS receiver. The well locations are then stored in a database developed by the health department's GPS coordinator. During the site visit, any private well code violations noted by staff are discussed with property owners if they are available. If homeowners are not available, letters are mailed to the property owner with more detailed information. Follow-up visits related to complaints or further consultations are conducted when necessary. This project will continue, as time and funding allow, through 2010 and beyond.

Central Groundwater Protection Planning Region (Peoria, Tazewell, Woodford and Mason Counties) – The Central Groundwater Protection Planning Committee (Central Committee) have assessed their efforts, and provide the following summary of these actions:

2008 and 2009 Clean Water Celebration – The annual Clean Water Celebration, held in Peoria, Illinois, incorporates a variety of programs for students, teachers, and the public, with over 3,000 attendees yearly. A "Parade of Waters" kicks off the Celebration at the Gateway Building on the Peoria river front. Mayors, village presidents, and other community leaders bring water, drawn from the Illinois River and lakes and streams in and near their communities, and symbolically pour their waters together, declaring their communities' commitment to clean water.

In 2008, keynote speaker, NASA Environmental Engineer Dr. Jacqueline Quinn, spoke on NASA's innovative remedial technology, used to cleanup soil and groundwater contaminated by using chlorinated solvents.

The 2009 theme was, "Back to the Future." Dr. Michael Wiant, an archeologist and Director of the Dickson Mounds Museum, located in Lewistown, Illinois, explored the history of Native American life in the Illinois River Valley and shared their sustainable messages and ways of living. Dr. Wiant provided information on how those tribes conformed to, and utilized, their water sources, and what lessons we could learn from them. A Native American "Blessing of the Waters" was performed, and "Making Waves" awards were presented to groups or individuals that have made a difference to the cleanliness of water and the environment. Participants enjoyed a walk along the Illinois River, while learning about many of the plants and animals and other factors that influence the river and the people that depend on its rushing waters. Joining the walk were scientists, storytellers, and teachers, sharing their insight and knowledge. Participants also took part in fishing, water fauna identification, water quality tests, storytelling, and face painting.

The Illinois Humanities Council's Oil and Water Forum, presented a panel discussion, "It All Flows Downstream," which discussed the choices we make about how we use water at the regional, local, and personal levels, and how those choices affect all of us. Exhibits included information on riverbank erosion and stabilization, water treatment, wildlife of the wetlands, aquatic life, recycling, improving water quality, and natural resource conservation and management. Central Committee members staffed a booth which provided information on how citizens can help safeguard water resources and educated people on the environmental impacts of litter and pollution. The Central Committee continues to support the Clean Water Celebration by serving on the navigating committee, staffing learning sessions and display booths, as well as providing financial support to help defray transportation expenses for participating school districts.

Test Your Well Days – This event invites private well owners to collect and bring samples of their well water to participating local health departments to be tested, at no charge, for the presence of nitrates. Events are often held in the evenings or Saturday mornings and are sometimes combined with other events. Students, Girl Scouts, and other volunteers administer the tests using water quality test strips. Groundwater samples determined to have elevated levels of nitrate are then re-sampled and sent to a certified laboratory for a

more accurate assessment. Utilizing community volunteers to offer a valuable service in a non-threatening atmosphere, is an innovative aspect of the "Test Your Well Day" concept. These events also provide well owners with educational material about groundwater protection, nonpoint source pollution, the importance of water quality, and pollution prevention practices. In addition, volunteers learn about the importance of environmental health and better understand their roles in safeguarding drinking water quality.

Unwanted Pharmaceutical Collection – The Central Committee, as part of a pilot project initiated in March 2008, set up a series of pharmaceutical collection events to discourage the normally accepted method of disposal, which is flushing down the drain. This was in response to analysis of Lake Michigan water samples, which showed detections of 56 chemicals typically found in drugs and personal-care products. The goal of the project was to establish pharmaceutical collection centers throughout the region and to educate the public about environmentally appropriate disposal methods for unwanted medicines. Advertised locally using posters, fact sheets and pamphlets, four unwanted medication collection events were held in 2008, the results of which filled six 55-gallon drums. Collection events were located near busy shopping areas for convenience, or at health department-scheduled events. Even though controlled substances were not collected, local law enforcement volunteered to provide security. An additional incentive included a collection area for used compact fluorescent lights bulbs. Several permanent collection sites have been established in Woodford County where residents can drop off old or unused medications. Tazewell County is working with Illinois American Water Company-Pekin to provide a permanent drop site in Pekin, Illinois.

