2012 Groundwater Guardian Profiles

Groundwater Guardian is a program of The Groundwater Foundation.
www.groundwater.org
Groundwater Guardian Communities

ALABAMA
Eufaula
Limestone County
New Brockton/Coffee County

CALIFORNIA
Desert Hot Springs
Desert Hot Springs High School
Desert Springs Middle School
Orange County Water District

FLORIDA
Hernando County

IDAHO
Boise City

ILLINOIS
Loves Park
McDonough County
Pekin
Rock Falls, City of

INDIANA
Carmel
Elkhart
Indianapolis-Marion County
Valparaiso

KANSAS
McPherson County

MASSACHUSETTS
Barnstable County (Cape Cod)

MICHIGAN
Battle Creek, City of
Coldwater
Greater Lansing Area
Kalamazoo, City of
Marshall, City of
Michigan State University
Texas, Charter Township of

MINNESOTA
Detroit Lakes, City of
Holy Rosary Catholic School
Rossman School - Detroit Lakes

MISSOURI
Independence
Sedalia

NEBRASKA
Beatrice
Cargill Team Blair
Grand Island and Surrounding Area
Keith County
Lincoln
Seward County
Sidney
Trenton, Village of

NEVADA
Las Vegas Valley

NEW HAMPSHIRE
Merrimack

NEW YORK
Harriman, Village of
Montgomery, Village of
Suffolk County
Wallkill, Town of

NORTH CAROLINA
Mecklenburg County
Orange County

OHIO
Brown County
Dayton Multi-Jurisdictional Source Water Program
Hamilton to New Baltimore
Wright-Patterson Air Force Base

OREGON
Southern Willamette Valley Groundwater Mngmnt Area
Springfield

PENNSYLVANIA
Buhl Community Water
Carbon County
Meadville Area
Shrewsbury Borough
Washington County
Groundwater Guardian Communities

RHODE ISLAND
North Kingstown

TENNESSEE
Memphis and Shelby County

TEXAS
North Plains Groundwater Conservation District

WASHINGTON
Renton
Sequim-Dungeness

WISCONSIN
Calumet
Chippewa Falls
Kewaunee County
Marshfield Area
Milladore Area

WYOMING
Casper Aquifer Protection Network

CANADA
ONTARIO
Cambridge, City of

Groundwater Guardian Affiliates

ALABAMA
Alabama Department of Agriculture and Industries
Alabama Dept. of Environmental Management

CALIFORNIA
Alameda County Water District
Mission Springs Water District
Santa Clara Valley Water District
Water Education Foundation

ILLINOIS
Central Regional Groundwater Protection Planning Committee
Northeastern Regional Groundwater Protection Planning Committee
Northern Regional Groundwater Protection Planning Committee
Southern Regional Groundwater Protection Planning Committee

INDIANA
Indiana Department of Environmental Management,
Drinking Water Branch, Groundwater Section

MICHIGAN
U.S. Geological Survey (USGS) Michigan Water Science Center

NEBRASKA
South Platte Natural Resources District
U.S. Geological Survey (USGS) Nebraska Water Science Center
University of Nebraska-Lincoln Water Center

NORTH CAROLINA
Mecklenburg County Groundwater & Wastewater

OHIO
Miami Conservancy District

WISCONSIN
Kewaunee County Land & Water Conservation Department
Groundwater Guardian
Communities
Eufaula AL

<table>
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<th>Community Profile:</th>
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<tr>
<td>The 15,000 people who live in Eufaula receive all of their drinking water from local groundwater supplies. The City's drinking water supply is currently threatened by ground contamination and security issues. Eufaula's Groundwater Guardian team wants to protect its groundwater through educational outreach to all age groups in the public.</td>
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<th>Result Oriented Activities:</th>
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<td>Held an annual groundwater festival for 4th grade students in Barbour and Bullock counties. Over 450 students, presenters, and parents participated in the festival which presented the edible aquifer, water cycle bracelet, and drop in the bucket activities.</td>
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</tbody>
</table>
Limestone County AL


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Community Profile:

The rural areas of Limestone County are experiencing contamination due to run-off from large agricultural operations. Rapid growth in these areas has also put stress on the water system, prompting the installation of an additional supply well. Limestone County uses Groundwater Guardian to advise the public about the importance of groundwater protection and sharing ways to prevent groundwater contamination.

Result Oriented Activities:

Sponsored and coordinated the 2012 Limestone County Groundwater Festival. Nearly 2,000 students and teachers throughout the county participated in the event, which featured water cycle bracelets, edible aquifers, and filtration activities.
New Brockton/Coffee County AL

Community Profile:

Coffee County is home to 45,000 people that utilize groundwater as a drinking water source. The Coffee County Groundwater Guardian team works to prevent groundwater contamination by increasing public awareness about the importance of groundwater as a drinking water source for county residents, encouraging the protection and preservation of groundwater supplies, and instilling groundwater protection practices in students' lives.

Result Oriented Activities:

Held the Coffee County Groundwater Festival for nearly 600 4th grade students, teachers, volunteers and parents. At the festival, students rotated through three stations where they learned about water pollution, filtration, and the water cycle.
Community Profile:
A unique environmental situation exists within the community of Greater Desert Hot Springs. The area's 25,000 residents rely on groundwater for all of their drinking water needs. Residents and visitors from around the world have the opportunity to enjoy both cold and hot water naturally occurring in groundwater aquifers. Separated by the Mission Creek Fault, the cold water aquifer supplies the Greater Desert Hot Springs Community with award-winning drinking water supplied by the Mission Springs Water District, while the hot water aquifer draws visitors to the city's renowned spas providing a tourism base. The Desert Hot Springs Groundwater Guardian team works to protect the community's pristine groundwater resources against contamination for its economic well-being and for future generations.

Result Oriented Activities:
Continued the "Newspapers in Education" program with DHS High School and Desert Springs Middle School to provide hands-on opportunities for students to learn about groundwater. A special newspaper supplement, "Groundwater and You," was reprinted and redistributed to spread the word about groundwater conservation, preservation, and protection. The program reaches over 1,500 high school and 1,100 middle school students. -- Collaborated with local school district and the Wildlands Conservancy to provide "Desert Watersheds: From Source to Sand" field trips for 4th and 5th grade students focusing on educating the students about the water cycle, desert wetland systems, and water conservation. Over 4,000 students have participated in the field trips. A tree planting program was added to the field trips during the 2011-12 school year. -- Maintained information about the Desert Hot Springs team on the Mission Springs Water District website.
Community Profile:

A unique environmental situation exists within the community of Greater Desert Hot Springs. The area’s 25,000 residents rely on groundwater for all of their drinking water needs. Residents and visitors from around the world have the opportunity to enjoy both cold and hot water naturally occurring in groundwater aquifers. Separated by the Mission Creek Fault, the cold water aquifer supplies the Greater Desert Hot Springs Community with award-winning drinking water supplied by the Mission Springs Water District, while the hot water aquifer draws visitors to the city’s renowned spas providing a tourism base. Desert Hot Springs High School is also a designated Groundwater Guardian Green Site, and works to protect the community’s pristine groundwater resources against contamination for its economic well-being and for future generations.

Result Oriented Activities:

Continued the "Newspapers in Education" program with Desert Hot Springs and Desert Springs Middle School to provide hands-on opportunities for students to learn about groundwater. A special newspaper supplement, "Groundwater and You," was reprinted and redistributed for a to spread the word about groundwater conservation, preservation and protection. The program reaches over 1500 students each year at the school. -- Continued participation in the "Desert Watersheds: From Source to Sand" field trip program. Over 4,100 students have participated in this annual four-hour field trip program to the Mission Creek Preserve.
Community Profile:

A very unique environmental situation exists within the community of Greater Desert Hot Springs. The area's 25,000 residents rely on groundwater for all of their drinking water needs. Residents and visitors from around the world have the opportunity to enjoy both cold and hot water naturally occurring in groundwater aquifers. Separated by the Mission Creek Fault, the cold water aquifer supplies the Greater Desert Hot Springs Community with award-winning drinking water supplied by the Mission Springs Water District, while the hot water aquifer draws visitors to the city's renowned spas providing a tourism base. Desert Springs Middle School works to protect the community's pristine groundwater resources against contamination for its economic well-being and for future generations.

Result Oriented Activities:

Continued the "Newspapers in Education" program with Desert Hot Springs and Desert Hot Springs High School to provide hands-on opportunities for students to learn about groundwater. A special newspaper supplement, "Groundwater and You," was reprinted and redistributed to spread the word about groundwater conservation, preservation and protection, reaching over 500 middle school students. -- Continued participation in the "Desert Watersheds: From Source to Sand" field trip program. Over 4,100 students have participated in this annual four-hour field trip program to the Mission Creek Preserve.
Community Profile:

Groundwater provides 65 percent of the drinking water for the 2.4 million residents living in Orange County. However, Orange County residents are unaware that groundwater is a primary source of drinking water. In addition, groundwater education in the county is minimal, and more public outreach regarding water conservation and reuse is needed to reduce residents' dependence on imported water. Stormwater and nonpoint source pollution has recently become a threat to both ground and surface water sources. Orange County uses the Groundwater Guardian program to develop innovative methods to provide groundwater information to adults, disseminate information to the community about reliance on groundwater, and mobilize community members to participate in pollution prevention activities.