East Central Illinois Regional Water Supply Planning Committee – In January of 2006, Executive Order #1-2006 was issued to develop a comprehensive, statewide water supply planning and management strategy. The Executive Order assigned the IDNR's Office of Water Resources to oversee the process, in coordination with the ISWS. To begin the effort, the Northeastern Illinois deep aquifer and the Mahomet aquifer were selected as the two aquifer systems most at risk for water shortages and conflicts. The MAC started a three-year regional water supply planning process, with a funding grant from IDNR. The first task was to convene the East Central Illinois RWSPC. This region spans the central and east-central Illinois counties of Vermilion, Iroquois, Ford, Champaign, McLean, Macon, DeWitt, Piatt, Woodford, Tazewell, Mason, Logan, Menard, Cass, and Sangamon. Two members of the Central Committee are also members of the East Central Illinois RWSPC. Representatives from the MAC and the Central Committee helped collect the data needed for the East Central Illinois RWSPC to draft the regional water supply plan and also outline and approve their regional plan.

Wittman Hydro Planning Associates, Inc. was hired to perform the water demand scenario study. With these results, geological data and information provided by the ISGS, the ISWS conducted analyses to evaluate how drought, climate change, water withdrawals and discharges affect stream flow, reservoir yield and groundwater availability. Most of this work was conducted under contract with IDNR. A final report from the ISWS was not available for the Central Committee's use; therefore, the Committee relied upon preliminary results, in the form of draft materials and PowerPoint presentations on climate scenarios, groundwater flow modeling results, and surface water

yield analyses, to form its findings and recommendations. The main recommendation from the Central Committee was to establish a permanent process and structure for regional water supply planning and management, involving a diverse set of stakeholders. A summary of the East Central Illinois RWSPC is provided in Chapter IV, Section 1.

Southern Groundwater Protection Planning Committee (Madison, Monroe, St. Clair. and Randolph Counties) – The Southern Groundwater Protection Planning Committee (Southern Committee) have assessed their efforts, and provide the following summary of these actions:

Well Sealing Campaign – The Southern Committee has continued purchasing bentonite to assist in the sealing of private water wells in conjunction with the Water Well Abandonment Program launched by IDA and the Madison County Soil and Water Conservation District. The well sealing materials are provided at no cost to program participants in the four-county region. There is an emphasis placed on the abandoned wells located within the immediate proximity of a CWS well. In addition, the use of the bentonite is also available for sinkhole stabilization projects, which in turn benefit both surface and groundwater quality within portions of the karst-terrain area of southwestern Illinois.

Well Screening Effort – The Southern Committee purchased immunoassay kits to test for the occurrence of pesticides in private well water. The program targets farmers and rural homeowners that live in areas that are predominately agricultural land. The program is biannual and occurs in the fall and spring to coincide with the time farmers are planting and fertilizing. Private well water samples will be screened for triazines (of which atrazine is a common form) using immunoassay-testing methods. Atrazine is a common herbicide used in the control of grasses and broadleaf weeds in crops. It is anticipated that testing for nitrate, coliform, and triazines will give most homeowners the ability to know more about their source of drinking water. In addition, the Madison County Health Department laboratory conducts all screenings, and the Southern Committee is compiling the results for review and use for future educational planning efforts.

2009 Groundwater Protection Field Day – The Southern Committee co-sponsored a Household Hazardous Waste (HHW) collection event in St. Clair County on Saturday, May 30, 2009. A total of 1,783 participants, representing 1,984 households, dropped off more than 247 fifty-five gallon drum equivalents of toxic materials and 120 cubic yards of paint which was properly disposed of off-site. Ninety cubic yards of refuse from empty containers was also generated. About 250 lead-acid batteries were collected for a local recycler. Residents from more than six Illinois counties participated in the event with the farthest known coming from Sangamon County. Of the 1,783 participants, 978 brought HHW only, 541 brought HHW and electronics, while 288 came to drop off electronics only. Though rain poured on the event twice during the day, four off-loading lanes for HHW were continuously busy and the wait time was never more than 20 minutes. St. Clair County and the City of Belleville were also co-sponsors for the event and staff from the St. Clair County Health Department did an excellent job of surveying and providing traffic control.