Result Oriented Activities:

Participated in various Orange County community events to distribute groundwater education and conservation materials including corporate environmental fairs, Green Expos, elected official open houses, and more. -- Hosted the Children's Water Education Festival. This two-day annual event is attended by more than 5,400 fourth, fifth and sixth grade students attended the festival. Additionally about 600 volunteers, teachers and parents participated. Over 95,000 students have participated in the festival since its inception. -- Provided tours of and presentations about the Groundwater Replenishment System for more than 17,000 people. These include information about groundwater as source water, the importance of water conservation, and how recycled water projects are vital to local water supplies.
Hernando County FL


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**Community Profile:**

Hernando County's 173,249 residents receive 100 percent of their drinking water from local groundwater sources. The inter-relationship of karst formations, stormwater, and saltwater intrusion currently threaten the quality of the area's aquifer. The County is working to provide a sufficient, safe and adequate supply of groundwater now and for the future by developing and implementing conservation strategies countywide. Hernando County uses the Groundwater Guardian program to identify problems, concerns, threats, challenges, opportunities, and solutions and to research, identify, and implement programs and projects to restore and protect the area's groundwater.

**Result Oriented Activities:**

Maintained and updated the Hernando County Groundwater Guardian Website, which features meeting notices, workshop dates, groundwater protection action items, and activities. -- Continued to coordinate with the Florida Yards and Neighborhoods program to provide public information and educational opportunities dealing with Florida-friendly lawn and landscaping practices. Over 90 residents attended the annual Florida-Friendly Landscaping Workshop. The workshop was also broadcast on the local government broadcast channel. Workshop participants received a $5 water bill credit for attending the workshop. -- Educated area residents on the karst sensitive nature of Hernando County's geology and hydrogeology through seminars, attended by over 580 people. The seminars are also televised on the local government channel to reach a broader section of the community. -- Began plans for the 2013 best management practices workshop in coordination with local governments and the Southwest Florida Water Management District. This workshop is held every two years and targets decision makers, community leaders, developers, builders, and citizen's interests.
Community Profile:

United Water Idaho supplies the 207,000 residents of Boise with all their drinking water. Approximately 80 percent of Boise's drinking water is supplied by groundwater. Declining water levels, groundwater contamination, drought, and increased demand are of concern. Boise uses Groundwater Guardian to energize support, knowledge and interest in protecting and conserving groundwater supplies.

Result Oriented Activities:

Continued education and outreach projects during Water Awareness Week in May, including classroom presentations and materials distribution. This year’s focus included groundwater, springs, and water conservation. Other activities take place during the school year to supplement the weeklong celebration of water. The Governor of Idaho issued a statewide proclamation for Water Awareness Week. -- Continued to sponsor a series of water-efficient landscaping courses in partnership with the University of Idaho Extension Service that was attended by 325 people. The workshops provided information about water conservation, reducing fertilizer and pesticide use, and selecting appropriate plants for the Boise area. -- Had a booth at the Silver Sage Girl Scout Council's Green Fest with groundwater education materials and a flow model for over 400 Girl Scouts and their families.
Loves Park IL


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Community Profile:
The 23,996 people who live in Loves Park receive all of their drinking water from local groundwater supplies. Currently, one municipal well finished in the shallow sand and gravel aquifer is at risk for groundwater contamination from several sources within the well's ten year capture zone. An abandoned landfill, numerous small businesses generating auto and industrial wastes, and a residential area with abandoned wells on most properties contribute to the possibility of contaminants reaching the drinking water supply. Loves Park uses Groundwater Guardian to develop public awareness and understanding of what can impact the quality of the city's water supply, raise awareness about water protection, and encourage businesses and residents in the capture zone to voluntarily protect their drinking water source.

Result Oriented Activities:
Sponsored a Youth Groundwater Festival for more than 700 sixth grade students at Rock Valley College. -- Continued to inventory private wells within the municipal boundary of the City of Loves Park. Any wells located are sealed and connected to municipal water as funding becomes available. A residential area not served by City water or sewer in a soon to be adopted Tax Increment Financing District will be included, providing a funding mechanism necessary to serve this residential area with City water and sewer.
McDonough County IL


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Community Profile:

McDonough County is home to 32,393 residents, as well as a major university, a number of small businesses, ten incorporated communities in various stages of development and excellent farmland. This great economic diversity, together with local landfill expansion, commercial animal confinement operations, and unsewered communities, combine to increase the type and number of concerns related to potential groundwater pollution. Most recently, an over-abundance of phosphate in Macomb's reservoir has become a concern. McDonough County uses the Groundwater Guardian program to expand public education programs in order to keep the population informed about the aquifer and its vulnerability to pollution, as well as to help the public understand where their water supply comes from.

Result Oriented Activities:

Provided free water testing kits for coliform and nitrates to area residents as a part of Drinking Water Week. Distributed a total of 75 water testing kits at the county health department and a local farm supply store. -- Presented a booth, activities, and distributed information and materials at the Western Illinois University Environmental Summit, attended by 450 people, and an Earth Day Fair attended by 200 people. -- Held a Conservation Day, presenting information about groundwater and surface water pollution prevention to 300 area 5th grade students. -- Began installing sewer medallions reminding people not to dump chemicals into storm sewers to prevent pollution of nearby streams. The team plans to involve local high school students in the project in the future.
Community Profile:
The seven wells supplying drinking water to the 34,000 citizens of Pekin are relatively shallow, ranging from a well depth of 90 to 154 feet. The soils at the wells are sandy. Although well sampling revealed no contamination, the community is very concerned about protecting the "near limitless" water supply. The Illinois Environmental Protection Agency did a comprehensive "Pilot Groundwater Protection Needs Assessment" for the Pekin Public Water Supply to address the city's concerns and problems. Pekin uses the Groundwater Guardian program to enforce local government regulation as well as educate citizens about groundwater protection practices.

Result Oriented Activities:
Continued to enforce a Groundwater Protection Ordinance that regulates that new and modified existing uses in recharge areas be subject to a special use permit, giving the City the means to control potential groundwater contaminant sources. The ordinance has been shared with communities across the country. -- Continued to use GIS technology to map setback and recharge areas on the city's zoning map. -- Updated a digital mapping system of the area in and around Pekin. The map includes updated layers showing the location of underground storage tanks and abandoned wells. -- Created a draft ordinance restricting wells within setback and recharge areas. -- Worked with a consultant to prepare modeling information to supplement the Groundwater Needs Assessment, allowing for a more accurate map of the recharge area. -- Utilized the Pekin Groundwater Education Committee to implement the recommendations of the Illinois EPA to raise public awareness of the city's groundwater protection ordinance through presentations, articles, and local events. -- Continued to enhance security efforts to minimize any intentional vulnerability issues of Pekin's water supply.
Rock Falls, City of IL


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Community Profile:

Public wells provide the 9,700 residents of Rock Falls with 85 percent of their drinking water. The chief concerns are nitrates, arsenic, VOC's and SOC's in the water.

Result Oriented Activities:

Provided groundwater presentations to seven area schools 5th and 10th grade classes, reaching approximately 325 students. The presentations included information on the local aquifer that provides drinking water for the community, as well as a flow model set up to demonstrate the function of shallow aquifers. - Provided a $1000 scholarship with the local electric department to a senior high school student.
Community Profile:
Carmel is home to 68,000 people. Because the community relies 100% on groundwater and because the community is growing, concerns have arisen about stormwater runoff, over-irrigating of lawns and green spaces, the use of chemicals in wellhead protection areas, and proper disposal of chemicals. With rapid growth and heavy irrigation, groundwater sources are not recharging as quickly. Carmel uses Groundwater Guardian to bring awareness to the City’s Wellhead Protection Areas and spread the word about the importance of water conservation.

Result Oriented Activities:
Operated a Household Hazardous Waste Collection Center within the City limits, collecting over 100 tons of potentially hazardous materials for proper disposal. -- Worked on reviewing and revising the City's Wellhead Protection Plan, which will be maintained as a living document to continuously grown and develop with the City's needs. A letter of approval from the State has been received. Added signage marking the one-year and five-year time-of-travel zones within the wellhead area to raise awareness. -- Collected 15 tons of materials as part of an Electronics Recycling Day. Any item with a plug or battery was taken free of charge to keep unwanted items out of the wellhead protection area. -- Distributed a newsletter called "The Full Circle" to over 75,000 people with information about conservation and the household hazardous waste collection center. -- Held a Well Abandonment Day, which included presentations about wells and wellhead protection, a well sealing demonstration, and water plant tours.
Elkhart IN

Community Profile:

Groundwater provides 100 percent of the drinking water to 50,000 residents living in the City of Elkhart. Several sites within the community have been included on the Superfund National Priority List due to a threat of contamination from chemicals such as TCE. These threats have caused a great deal of concern for area residents who rely on groundwater for all of their drinking water needs. Elkhart uses the Groundwater Guardian program to increase public awareness and understanding about groundwater issues, to encourage citizens to become more involved in their community and to encourage water conservation and pollution protection.

Result Oriented Activities:

Continued to sponsor Kerplop! The Water Drop, a groundwater mascot used in schools, after-school programs, and at community events, reaching over 200 people with messages about groundwater as a valuable resource. -- Continued participation in the Adopt-A-River program by answering questions from the public and recruiting more groups to adopt sections of the Elkhart and St. Joseph River. -- Organized two cleanups on the St. Joseph River that collected 3,880 pounds of trash and 30 tires. A clean up was also held on a pond in a park, removing trash and debris. -- Held EnviroFest at the Wellfield Botanic Gardens, attended by over 1,000 people that learned about wellfields, drinking water, groundwater and water protection. -- Hosted two water conservation seminar, distributing kits that contained faucet aerators, a water displacement device for the toilet, two leak detection dye tablets and a low flow shower head to attendees. -- Developed and distributed a water quality report to 18,000 water customers. -- Conducted and "Focus on Groundwater" educational programs at schools and the environmental center for over 200 students. The programs learn about water treatment and how actions today can affect groundwater quality. A new program was also developed for 8th graders that focuses on watersheds and how wastewater is treated before returning to the river.
Indianapolis-Marion County IN


<table>
<thead>
<tr>
<th>Chris Barnett</th>
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<tbody>
<tr>
<td>Marion Co. Wellfield Education Corp.</td>
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<td>Website: <a href="http://www.indyh2o.org">www.indyh2o.org</a></td>
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Community Profile:

Indianapolis-Marion County's 905,000 residents receive the majority of their drinking water from surface water supplies; however, no additional surface water supplies are available and all growth in the public water supply will come from groundwater sources. Most of the productive aquifers in Marion County are relatively vulnerable to contamination from surface spills. Two of the wellfields are located in older areas of the city with heavy concentrations of industrial and commercial land use. Indianapolis-Marion County Groundwater Guardian is committed to working with owners of potential sources of contamination to teach them best practices.

Result Oriented Activities:

Continued to identify and educate business owners in the county that might be potential sources of groundwater contamination, with a focus on identifying potential contaminant sources and engaging site owners/occupants in an educational dialog. Business owners receive information about groundwater, best management practices, and other resources offered by the Marion County Wellfield Education Corporation. A database registry of all potential sources of contamination is also updated, maintained and provided to water utilities for use in groundwater protection.
Valparaiso IN

Community Profile:
The 30,000 residents of Valparaiso are 100 percent dependent on local groundwater supplies for their drinking water needs. Current groundwater-related concerns and issues include both groundwater quality and quantity, as well as pollution prevention, road salt intrusion, and community outreach and education. Valparaiso uses Groundwater Guardian as a source of ideas and information to further the local wellhead protection program, and to become part of a network to help provide solutions to other communities with similar issues.

Result Oriented Activities:
Hosted National Drinking Water Week activities, which included newspaper articles, children's games and prizes, and information in water bills. -- Distributed the Annual Water Quality Report to over 12,000 consumers, which included information about local wellhead protection efforts. -- Staffed informational booth at Northwest Indiana Earth Day Celebration, and provided information about groundwater protection and conservation. -- Distributed a calendar listing household hazardous waste collection events. The calendar was provided to all water customers and landowners in the wellhead protection area, and provides education about the proper disposal of hazardous waste.
McPherson County KS


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Community Profile:

Groundwater supplies the 29,954 residents of McPherson County with 100 percent of their drinking water. Because groundwater is the only source of drinking water for the area, protecting the supply is of the utmost importance. The area remains in an Intensive Groundwater Use Control Area, which prohibits drilling new wells. Nitrate contamination continues to be a major concern in the County. At least two public supply wells have been lost to nitrates, and steps are currently being taken to remediate the wells back into the system. Other concerns include agricultural and waste runoff and private lagoons in the proximity of public supply wells. McPherson County uses Groundwater Guardian to promote public awareness by providing accurate information, develop a relationship between the water utility and citizens to promote wise water use, and provide information to educators in local schools.

Result Oriented Activities:

Held a Children's Water Festival for local 4th graders. Nearly 600 students participate in hands-on learning activities about the importance of groundwater protection and how actions affect the quantity and quality of the water supply. -- Held a Household Hazardous Waste Day for residents to properly dispose of hazardous materials such as paint, fertilizer and other chemicals to prevent contamination of the water supply.
Barnstable County (Cape Cod) MA

**Community Profile:**

Barnstable County's sandy, permeable soils and shallow depth to the water table make its groundwater particularly vulnerable to contamination. Water resource management efforts on Cape Cod focus on maintaining high quality drinking water within wellhead protection areas, and maintaining and improving water quality in ponds, lakes, rivers, bays, and harbors around Cape Cod. Because development pressures continue to encroach upon all of these areas and because groundwater flows across local boundaries, it is important to develop and implement a regional approach to groundwater protection. Barnstable County has a population of 215,000 with 99 percent relying on groundwater for its drinking water source. Barnstable County uses Groundwater Guardian to sponsor water conservation initiatives, water festivals and other public education activities.

**Result Oriented Activities:**

Continued to promote water conservation and best management practices through the TOUR (Tourism and Optimal Use of Resources) Program, which informs summer residents about Cape Cod's water resources and ways to conserve them by distributing 400 copies of water conservation materials to local hotels and motels. The materials are currently being modified and will be reprinted and distributed. -- Continued to update and revise the Cape Cod Groundwater Guardian website. The entire site is in the process of being revised with new content. -- Held 11 water festival events for 15 schools with over 2,000 children participating. Teacher/AmeriCorps training sessions were held prior to the events. The festivals focused on five major areas, including hydrology and groundwater, aquatic biology, water pollution sources and solutions, physical concepts, and climate change. -- Held 22 regional household hazardous waste collections, as well as provided technical support to local health departments and pharmacies to provide proper disposal options and education on unwanted medication disposal.
Battle Creek, City of MI


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Community Profile:

Battle Creek uses one prolific wellfield, the Verona Wellfield, as the drinking water source for the city's 54,000 residents. It is located in the Marshall Sandstone Aquifer, which is fractured and bordered on its east side by a railroad yard. Twenty years ago contamination was discovered in the area and linked to dry cleaning solvents and questionable storage practices. As a precautionary measure, 12 blocking wells are used to protect the city's 22 production wells, and three backup wells are located in another wellfield. Current industrial activity near the city's main wellfield is a concern. Battle Creek uses Groundwater Guardian as a resource for goal setting and public education in groundwater protection.

Result Oriented Activities:

Continued implementation of a Facility Risk Evaluation Program that offers free, confidential environmental site assessments to businesses within the city's two wellhead protection areas. The program also offers an emergency spill prevention plan to businesses below the regulatory threshold. Two evaluations were performed in 2012. -- Worked with area school representatives to incorporate information about stormwater management, wellhead protection, and water quality into school curriculum at the K-12 and community college levels. -- Held the 11th annual Children's Water Festival for over 1000 4th and 5th grade students. -- Continued participation in various community events to share general information about groundwater and drinking water protection, household hazardous waste, and responsible use of fertilizers and pesticides. -- Enacted a groundwater protection ordinance, and continued working with adjacent communities to include common groundwater protection ordinance language. -- Developed and distributed a 2012 wall calendar with water quality protection tips. The team also runs monthly letters to the editor in the local newspaper and targeted radio ads, and sends quarterly water bill inserts.
Coldwater MI


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Community Profile:

Coldwater's population of 10,555 receives all of its drinking water from four public wells located within a 8.2 square mile area. Protecting the water supply and continuing to encourage conservation are top priorities for Coldwater's Groundwater Guardian team. Coldwater uses the Groundwater Guardian program to bring national attention to local groundwater protection efforts.

Result Oriented Activities:

Continued a Pollution Recycling and Reduction Initiative. Collection events were held for the community as part of the project or items such as batteries, motor oil, CFLs, and other potentially hazardous materials. -- Educated elementary school children about the importance of conservation and pollution prevention through tours of water treatment facility and discussions with students and teachers. -- Included educational information in water bills and the Consumer Confidence Report. -- Continued to update and improve a source water protection program and management plan for the area's drinking water supply. A contaminant source inventory is being updated as part of the program.
Community Profile:
The Greater Lansing Area's 300,000 residents receive 100 percent of their drinking water from local groundwater resources. Currently, groundwater-related concerns are carbon sequestration, unsealed abandoned wells, urban sprawl and additional infrastructure, manufacturing and heavy industry, as well as the ongoing education and involvement of elected officials. The Greater Lansing Area Groundwater Guardian team uses the program to encourage communication among neighboring communities and to provide education to elected officials.

Result Oriented Activities:
Held a Children's Water Festival for 1,200 students and 300 volunteers. The hands-on science fair is designed to teach students about the importance of groundwater and how it can be protected. -- Developed a wellhead protection program audit tool to allow communities to evaluate the effectiveness and completeness of their groundwater protection efforts. Three audits were completed by area communities.
## Kalamazoo, City of MI


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<tbody>
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### Community Profile:

The City of Kalamazoo is an older, urban community with typical known and potential sources of contamination, including industrial and commercial sites. Groundwater provides all of the drinking water for the City's 122,000 water customers. Five of the City's 19 wellfields have had detectable levels of contamination, with two requiring air strippers to remove volatile organic compounds. The Kalamazoo Public Water Supply has 10 franchise agreements to provide water, with capture zones existing within eight jurisdictions. Consequently, land use in all these areas is not specifically or uniformly managed for wellhead protection (WHP) purposes. However, Kalamazoo adopted a new WHP Zoning Overlay and Performance Standards, and actively participates in intergovernmental cooperation with a proactive approach to public education. Kalamazoo uses Groundwater Guardian to plan and implement non-technical WHP Program projects, as well as providing project framework to focus specific efforts.