Groundwater Lending Library – The Southern Committee has an ongoing goal of encouraging local stakeholders to become more aware of, and active in, groundwater protection strategies throughout the southern region. To this end, an informational campaign continues to collect and develop materials regarding groundwater protection and education programs to be utilized by various governmental and local agencies. As part of the lending library, the Southern Committee has incorporated a display board and a ten-foot banner that can be used by members, and loaned to various local agencies to support groundwater protection/educational outreach efforts at area conferences, community functions, and county fairs.

2008 Groundwater Protection Field Day – On May 22, 2008, nearly 100 participants attended a groundwater protection field day at the Casino Queen, East St. Louis in St. Clair County. The field day focused on groundwater protection, with specific emphasis placed on community water supplies. This event provided an overview of the current initiatives to protect groundwater by educating the water operators on the potential problems associated with cross-contamination and wells that are in disrepair. These issues include responsibilities of backflow prevention, water emergencies and boil orders, and focused on the procedures and responsibilities of the operators during one of these potential problems. The event was capped with a tour of the Illinois American Water Company treatment plant in East St. Louis.

CHAPTER IX. NON-COMMUNITY AND PRIVATE WELL PROGRAM

Section 1. Continue to implement the Wellhead Protection Program and assist with implementing the technology control and groundwater quality standards regulations.

IDPH has primary responsibility for inspections of approximately 3,975 non-community public water supplies (NCPWS), which are performed at least once every two years. The NCPWSs in Illinois serve a population of approximately 505,592 citizens. These are water systems that serve 25 or more people for at least 60 days per year, for example, schools, restaurants, factories, power generating stations, office buildings, campgrounds, state parks, and rest stops.

At the time of the inspection of a NCPWS, IDPH and local health departments inspect the area surrounding the wellhead for sources of contamination. Permits for new construction, modification or an extension of an existing NCPWS will continue to be required.

Section 2. Complete the source water assessments of all non-community public water supplies.

As required by amendments to the SDWA, IDPH has essentially completed source water assessments of all NCPWSs and will continue these assessments for all new NCPWSs. Approximately 4,000 water supply wells and 16 surface water sources serve as the sources of water to these systems. These wells and surface water sources were identified and evaluated for vulnerability to potential contamination from sources such as sewage systems, abandoned wells, buried fuel tanks and chemical storage areas. The vulnerability assessments conducted in the past were confined to an area within a 200-foot radius around the well which was amended to a 1,000-foot radius.

NCPWS well locations were digitized from registered aerial photographs and then converted into a GIS coverage. During the field survey for the well, potential sources of contamination within 1,000 feet are identified and drafted onto the photograph. Each site is described on a standardized coding form and is then entered into Illinois EPA's Proteus database.

This project brought together resources from the IDOT, Illinois EPA, IDPH and local health departments. IDOT provided aerial photographic maps of the area surrounding each supply and Illinois EPA entered the data into a GIS data system. This project began in 1998 and took three years to assess supplies that were listed as active at that time. Federal funding through U.S. EPA supported this effort. Local health departments were compensated through federal funding through U.S. EPA for conducting the assessments. IDPH regional staff conducted assessments at all IDPH licensed supplies and for those supplies located in counties without local health departments. IDPH utilized the source water assessment data to write a susceptibility assessment for each supply, taking into consideration land use, previous sampling data and geological data. The susceptibility report determined, from the information, if the supply is susceptible to contamination. IDPH submitted copies of completed assessment reports to Illinois EPA and the water supply. Currently, source water assessments are being completed for 168 NCPWSs that have become active since January 1, 2006.

Section 3. Continue GIS coverage for all new non-community public water supplies.

The digitizing of all existing NCPWS wells has been completed. This was accomplished by taking aerial photographs, which have been drafted with well locations from field surveys, and registering them against the county road coverage. Once registered, in real world coordinates, the photos are displayed and the well location is digitized into a statewide coverage from its drafted location on the photograph. The process of digitizing all new NCPWS wells will continue.

Section 4. Continue certification training of non-transient non-community public water supply operators.