### Result Oriented Activities:

Continued comprehensive public education and outreach efforts, including classroom visits, a radio ad campaign, community events, movie trailer ads, public events, bus placards, articles, website visits, presentations to youth groups, and facility tours. These efforts reach over 325,000 people. -- Performed a follow up to a 2006 survey to help guide the City in its public education and outreach efforts. The survey collected information about citizens' understanding, knowledge, and attitude about groundwater in general and as a drinking water source. It was sent to 2,000 randomly selected residents and achieved a 22% response rate, above the needed 20% to validate the results.
Community Profile:

The City of Marshall's 7,500 residents rely on groundwater for 100 percent of their drinking water needs. Though there are currently no major problems with local drinking water supplies, residents are concerned about protecting groundwater resources for future uses. Marshall uses Groundwater Guardian to educate local citizens about the need to safeguard water resources and their role in its protection.

Result Oriented Activities:

Participated in the Calhoun County Conservation District's Earth Day celebration with the Water Jeopardy game to teach students about water resource conservation and protection. -- Participated in the City's annual River Clean Up & Conservation Day by conducting tree planting, storm drain marking, native plant demonstrations, and providing information about groundwater and wellhead protection. -- Participated in the annual Battle Creek Children's Water Festival for thousands of school-aged children with an activity that investigated various water-related topics including the water cycle, groundwater pollution, and conservation. -- Participated in the Greening of Marshall by planting over 100 trees. Participants and volunteers learned about water's vital role in everyone's daily lives.
**Michigan State University MI**


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**Community Profile:**

Michigan State University is home to 50,000 students who receive 100 percent of their drinking water from groundwater. The majority of the campus water supply wells are located just to the south of the main campus where the University's agricultural research farms are located. These land uses within the recharge area may pose a threat to the groundwater supply. Michigan State uses Groundwater Guardian to build support for the University's drinking water and stormwater management programs.

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**Result Oriented Activities:**

Worked to update an inventory of existing and potential sources of contamination in the campus wellhead protection area. The team has also implemented a process to evaluate areas of new development on campus that may impact isolation distances or wellhead protection areas of the campus public water supply wells. --- Provided space, presenters, and support for the 2012 Tri-County Children's Water Festival for Over 300 area students and teachers.

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**Contact Information**

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2012 Groundwater Guardian Community Profiles ~ www.groundwater.org
Texas, Charter Township of MI


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Kalamazoo, MI 49009 US  Website: www.texastownship.org

Community Profile:

Groundwater supplies 100 percent of the drinking water to the 13,000 residents of Texas Township. Texas Township has many areas that are not serviced by a public waste water system so it is concerned about the impact on the aquifer. The Township is always seeking ways to protect the aquifer as it continues commercial and residential growth. Texas Township uses the Groundwater Guardian program to develop public awareness and understanding about the township's groundwater resources, educate the citizens on the protection of its aquifers and the importance of safeguarding this valuable resource, as well as to develop a voluntary/regulatory means for protection of the groundwater supply.

Result Oriented Activities:

Continued to distribute water testing kits to enable residents to perform annual water tests on their well water systems. Approximately 200 kits were distributed.
Detroit Lakes, City of MN


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Community Profile:
Groundwater supplies 100 percent of the drinking water to the 8,500 people who live in the City of Detroit Lakes. The City is committed to locating and properly closing abandoned wells within capture zones and continues to seek funding for proper sealing. Detroit Lakes uses Groundwater Guardian to educate local students about the water system, involve the public in groundwater protection, and continue management practices of the land within the groundwater recharge area.

Result Oriented Activities:
Coordinated with Rossman Elementary and Holy Rosary Catholic Schools to mentor students to provide festivals for over 1,000 students, teachers, parents, and community members. Students gave presentations about the importance of groundwater, and its protection and conservation. City staff serve as mentors, and provide tours of the water plant, wells, and wastewater treatment facility. -- Participated in the Spring builders show and provided information on water conservation and protection.
Holy Rosary Catholic School MN


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Community Profile:

Holy Rosary Catholic School is located in the City of Detroit Lakes and receives all of its drinking water from local groundwater supplies. This elementary school is committed to educating its students and the surrounding community about the importance of protecting groundwater, and will use Groundwater Guardian to help do so.

Result Oriented Activities:

Held the 2012 Water Festival attended by more than 800 students, parents, and the general public. Fourth grade students, working with mentors from Detroit Lakes, served as festival presenters and shared the groundwater protection message with those in attendance. Presentations include photos of the City's wells, distribution system, hydrants, and service lines.
Rossman School - Detroit Lakes MN


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Community Profile:

Rossman School is located within the City of Detroit Lakes in western Minnesota. Because the residents rely on groundwater for all of their drinking water needs, educating the public and youth about the protection and conservation of this resource is the primary goal of the Rossman School Team.

Result Oriented Activities:

Students worked with mentors at the City of Detroit Lakes to learn about the importance and protection of the water supply. Students took tours of the wells, water plants, water towers, and had 35 hours of mentoring. The students then presented what they learned to 300 other students and community members.
Community Profile:
The 121,000 residents of Independence rely on groundwater for all their drinking water needs. However, the wells and treatment facility are located in an adjoining political entity so the City of Independence doesn’t have control over zoning and land use. There are several high profile sites in the vicinity of the treatment plant that could possibly endanger the water supply, and public perception often focuses on these sites as a cause for concern. A wellhead protection plan is in place and a network of early warning monitoring wells are tested on a routine basis. The plan calls for public education as a component, which is fulfilled through Groundwater Guardian efforts. The Independence team uses Groundwater Guardian for ideas and solutions in local groundwater education efforts.

Result Oriented Activities:
Provided groundwater education to 5th grade students from throughout the school district. Students toured the water plant, learning about the water cycle and the importance of keeping groundwater safe. Students also made edible aquifers to demonstrate groundwater contamination. Around 1,000 students participated.
Sedalia MO


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Sedalia, MO 65301 US  Website: www.cityofsedalia.com

Community Profile:

Sedalia is home to 20,000 people. Sixty percent of the community's drinking water is supplied by groundwater. Current sedimentation rates are threatening surface water supplies, along with high levels of phosphorus and nitrogen. Dropping groundwater levels also are a concern for residents. Sedalia uses Groundwater Guardian to continue community education efforts.

Result Oriented Activities:

Provided education to the community through a variety of ways, including bi-lingual flyers with water bills, classroom visits to elementary and high school classes, presentations to community leaders and civic groups, water way clean ups. -- Conducted an Adopt a Storm Drain program. The team worked with volunteers to clean storm drains in their neighborhoods and stenciling them with a "do not dump" message. The storm drains are also "adopted" by volunteers to clean the drains in their neighborhoods.
Community Profile:
In Mecklenburg County, population 890,515, approximately 15 percent of homes and businesses rely on groundwater as their drinking water source. Most of the people access groundwater through private and neighborhood wells. Mecklenburg County is in an urban area and has over 1,600 potential sites of contamination. It is important to protect the groundwater as a safe drinking water source and to identify areas where it is not safe to drink. Mecklenburg County uses Groundwater Guardian to participate in community events that provide opportunities to educate the public about the groundwater system.

Result Oriented Activities:
Held a sixth annual well contractors seminar to train and update well contractors on local regulations and groundwater issues. Over 60 well contractors attended and received 7.5 professional development hours. -- Sponsored a WOW Wonders of Wetlands workshop for area teachers with information and hands-on activities focusing on the role groundwater and wetlands play in the hydrologic cycle and ecosystems. -- Participated in a Realtor Expo to educate realtors working in the county about local groundwater resources, as well as private wells and septic systems. -- Participated in the RiverTime Festival for 300 local 5th graders. Students learn about the connection between ground and surface water through a variety of hands-on demonstrations and visuals.
Orange County NC

Community Profile:
Approximately 37 percent of the drinking water needs for Orange County's 127,000 residents are met by local groundwater supplies. The County is working to proactively address the quality and quantity of local groundwater supplies, including radon and arsenic concentrations. In general, the County's groundwater is of acceptable quality, though concerns exist over the availability of groundwater, especially during periods of drought. Orange County uses Groundwater Guardian in local public education and awareness efforts.

Result Oriented Activities:
Continued collecting data for a groundwater observation well network to monitor groundwater levels across the county. The network serves as a drought monitoring tool with an early warning system for declining groundwater levels. Arrangements have been made to incorporate new replacement bedrock wells into the network. -- Participated in various community events and activities to educate the public about the importance of groundwater. A booth was set up to distribute information about local groundwater issues, and students were targeted for education through groundwater model presentations.
# Beatrice NE


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<tr>
<td>Steve Kelley</td>
<td>402-228-5217</td>
<td>402-223-5181</td>
<td><a href="mailto:skelly@beatrice.ne.gov">skelly@beatrice.ne.gov</a></td>
<td><a href="http://www.beatrice.ne.us">www.beatrice.ne.us</a></td>
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<td>Beatrice Public Works</td>
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<td>P.O. Box 279</td>
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<td>Beatrice, NE 68310 US</td>
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## Community Profile:

The City of Beatrice relies on groundwater for all its drinking water needs. The city is home to over 12,000 residents. Drinking water is supplied by and blended from two separate wellfields. Nitrate levels in both wellfields are a concern, and the City uses Groundwater Guardian to help educate farmers and city residents about best management practices.

## Result Oriented Activities:

Held an educational training for farmers with land in the wellhead protection area. Presentations included information on available irrigation equipment to help reduce the amount of water and fertilizer needed and prevent chemical runoff. Held an educational training for city residents about lawn care, alternative plantings for water conservation, and fertilizer and chemical use.
Community Profile:

Blair is a mostly rural area, home to a population of 9,000, with an emphasis on agriculture, but is also home to several large industrial facilities, including Cargill. Cargill is a large industrial user of water, and its treatment and reuse are top priorities as the water used by the plant is returned to the environment. As an agricultural partner in the farming community, Cargill supports best land management practices, pollution prevention, and water conservation/reuse. Land and water conservation and pollution prevention are some of the most important issues for this community. Cargill Blair uses Groundwater Guardian to provide educational tools and activities in local schools and participates in the Nebraska Children's Groundwater Festival to extend its scope of beyond the local Blair community.

Result Oriented Activities:

Participated in several environmental education activities, including the 2012 Nebraska Children's Groundwater Festival. -- Worked with a Blair high school class on field trips with the Groundwater Guardian team to a local wildlife area to do water testing learning activities.
Community Profile:
Grand Island relies on wells within the city and wells located on an island in the Platte River to supply the city's 47,600 residents with drinking water. The sand and gravel aquifer underlying the area is very porous, causing rapid recharge. While the porosity makes the aquifer suitable for well installation, any contaminants present can easily leach into the aquifer. Severe contamination from industrial solvents was discovered in 2003, as well as other pollutants in December 2004 and January 2006. Grand Island uses Groundwater Guardian to help educate local citizens about the importance of keeping contaminants out of the water supply.

Result Oriented Activities:
Presented the "Water Rockets" activity at the 2012 Nebraska Children's Groundwater Festival for 150 students. -- Provided assistance at the Household Hazardous Waste permanent facility. Paint, pesticides, mercury, computers, oil and other household wastes are collected at the site. -- Collected and recycled thousands of pounds of plastic, aluminum and cardboard at Husker Harvest Days, an agricultural event attended by tens of thousands. -- Worked with a local school and Natural Resources District to clean up a portion of the Wood River, including adding native trees and shrubs as part of erosion control. -- Continued the development of an Outdoor Learning Area at State Fair Park. The learning area will serve to educate the public about water quantity and quality, groundwater stewardship, natural filtration techniques, efficient water use, and the Ogallala Aquifer. The Grand Island team won $10,000 for the project as part of Rain Bird's Intelligent Use of Water Awards program. The State Fair is attended by over 300,000 people annually. -- Worked with a local FFA chapter to provide support for a Test Your Well event.
Keith County NE


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Community Profile:

Keith County is home to 8,875 residents who receive 100% of their drinking water from local groundwater supplies. Keith County is also home to Nebraska's largest reservoir, Lake McConaughy. While no major problems exist with drinking water, residents are concerned about nitrate levels and agricultural and domestic contaminant sources. Keith County uses Groundwater Guardian as part of its educational programs for students and community members.

Result Oriented Activities:

Worked with the Nebraska Water Center Education Committee to sponsor water education events and activities at the Lake McConaughy Visitor's Center to inform visitors about the many competing issues surrounding water resources. Events and activities included a photo contest, educational trunks, teacher workshops about hydropower and groundwater activities for the classroom, curriculum development, an outdoor education event for students, and a lake cleanup.
Lincoln NE

Community Profile:

Lincoln's over 250,000 residents rely on groundwater for their drinking water needs. The Platte River provides most of the recharge for the city's water supply near Ashland. Maintaining quality water to sustain the community, especially during warm weather months and/or drought conditions is currently a major concern. The continued growth of Lincoln also requires the city to continue long-term water conservation programs. Lincoln uses Groundwater Guardian in combination with the Mayor's Water Conservation Task Force and the Mayor's Environmental Task Force to educate and inform the public to help them conserve water and better utilize it using best management practices.

Result Oriented Activities:

Sponsored an annual water conservation poster contest for 5th grade students. The winning posters were featured on the city website, bookmarks distributed to city libraries, billboards, and busboards. -- Provided speakers for a water conservation Speakers Bureau. -- Continued to update and expand the City's website to include additional information about water conservation. -- Participated in the Earth Wellness Festival, presenting information about Lincoln Water System's water treatment process to around 300 5th grade students. -- Participated in the Lincoln Safari, which encourages families to get outside. Visitors receive a free gift with water conservation information when they visit the Lincoln Water System garden. -- Included the Groundwater Guardian logo on all water conservation literature and displays. -- Participated in a city water celebration as part of National Public Works Week called Waterfest with a booth providing information about water conservation.
Seward NE


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Community Profile:

Seward County has a population of 17,000, which receives drinking water from local groundwater supplies. High nitrate levels continue to be of concern, along with an oil pipeline constructed in the area and the stress on groundwater levels during irrigation season and dry years. Seward County use the Groundwater Guardian program in its public education and policy and best practices implementation.

Result Oriented Activities:

Continued to work to draft, edit and pass wellhead protection ordinances inside City limits. -- Used evapotranspiration gauges, soil moisture probes, weather stations, and public education to encourage farmers to implement optimal irrigation techniques as part of an optimal irrigation project with farmers. -- Continued to update and post information about the Groundwater Guardian team's activities on the City of Seward Water Department's website.
Community Profile:
The 6,755 citizens of Sidney use groundwater for all of their drinking water needs, and utilizes three separate well fields: one in the corporate limits, one three miles outside of town and one 18 miles outside of town. Several concerns have plagued the water supply in Sidney over the years, including nitrate contamination and water level declines. Sidney uses the Groundwater Guardian program to build awareness about local groundwater issues through public education and awareness.

Result Oriented Activities:
Continued to promote the Groundwater Guardian Green Site program to a variety of green spaces in and around Sidney, including the City's park which was recently named a Green Site. -- Continued implementation of wellhead protection activities. A plan was approved by the State in 2010. In 2012, over 200 trees were planted near a municipal well, signs were posted marking the boundaries of the wellhead protection area, and 30 acres of ground were seeded with native grasses. -- Held the 22nd Annual Western Nebraska Children's Groundwater Festival, attended by over 230 4th grade students and volunteers. Students visited 12 stations to learn about where groundwater comes from, how it is used, how it can be contaminated, how to protect it, and more. -- Worked to improve Sidney's stormwater management. A large biorention project was completed at the Cabela's headquarters and rain barrels installed at the Natural Resources District building and in the City Park. -- Continued to expand and revitalize the Groundwater Guardian team with new members and new ideas.
Trenton, Village of NE


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Community Profile:

Groundwater provides all of the drinking water for the 575 residents of Trenton. Two new wells provide excellent high quality water to the community, and the Groundwater Guardian team plans to reinforce citizen awareness regarding their drinking water and its protection. The new wellfield has been enrolled in the Conservation Reserve Program (CRP), with some additional private land also enrolled in CRP for wellhead protection. Trenton uses the Groundwater Guardian program to encourage water conservation in all areas of water use.

Result Oriented Activities:

Distributed educational pamphlets, printed articles in the local newspaper, held a poster contest, and participated in the annual Harvest Festival Parade to help increase public awareness about the importance of groundwater as a source of drinking water. -- Maintained the Village well field's involvement in the Groundwater Guardian Green Site program to ensure best practices around the City's wells. -- Conducted a survey among residents about changes in plumbing connections in order to prevent backflow.
Merrimack NH


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Community Profile:
Because groundwater supplies 100 percent of the drinking water needs for Merrimack’s 26,600 residents, keeping up with water demand throughout the town’s new construction is a concern. Keeping the public aware of groundwater and wellhead protection, as well as levels of iron, manganese, sodium, and chloride in District wells, are top priorities for the community. In addition, the Groundwater Guardian team wants to emphasize wellhead protection, education of the community and especially town officials.

Result Oriented Activities:
Continued to make the public aware of its Groundwater Guardian status and groundwater protection and education efforts by including information on the Village website and in the annual report. Continued review of planning changes presented to the Community Development board with the intent to protect the wellhead area and groundwater. The construction of an outlet mall is currently being monitored. Continued to facilitate self-guided tours of alternative landscaping to share ideas and increase knowledge of landscaping that promotes water conservation. High school classes visit the area in the fall to learn about various types of plants. Promoted water conservation by encouraging water customers to follow an odd/even watering schedule. Banners were posted around town and on the office building to remind residents about the schedule. Pumping rates were monitored and remained stable throughout the summer. Distributed "I Save Water Kits" to residents. These include a low-flow showerhead, faucet aerators, toilet leak detection tablets, flow meter bag, and water conservation wheel. Maintained rain barrels at the District's offices as a collection point for non-potable water use.
Community Profile:

The Las Vegas Valley hydrographic basin has been over-appropriated since 1955 and the area's population of two million continues to grow. The declining water table has caused well failures and higher pumpage costs for public and private well users. In 1997 the Nevada Legislature authorized the Southern Nevada Water Authority to establish a Groundwater Management Program and the Advisory Committee for Groundwater Management. The Groundwater Management Program uses Groundwater Guardian to promote the importance of protecting groundwater supplies from contamination, as well as informing well users about important groundwater issues.