In accordance with amendments to the federal SDWA and U.S. EPA drinking water regulations, all non-transient NCPWSs must be directly supervised and operated by personnel who have been certified by IDPH or have received certification as a public water supply operator (A,B,C, or D) by the Illinois EPA. Each non-transient NCPWS must designate a person who is the responsible operator in charge of the water system. Approximately 400 NCPWSs currently require certified operators. These operators must be initially certified and then be re-certified every three years by attending IDPH approved training classes that address new technology and new drinking water regulations.

During 2008 and 2009, the Water Quality Association offered four classes for operator certification. Since the onset of these classes, 1,479 individuals have become IDPH-certified operators. Currently, 52 operators are certified through Illinois EPA, which allows them to operate non-transient NCPWSs. IDPH reimburses eligible operators for costs associated with taking these classes through a grant from U.S. EPA. The grant, which was originally awarded in 2001 and extended through 2007, will terminate in September 2010.

In June of each year, operators are sent a letter advising them of their expiring certificates, and are provided instructions on how to complete the renewal course. In late 2005, IDPH selected the Operators Basics program, developed by the Montana Water Center in cooperation with Illinois EPA, as the renewal course. Operators can order the CD version of this course from either the National Environmental Services Center or IDPH. Feedback on the course remains positive. Through a federal grant received through the Technical Assistance Center, located in Champaign, Illinois, the IRWA sponsored an IDPH-approved operator recertification course on August 5, 2009.

Approximately 1,454 operators have successfully completed the required training and have renewed their certifications.

Section 5. Continue to inspect and perform laboratory analyses on water samples collected from non-community water supplies.

The IDPH continues to inspect and monitor NCPWSs. As part of these evaluations, the systems under IDPH regulatory authority are continually evaluated for water quality concerns and potential sources of contamination within their respective WHPA. To date, the IDPH has authority over 3,975 NCPWSs of which 402 are classified as non-transient (those systems that serve at least 25 of the same individuals at least six months of the year).

While monitoring varies depending on population and system type (transient or non-transient), all of these systems are routinely evaluated for bacterial and nitrate contamination. Furthermore, non-transient NCPWSs, like schools and workplaces, must monitor for an additional 70 contaminants including VOCs, synthetic organic compounds, and inorganic chemicals.

Section 6. Continue to issue permits for the construction, modification or extension of existing non-community public water supplies.

During 2008 and 2009, IDPH issued 122 and 89 permits, respectively, for the construction, modification or an extension of an existing NCPWS. Since 1996, the number of permits issued increased annually and peaked during 2008 (Figure 13). From 2000 through 2005, there was a gradual decline with one anomaly in 2002. In 2006 through 2008 the trend is increased again, and decreased somewhat during 2009.