Result Oriented Activities:

Continued the Well Conversion Grant Program, which provided assistance to households wishing to connect to a municipal water system. Nearly 500 businesses and households have utilized the program since it began in 1999. -- Provided financial incentives to homeowners who replaced turf with water smart landscaping, such as drought tolerant plants and trees. Since the program's inception in 2002, 647 conversions have been completed, converting a total of 1.7 million square feet of turf to water-smart landscaping. Water meters are also provided to help monitor usage, distributing 379 meters and 195 installation rebates to well owners since 2008. -- Provided funding to plug unused and abandoned wells. More than 300 unused wells have been closed as a result of the program. -- Held Advisory Committee meetings to work with the State Engineer and other stakeholders to address issues facing well owners in the valley, with a focus on recharge and water quantity issues.
Harriman, Village of NY


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Website:

Community Profile:

The 5,000 people who reside in Harriman receive all of their drinking water from the local groundwater supply. Harriman's water supply is currently threatened by three existing contamination sites. Although the Village is dealing with the contamination problems, it is working to educate its citizens about the need for groundwater protection. The Village will use the Groundwater Guardian program to bring the public's attention to the effects of groundwater contamination.

Result Oriented Activities:

Taught water conservation classes at local elementary schools. This was the 12th year water conservation classes were taught in the school district. The presentations focus on groundwater as a source of drinking water and wise water use.
Montgomery, Village of NY


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Email: villageofmontgomery@hvc.rr.com
Website:

Community Profile:
The 3,700 residents of the Village of Montgomery rely on groundwater for all of their drinking water needs. Montgomery's wells are located within the Village and are subject to potential contamination from the urban setting. The Village wishes to continue to protect groundwater and to educate its people about groundwater protection and water conservation. Montgomery uses the Groundwater Guardian program to aid in educational programs, wellhead and watershed inspections and in review of the wellhead protection plan.

Result Oriented Activities:
Prepared and distributed the Annual Water Quality Report to 1,400 water customers and the Department of Health. Placed public service announcements regarding water conservation and wellhead protection on local cable television with a new set of water conservation tips airing each month.
Suffolk County NY


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Community Profile:

The 1.4 million people who live in Suffolk County use groundwater for all of their drinking water needs. There is a public misconception about the quality of Long Island's groundwater, which the County wishes to dispel through public education. In addition, preventing pollution of their groundwater is another concern of residents. Suffolk County uses the Groundwater Guardian program as a means of coordinating, advancing, and publicizing ongoing efforts to dispel rumors and misinformation, educating the public, preventing pollution, and providing constructive input to policy-making decisions.

Result Oriented Activities:

Presented demonstrations of the water cycle, groundwater model, and Suffolk County Water Authority treatment and distribution facilities to students in 55 schools. Over 7,500 students and teachers in grades 3-12 learned about the source of their drinking water. – Began to develop presentations to engage the business community in protecting local groundwater resources.
Wallkill, Town of NY

Community Profile:
The 15,500 people who live in Wallkill receive all of their drinking water from local groundwater supplies. Wallkill's main wellfields are along the Wallkill River and subject to potential contamination from an urban setting. The Town wishes to continue to protect its groundwater by educating its citizens about groundwater protection options and water conservation. Wallkill uses the Groundwater Guardian program in its education and wellhead inspection programs.

Result Oriented Activities:
Prepared and distributed the Annual Water Quality Report to water customers and the Department of Health. The report includes information for water customers to learn more about water conservation and groundwater protection. -- Aired public service announcements about water conservation and wellhead protection on local cable television. -- Continued implementation of the Stormwater Phase II requirements, with an emphasis on education and outreach and public involvement. Efforts also include illicit discharge detection and elimination, stormwater runoff control, stormwater management and pollution prevention for municipal operation.
Brown County OH


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Ripley, OH 45014 US  Website: www.bcrwa.com

Community Profile:
The Brown County Rural Water Association is a rural water system relying completely on groundwater, with wells over 70 feet deep tapping into the Ohio River Aquifer. This aquifer is highly susceptible to contamination, due to the sand and gravel composition of the aquifer and its proximity to potential contaminant sources. Specific contamination concerns include septic tanks, agricultural chemicals, highway traffic, and potential gravel mining operations. One production well was contaminated by VOCs in 1996. A pump-and-treat remediation system was installed as a result. Brown County is home to 25,000 people, and uses Groundwater Guardian to educate the public about the importance of protecting groundwater resources and to instill a sense of ownership of the well fields in community residents.

Result Oriented Activities:
Continued implementation of a long-term wellhead protection management plan, which has been approved by the Ohio EPA. As part of the plan, an additional 250 acres of land within the wellfield protection zone were purchased. -- Updated and maintained a website for the Brown County Rural Water Association and Groundwater Guardian team. The site includes links to federal, state, and local groundwater sites, as well as information about wellhead protection efforts, water treatment, and public education. -- Conducted regular wellhead protection committee meetings for local groundwater users. -- Adopted a section of highway US52 between White Oak Creek and Straight Creek for quarterly cleanups. This section of the highway is near community wellfields and is part of the wellhead protection area.
Dayton Multi-Jurisdictional Source Water Prot


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Dayton, OH 45402  US  Website: www.cityofdayton.org/water/em/wellfield.a

Community Profile:

The City of Dayton taps a sole source aquifer for 440,000 water consumers. Hundreds of businesses with 175 million pounds of hazardous materials operate near the wellfields. Over 17 million pounds of hazardous materials have been permanently removed from the Source Water Protection Area by financial incentives. Dayton, Huber Heights, Riverside, Vandalia, Harrison Township, and Wright-Patterson Air Force Base initiated a wellfield protection program using overlay zoning, monitoring, emergency response and financial incentives for risk reduction activities. Each jurisdiction has at least one person assigned to monitor compliance with the Source Water Protection Program. The Dayton Multi-Jurisdictional Source Water Protection Program uses Groundwater Guardian to increase citizen awareness of the wellfield protection program, provide groundwater and environmental education for children and provide groundwater education for the general public.

Result Oriented Activities:

Held the 16th Annual Children's Water Festival, which was attended by 2,000 4th grade students and nearly 400 volunteers and presenters. It featured presentations, entertainers, mascots and outdoor activities. The Groundwater Guardian designation was celebrated and Multi-Jurisdictional partners recognized during the festival's Dignitaries Luncheon. -- Worked to manage and oversee contracts for Multi-Jurisdictional Economic Development and Environmental Specialists authorized by the Wellfield Protection Board, which promotes groundwater-friendly economic development of the area. -- Worked to provide materials about the importance of water protection and the importance of water to the community at various economic development and business conferences. -- Continued the production of a quarterly newsletter, "PROGRESS News," for distribution to businesses and residents in the Wellfield Protection Area. Also developed and distributed Source Water Protection Program calendars, brochures, guides, and emergency contacts lists. -- Continued outreach activities, making presentations to neighborhood groups, schools, and at community events and meetings. Other events included river cleanups, water treatment plant tours, maintaining green roofs on City Hall, and maintaining partnerships.
Hamilton to New Baltimore OH


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Website: www.gwconsortium.org

Community Profile:

The Hamilton to New Baltimore Groundwater Consortium is made up of the cities of Cincinnati, Fairfield, Hamilton, the SW Regional Water District, the SW OH Water Co. and MillerCoors LLC, and includes a population of 315,000. The Consortium wells are interrelated physically and directly influence the capture zone size of each system’s wells. The Wellhead Protection (WHP) Area consists of a sand and gravel buried valley aquifer overlain by a densely populated industrial community. The majority of the wells behave hydrogeologically as a collective wellfield yet politically are separate. The characteristics that make it a productive source of drinking water are the same characteristics that make it susceptible to pollution from USTs, general chemical handling, dry wells, and improperly abandoned wells. The Consortium uses GG to inform the public about protecting groundwater resources, and teach a basic understanding of what groundwater is and how human activities may affect its quality.

Result Oriented Activities:

Administered the area’s Source Water Protection Program. The Consortium worked with the City of Fairfield to update their ordinance. -- Continued to update and maintain the local Source Water Protection Program website. -- Planned and implemented a cleanup of the Great Miami River. -- Planned the 14th Butler County Water Festival, attended by over 1,000 4th, 5th, and 6th grade students. -- Implemented a program to install signage along the Great Miami River Bike path stressing the importance of protecting the drinking water source. -- Updated banners with the Groundwater Guardian logo at water plants and supply centers within the Consortium. -- Continued to update plaques with groundwater protection information at Consortium monitoring wells. -- Distributed a WHP Program newsletter for businesses within the WHP area. -- Continued to work with New Miami Village to set up a Groundwater Guardian team as part of their source water protection program’s education and outreach. -- Planned and implemented an Earth Day event in downtown Hamilton attended by over 1,000 people. -- Worked in partnership with local agencies to plan and implement a River Days event to promote the recreational use of the Miami River while stressing the importance of protecting the river and aquifer. -- Received Source Water Protection Grant from Miami Conservancy District for a well abandonment program to encourage residents in several communities to properly seal unused wells in the region. -- Partnered with Storm Water Districts in region to stencil storm sewers in source water protection areas throughout neighborhoods within the drinking water protection areas of the Storm Water Districts. -- Utilized a recently constructed mini drinking water tower at community events to promote the use of tap water. The mini water tower is nine feet tall and weighs 800 pounds. -- Held a 5K Water for People Fun Run and Walk.
Community Profile:
The WPAFB community is concerned with the quality of the base's drinking water for its population of 27,000. This concern is due to the number of landfill contaminants that have been found throughout the base. Extensive remediation has been accomplished; however, it has been difficult to change perceptions. Wright-Patterson uses the Groundwater Guardian program to develop and provide public awareness programs regarding the remediation of landfill contaminants, as well as implement a wellfield protection program to prevent possible groundwater contamination.