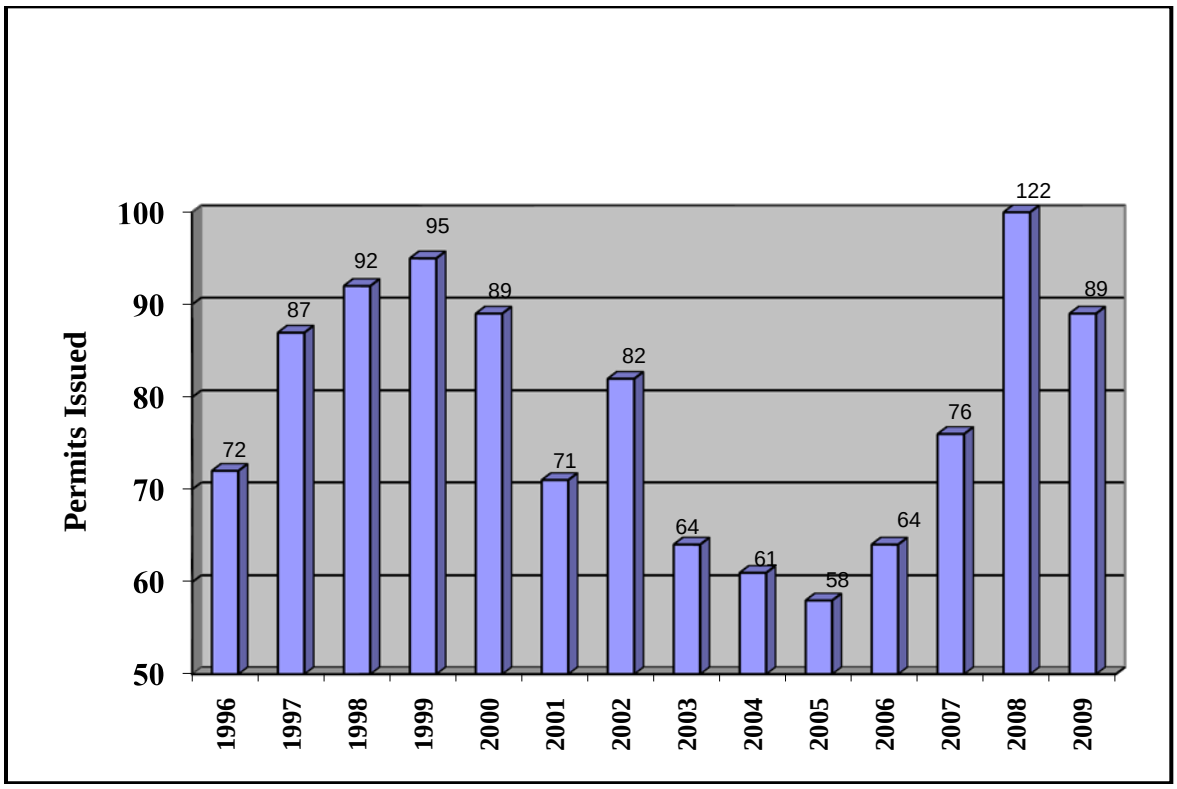


Figure 13. Permits Issued to Construct, Alter or Extend a Non-community Public Water Supply

Section 7. Continue the issuance of permits for all types of water wells with the exception of community water supply wells.

During 2008 and 2009, IDPH and local health departments issued approximately 7,000 permits to construct private, semi-private, non-community, and non-potable wells annually. Figure 14 illustrates the number of water wells permitted during 1990 through 2009. Since 2003, the number of well permits issued has steadily declined. All new wells are inspected to ensure that location and construction specifications have been met in accordance with the requirements of the Illinois Water Well Construction and Pump Installation Codes. In accordance with the IGPA, all new wells must be located at least 200 feet away from all primary and secondary sources of contamination and all potential routes. Additionally, water samples from new wells are analyzed by certified laboratories for the presence of coliform bacteria and nitrate concentration.