Result Oriented Activities:
Continued to maintain an up-to-date inventory of facilities that identifies whether initial storage limits are exceeded and reduce the possibility of potential pollutant releases to the wellfield protection areas as part of a memorandum of understanding for the City of Dayton wellfields. -- Participated in the City of Dayton's Annual Children's Water Festival that reached 2,000 Dayton area students. -- Continued to provide an education outreach program. Events were held during the week leading up to Earth Day, news articles were printed in the base newspaper, and booths set up in high traffic areas around the base. -- Completed a Remedial Process Optimization of the groundwater treatment system to model the groundwater and surface water and ensure that existing remediation systems remain protective of human health and the environment, and the optimal utilization of an efficient system. Results of the process indicate a contamination plume of Trichloroethylene (TCE) is not migrating. An additional Remedial Process Optimization study is being conducted in a soil gas monitoring network.
Community Profile:

Within the City of Cambridge, some of the municipal wells are situated in industrial areas where there are known impacts to groundwater. The City’s population of 131,000 continues to grow and will require additional wells to meet the growing water demand. Water conservation measures may reduce the rate at which the demand will increase. Cambridge uses the Groundwater Guardian program to provide educational materials to teachers and to support and participate in local activities that promote protection of groundwater resources.

Result Oriented Activities:

Continued outreach and public awareness activities in the community by participating in events with an interactive display, giving presentations at local schools, businesses, and organizations, and writing articles for the local newspaper. Community groups can also borrow educational kits and games for continued outreach. -- Continued to assemble and distribute a resource package for elementary teachers. The package provides activities, maps, and information specific to the water resources of the Cambridge area. -- Continued to review and update the Groundwater Guardian page on the City of Cambridge website.
Southern Willamette Valley GW Management


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Community Profile:
A reconnaissance study done by the Oregon Department of Environmental Quality (ODEQ) in the 1990s and early 2000s indicated that private and public wells within the Southern (Upper) Willamette Valley were experiencing nitrate contamination. The area is home to approximately 21,000 people who receive 85% of their drinking water from groundwater. In 2004, the ODEQ declared the area as a groundwater management area. Oregon law requires that such a declaration be accompanied by the development of an action plan to reduce the contamination. This action plan must be developed by a committee representing local stakeholders and was completed in late 2006. This community will use the Groundwater Guardian program to focus on a select few of the implementation of strategies indentified in the action plan.

Result Oriented Activities:
Developed a social marketing campaign to help better understand the needs of the people in the area, create messages that resonate with them, and find ways to communicate key messages to prompt behavior change to reduce nitrate levels. The goal is to increase awareness among residents of the groundwater management area and motivate behavior and attitude change.
Community Profile:
Springfield's wells are distributed throughout the city and surrounding residential, agricultural, commercial and industrial land use areas. Groundwater supplies 90 percent of the city's 56,000 residents' drinking water needs. Some wells are in or adjacent to areas where leaks and spills have caused groundwater contamination, and these plumes are being tracked and some undergoing bioremediation. Springfield uses Groundwater Guardian to help publicize the city's reliance on groundwater and the contamination risks faced, support educational programs in schools, participate in local organizations and support ordinances that help reduce the risk to drinking water supplies.

Result Oriented Activities:
Worked with high school students to test water from 240 private household wells to provide a basic analysis and suggest alternatives for further testing and treatment. -- Made progress on the Cedar Creek Project, which involves 50-70 high school student in a multi-faceted approach toward the monitoring and restoration of the Cedar Creek basin. Activities include macroinvertebrate monitoring, habitual assessment, and illegal dump site cleanup. -- Began participation in an initiative through the University of Oregon to work with students to install a rain garden. -- Developed a plan for enhancing current groundwater education activities, focusing on ways the team can educate and inform the public about Springfield's groundwater supplies. -- Continued an inspection program to inventory and map stormwater quality facilities like bioswales and retention ponds, conduct inspections, and suggest corrective action if necessary. The program helps educate residents and business owners about the hydrologic connection between stormwater and groundwater in Springfield. Twenty inspections were performed.
Community Profile:

Groundwater is the sole source of drinking water for the residents served by Buhl Community Water. Some of the groundwater-related concerns for this area include building public awareness and education, pollution prevention and conservation. The Villages use the Groundwater Guardian program to educate residents and tourists about the importance of groundwater protection through a variety of public information activities.

Result Oriented Activities:

Continued local groundwater education and outreach efforts through presentations at local meetings and distributing educational materials.
Carbon County PA


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Community Profile:
The 63,558 people who live in Carbon County receive 76 percent of their drinking water from local groundwater supplies. Currently, bacterial contamination of wells by septic tanks, suspected dumping of hazardous material into abandoned coal mine shafts, the lack of a recycling program for household hazardous waste, lack of well water testing and the general indifference to groundwater-related issues are concerns of area residents. Carbon County uses the Groundwater Guardian program to legitimize the group's efforts, facilitate networking, educate homeowners about wells and septic systems and raise the level of public perception of groundwater issues and how they relate to the county's drinking water.

Result Oriented Activities:
Continued to update and expand a website featuring local groundwater information and on-line resources. The team also maintains a Facebook page to further educate the community. -- Continued a homeowner's well water testing program. Private well owners fill out a short questionnaire about their well, and recommendations are made as to what testing should be performed, eliminating unnecessary tests. -- Continued to collect and post precipitation data on the team's website from eight active monitoring stations in the county. The data is shared with a variety of agencies and organizations as part of various collaborative volunteer networks.
Meadville Area PA


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Community Profile:
The Meadville Area Water Authority serves a population of 16,000 with all of the drinking water supplied by groundwater. In 2006, the Authority received a Source Water Protection Grant to delineate the source water area, identify potential contaminants from residential, commercial, and industrial sources, and to develop action items to protect source water. The Authority has developed a state-approved wellhead protection program, and the team's goal is to maintain and update the program to work with municipalities, citizens, schools, and other organizations to provide education and make recommendations of needed ordinances to the proper governing bodies.

Result Oriented Activities:
Provided Source Water Protection education to sixth graders at seven local elementary schools. The educational program includes a focus on local groundwater resources, water supply wells, the water distribution system, environmental threats to the system, and water conservation. -- Hosted a Source Water Protection Poster Contest for sixth graders at the local elementary schools during Drinking Water Week. Over 300 students participated in the contest.
Shrewsbury Borough PA


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Community Profile:

Shrewsbury Borough, with a population of 3,800, has all of its drinking water supplied by groundwater. It is currently dealing with the costs and fees related to current regulations, and uses Groundwater Guardian for educational resources and to learn more about regulations that may affect the Borough's water supply.

Result Oriented Activities:

Worked on mapping wellhead protection areas, adding layers for sewer and storm sewer locations. -- Participated in the York County Water Supplier’s Coalition, which will function to share ideas and resources to protect groundwater and surface water in the area. -- Worked to update an inventory of possible contaminants in wellhead protection zones 1, 2 and 3. The original inventory was 10 years old.
Groundwater provides 45 percent of the drinking water to the area's 204,000 residents. Current threats to groundwater include possible impacts from development of natural gas resources in the Marcellus Shale formation, particularly in the quality of well water, and the impact of urban and suburban development on groundwater. Washington County uses Groundwater Guardian to continue public education efforts in local schools and for the general public.

**Result Oriented Activities:**

Conducted monitoring for potential negative impacts from Marcellus Shale drilling. Monitoring equipment was installed in 21 streams throughout the county, and the data was distributed at various outreach events to residents of the county, as well as with public agencies and local municipalities. Most of the county's streams are groundwater-fed. -- Working to implement a streambank restoration project. Funds and supplies are in place, and landowners are being interviewed.
North Kingstown RI


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Community Profile:
The 26,296 people who live in North Kingstown rely on groundwater for all of their drinking water needs. Currently the community is concerned about the potential for bacterial contamination, as well as wastewater management and continued development. North Kingstown uses Groundwater Guardian as a component of various education programs.

Result Oriented Activities:
Continued a public education initiative to educate the citizens of the community about the benefits of good wastewater management, stormwater management, and appropriate groundwater protection policies. A yearly community environmental fair is part of this effort, which is attended by over 1,000 people.
Memphis and Shelby County TN


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Community Profile:
Shelby County’s 1.1 million residents draw 100 percent of their drinking water from the largest public artesian water supply in the U.S. Protecting the purity and quality of this groundwater supply is imperative. In 1987, for the first time, one of the water wells used to supply public water showed traces of chemical contamination. At approximately the same time, wells in a smaller municipality were contaminated with TCE which had spilled at a nearby manufacturing facility several years earlier. The contamination of these wells revealed that the depth of the aquifer and its confining strata would not act as a barrier to the downward migration of the variety of chemicals generated by an urban society. Memphis and Shelby County use Groundwater Guardian to develop a comprehensive aquifer protection and conservation education program.