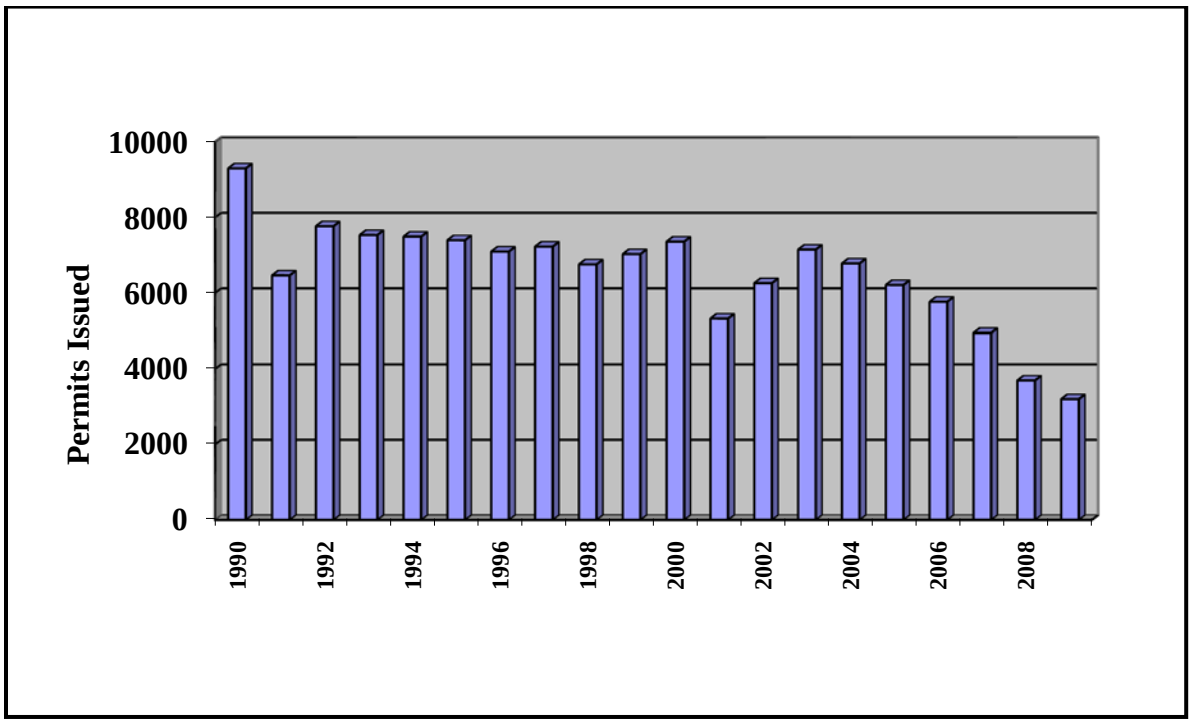


Figure 14. Water Well Construction Permits Issued

During the years 2008 and 2009, well sealing records reveal that 4,300 abandoned wells were sealed. This represents a decline of 34 percent compared to the number of wells sealed during 2006 and 2007. Local health departments and IDPH inspect the sealing of abandoned wells to ensure they are properly sealed in accordance with the Illinois Water Well Construction Code. Figure 15 illustrates the number of water wells sealed during 1990 through 2009.

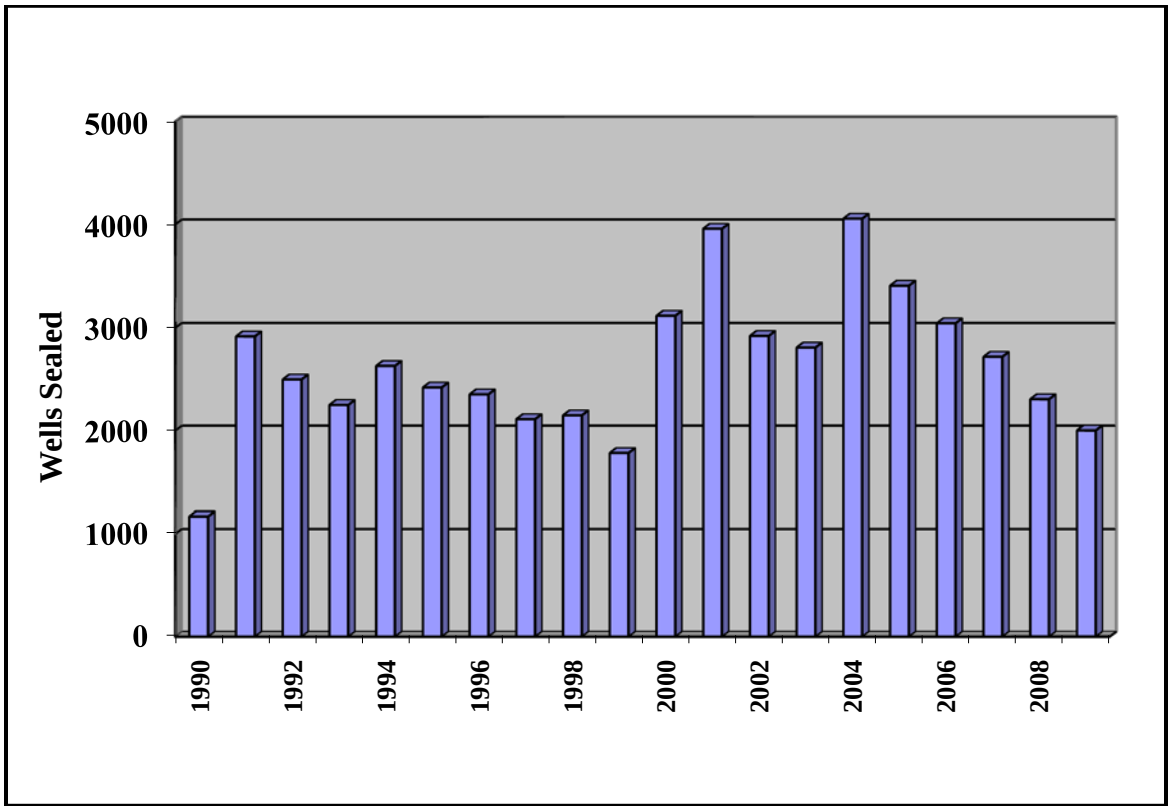


Figure 15. Water Wells Sealed

Section 8. Continue to update the Illinois Water Well Construction and Pump Installation Codes to reflect new technology, industry, and public health standards.

The proposed amendments would clarify the requirements for grouting drilled wells and sealing abandoned wells, establish requirements for bored well construction materials, update and clarify the requirements for constructing closed-loop heat pump wells, and clarify the setback requirements between closed-loop wells, water wells, and sources of contamination. This would ensure that the installation of closed-loop wells meet state groundwater protection and public health standards.

Section 9. Continue supporting education training sessions for licensed water well and pump installation contractors.

The Water Well and Pump Installation Contractor's License Act requires all licensed water well and pump installation contractors to attend a six-hour continuing education session every two years. In order to renew a license, a contractor must provide proof of

attending such training, such as a certificate from the organization that sponsored the training.

Plumbers who install or repair water well pumps and pumping equipment must be licensed as water well pump installation contractors, but they are not required to take the water well pump installation contractor's license examination or to pay the license fee. However, they are required to attend a six-hour continuing education session every two years.

IDPH-approved training sessions are intended to increase a contractor's knowledge by providing new industry information and updates, as well as to allow health officials to bring current problems to the attention of the industry. Topics for the sessions included geothermal drilling and loop fusion, welding safety, personnel management, constant pressure pumping systems, drill bit selection and maintenance, emergency first aid, groundwater/surface water interaction, trouble shooting pumps, basic hydrogeology, grouting, water sampling techniques and interpretation of laboratory test results, pharmaceuticals in water, well boring logs, water treatment, electrical safety, well construction reporting, and diagnosing well problems. Approximately 772 water well and water well pump installation contractors, licensed by IDPH, are required to attend these training sessions. Twelve training sessions were held throughout the state during 2008 and 2009. Nearly all sessions were conducted through the IAGP.

Section 10. Continue to conduct training sessions pertaining to both the non-community water supply and private water programs for local health department and Illinois Dept. of Public Health water program staff.

During 2008 and 2009, IAGP, IDPH, Illinois EPA, Illinois Environmental Health Association, IGA, local health departments, and the four groundwater protection planning committees sponsored over 40 water program training sessions approved for water program staff from 96 local health departments and IDPH. Twelve of the sessions coincided with the above sessions for licensed water well and pump installation contractors. Some of the major topics at these training sessions included emerging groundwater contaminants, boil orders, backflow protection, arsenic in private water wells, dewatering wells, source water assessment database, geologic mapping, and groundwater modeling. The sessions met the annual water program-training requirement for local health department water program staff under the Local Health Protection Grant Rules (77 Ill. Adm. Code 615).

Section 11. Continue implementation of Public Notification for Private Water Supply Potential Contamination.

Amendments made in 2002 to the IGPA require Illinois EPA to notify IDPH of the discovery of a VOC in excess of the maximum contaminant level (MCL). Within 60 days of this notice, IDPH, in coordination with the local health department, shall notify the owners of any private, semi-private, or non-community public water system within a potentially affected area of concern of the need to test the water system for possible contamination. The notice shall be published for three consecutive weeks by means of local media. Illinois EPA must notify the unit of local government affected to take any appropriate action, such as informing any homeowner who potentially could be adversely affected, within a reasonable time after notification by Illinois EPA.

Upon receipt of notification from Illinois EPA of the discovery of a VOC in excess of the MCL or a groundwater standard in a particular area, IDPH notifies the appropriate local health department in writing. The notification explains the legal background for the requirement to provide notification of actual or potential contamination as specified through Section 9.1 of the IGPA. In this notice, IDPH requests the local health department to notify any owners of private or semi-private water systems within the potentially affected area that a VOC in excess of standards has been detected and of the need for owners to test their water systems for possible contamination. The public notice must be made within 30 days after informing the local health department of the contamination.

The essential elements of the public notice include the following:

- Identify the contaminant(s) of concern;
- Delineate the area of contamination based on the information provided by Illinois EPA by one of several methods, e.g., specifying the area of a contamination plume or listing the public roads encompassing the area of contamination;
- Inform the water system owner of the need to test the system for possible contamination;
- State that a list of certified laboratories is available upon request;
- State that fact sheets pertaining to the contaminant are available upon request; and
- Provide IDPH or local health department's contact person.

From July of 2002 through July of 2009, IDPH and local health departments processed 50 public notices of such contamination.

Section 12. Continue implementation of the Safe Drinking Water Information System for compliance monitoring of non-community public water supplies.

IDPH contracted the company that developed the Safe Drinking Water Information System (SDWIS) to convert and migrate Illinois EPA's old database. IDPH began using SDWIS as its sole database and uploaded historical data in late 2004. Since then, all new inventory, sampling, and violation data have been entered into this system.

CHAPTER X. GROUNDWATER QUALITY PROTECTION RECOMMENDATIONS AND FUTURE DIRECTIONS

The following groundwater protection efforts are recommended for the next two years (2010 and 2011) based on the results of the self-assessment and environmental indicators presented in this report. In some tasks, the priority may be shifted due to funding constraints. The following recommendations are organized by the results provided in the preceding chapters.

Interagency Coordinating Committee on Groundwater Operations

- Continue to review and update the Implementation Plan and Regulatory Agenda.
- Work with the Interagency Coordinating Committee on Groundwater and regional groundwater protection committees to sponsor a Groundwater Protection Policy Forum.
- Continue to assist the Groundwater Advisory Council in the review and development of recommendations pertaining to groundwater quality and quantity issues.
- Continue the policy discussion regarding prevention versus remediation.
- Continue the policy discussion concerning the integration of wellhead protection areas with Tiered Approach for Corrective Action Objectives.
- Continue the subcommittee led by the Illinois Department of Public Health to discuss tracking and registering groundwater monitoring wells.
- Continue the subcommittee to discuss registering closed-loop heat pump wells and licensing drillers.

Groundwater Advisory Council Operations

- Conduct policy-related meetings in order to review and make recommendations regarding groundwater issues and policies.
- Provide input to programs, plans, regulatory proposals, and reports, as appropriate.

Education Program for Groundwater Protection

- Continue to promote Safe Well Water Initiative.
- Market the new source water protection standards.
- Conduct source water protection workshops.
- Continue to develop and enhance Web-based educational materials, including ordering and distribution systems.
- Integrate groundwater education efforts into other state environmental planning and protection programs.
- Work toward enhancing the groundwater protection education resources on a priority basis.

Groundwater Evaluation Program

- Continue to conduct a program of basic and applied groundwater research programs that allow decisions to be made on sound scientific principles.
- Strive to implement monitoring for emerging contaminants.

Right-to-Know Initiatives

- Continue efforts of providing notification for potable resource groundwater users threatened by groundwater contamination.

Groundwater Quality Regulations

- Continue with proposed changes to the groundwater quality standards and continue efforts of protecting future beneficial uses of drinking water.

Wellhead Protection Program

- Amend rules to require the development of source water protection planning (unless already developed) considering the current state of the art.
- Implement principles developed under the national Source Water Protection Collaborative (e.g., "Marketing for Change") as part of outreach efforts.

Regional Groundwater Protection Planning Program

- Continue to assist and advocate local groundwater protection, education, and marketing.

Non-Community and Private Well Program

- Continue to implement the Wellhead Protection Program and assist with implementing the technology control and groundwater quality standards regulations.
- Continue the source water assessments for new non-community public water supplies.
- Continue GIS coverage for all new non-community public water supplies.
- Continue certification training of non-transient non-community public water supply operators.
- Continue to inspect and perform laboratory analyses on water samples collected from non-community public water supplies.
- Continue to issue permits for the construction, modification or extension of existing non-community public water supplies.
- Continue the issuance of permits for all types of water wells with the exception of community water supply wells.
- Continue to update the Illinois Water Well and Pump Installation Codes to reflect new technology, industry, and public health standards.
- Continue supporting education training sessions for licensed water well and pump installation contractors.
- Continue to conduct training sessions pertaining to both the non-community public water supply and private-water program for local health department and Illinois Department of Public Health water program staff.
- Continue implementation of Public Notification for Private Water Supply Potential Contamination.
- Continue implementation of the Safe Drinking Water Information System database for compliance monitoring of non-community public water supplies.

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