Result Oriented Activities:
Sampled and tested approximately 355 quasi-public wells located within Shelby County and 21 newly-installed residential wells for various contaminants. -- Continued the Well Survey Program. Over 100 wells were surveyed and five abandoned wells closed. -- Performed 31 site inspections of water wells to verify all construction standards were met. -- Reviewed all applications for proposed installation of remediation systems at sites throughout Shelby County. Issued 149 permits for remediation efforts and performed 183 site inspections. -- Updated a presentation on the value of water resources and the Memphis Sand Aquifer for use by the Ground Water Quality Control Board members for presentations to rotary clubs, schools, and other community groups. -- Reviewed 157 site plans and inspected 14 sites before new development was allowed in the aquifer recharge area. Three abandoned wells were located as a result, and properly filled before construction activities began. -- Continued to utilize GIS to map areas with greatest concern in relation to the Memphis Sand Aquifer. -- Sealed nine abandoned water wells within Shelby County. -- Maintained a permanent collection site for Household Hazardous Waste. -- Performed age-dating of local groundwater. Continued sampling and testing indicate no modern water is entering the Memphis sand aquifer. -- Properly abandoned 124 unused monitoring wells. -- Made 118 site inspections to properly site 63 subsurface sewage disposal systems within Shelby County.
North Plains Groundwater Conservation District


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Community Profile:

Groundwater depletion is the major concern for the eight counties within the North Plains Groundwater Conservation District. This region is home to over 71,000 people who utilize groundwater for 98 percent of their drinking water. Lack of recharge in this part of the Ogallala Aquifer indicates groundwater mining, and teaching water conservation and raising public awareness is a major goal of this District. Rules are now in place that regulate the amount of groundwater that can be pumped by well owners each year and that limit the proximity of new wells to existing wells. As a Groundwater Guardian Community, the District offers education to the public through outreach programs, public libraries, and school curricula.

Result Oriented Activities:

Held "Water Wonders" Festivals for 4th and 5th graders. Since 2005, over 4,200 students have been reached with messages about water protection and preservation. -- Provided water-themed books and materials to all elementary schools and public libraries within the District. -- Continued to work with Girl Scouts in eight counties to help them earn badges related to water and the environment. -- Held a day-long class on water-wise gardening and xeriscaping. The class has been held annually since 2005, reaching over 80 people. -- Distributed "Major Rivers" water conservation curriculum to 4th grade teachers and their students in the District. -- Sponsored a water conservation artwork contest for 4th- 6th graders in District counties. Thirteen winning entries are featured in a water conservation calendar provided free to the public, given away to hundreds each year. -- Presented water conservation activities in classrooms for 350 students in grades K-12. -- Presented groundwater information to more than 2,000 students attending Farm Bureau Ag Fairs. -- Sponsored two students to participate in the Texas State Water Camp, a week-long camp to encourage high school students to be water stewards. -- Began a five-year reduced irrigation for corn production demonstration project using the latest irrigation management strategies and techniques. The project is aimed at showing producers how their efficient use of water can help them maximize their return on investment while preserving water for the future. -- Implemented the "Operation: Summer Showers" public relations campaign to help residents reduce their water use to help deal with the region's historic drought conditions.
Renton WA

Community Profile:
Renton is home to 83,650 people that receive all of their drinking water from local groundwater supplies. The protection of a shallow aquifer located beneath downtown businesses from various forms of contamination is a top priority for the residents of the area, as well as maintaining quality and quantity of service in the face of new City growth. Renton uses the Groundwater Guardian program to raise awareness about local drinking water and groundwater issues.

Result Oriented Activities:
Participated at the Renton River Days Festival to distribute educational materials to over 1,000 people and Family Science Night to over 150 people. The events helped educate children and adults about where the city gets its drinking water and what they can do to protect it, and included a fish tank model of an aquifer that kids can pump water from and groundwater games and activities. Conservation items such as faucet aerators and hose gaskets were also distributed.
The Sequim-Dungeness area of Washington is home to approximately 20,000 residents who receive 98% of their drinking water from groundwater supplies. Current groundwater problems facing the area include nonpoint source contamination of aquifers supplying the area’s drinking water, the impact of groundwater development on streamflow in streams with endangered species and the potential for seawater intrusion. The Sequim-Dungeness team uses Groundwater Guardian to boost the discussion of groundwater resources and related concerns among residents, utilize ideas from other communities for continual education on groundwater quality and quantity protection, gain media attention to bring the discussion to the forefront with policy makers and the public and demonstrate commitment to groundwater protection.

Result Oriented Activities:

Assisted with the implementation of a water management rule for the Dungeness Watershed. The rule establishes a water right for the Dungeness River and small streams and closes the aquifer to new uses (unless mitigated). The State is preparing to adopt the rule. -- Sponsored three septic system classes to educate rural residents about the operation and maintenance of on-site septic systems for approximately 200 people; an additional 50 successfully completed an online Septics 101 course. Newsletters and other activities have also continued to expose residents to the importance of maintaining their septic systems. -- Began a wastewater feasibility study for an area currently served by septic systems. Two of four public meetings have been held to engage the community. -- Uploaded groundwater quality data to state online environmental database. -- Administered the county’s groundwater protection program and groundwater quality and water level database. Technical assistance was provided to the public and agencies as part of the program, as well as outreach and management of a water supply stakeholder group.
Calumet WI

Community Profile:

Calumet County’s 45,990 residents draw 93 percent of their drinking water from the local aquifer. Historically, private wells have tested positive for coliform bacteria and nitrate levels above 10 ppm. The county is especially sensitive to groundwater contamination from shallow soils overlying fractured dolomite bedrock and moderately developed Karst topography. The magnitude of current water quality problems indicate that multiple sources and land use activities are affecting groundwater supplies. Calumet uses Groundwater Guardian to increase awareness of groundwater problems, educate the public about land use and conservation practices, expand existing educational efforts to reach new audiences and build trust and relationships with community members and other citizen action groups.

Result Oriented Activities:

Assisted in a water sampling event for area residents to help create awareness of the importance of annual water well testing. Over 70 wells were sampled and tested for bacteria, nitrate, and arsenic, and over 50 attended an educational event as part of the effort. Test results are used by the Land and Water Conservation Department to assess any changes in the area’s groundwater quality. -- Participated in rain garden cleanup at the Katie Hemmauer Memorial Rain Garden. -- Funded scholarships for three students to attend the Sand Lake Conservation Camp. The camp is an opportunity for students to learn about wildlife, habitat, ecosystems, water quality, and more. -- Took part in the Fall Food and Energy Festival where informational materials were distributed and rain barrels were available for purchase. -- Received a grant to locate and field verify karst features on properties in the County. The data will be mapped and distributed to landowners, farmers, and crop advisors to properly implement best management practices for karst geology. -- Developed a Groundwater Guardian parade float that participated in five parades. Information was handed out to spectators as the float passed by.
Chippewa Falls WI

Community Profile:
The 13,688 people who live in Chippewa Falls use groundwater for all of their drinking water needs. The City of Chippewa Falls obtains its water supply from wells located in a shallow sand and gravel aquifer. These wells are in wellfields with the majority of the zone of contribution area outside city boundaries. Nitrate, iron, and manganese levels are a concern, along with the strong probability that over 425 acres of agricultural land in the zone of contribution will soon be developed for industrial, commercial and residential uses in the next five to ten years. Chippewa Falls uses Groundwater Guardian to educate residential, business and agricultural landowners.

Result Oriented Activities:
Demonstrated an aquifer recharge model and distributed Groundwater Guardian bracelets and groundwater information to over 700 5th grade students at State Park Conservation Days. -- Staffed informational booth at Northern Wisconsin State Fair, reaching approximately 70,000 people. Educational materials were distributed and photos of Groundwater Guardian team projects displayed. -- Once again helped host the Safe & Green Sweep Project to collect and properly dispose of expired and unwanted pharmaceuticals. -- Continued to identify and evaluate the City's monitoring wells to recommend proper closure of any inactive wells. -- Attached signage announcing "Dump No Waste, Drains to River" to catch basins as part of the City's Earth Day activities.
Community Profile:

Over 75 percent of the land is Kewaunee County is dedicated to agriculture, making the preservation of a clean, safe water supply for the public a top priority for the team. Recent private well testing indicates the presence of nitrates and bacteria, which has not only raised awareness but prompted well owners to become involved with the Groundwater Guardian team. The team is working to become a sustaining informational and educational, neutral organization that informs the public regarding potential groundwater contamination hazards. Kewaunee County, with a population of 20,648 relying more than 70 percent on groundwater for drinking water supplies, uses Groundwater Guardian to educate the public about potential private well contaminants through well testing programs, school programs and local event booths.

Result Oriented Activities:

Assisted with the Kewaunee County Land and Water Conservation Department's (Groundwater Guardian Affiliate) well testing program. Team members worked with private well owners on proper well water sampling and the importance of regular private well testing. Over 90 wells were tested for coliform bacteria and nitrates, mapped, and documented. -- Hosted a nitrate testing booth at the Kewaunee County Fair. Ten wells were tested for nitrates and information about groundwater and wells were provided during the fair. -- Created and sold 50 rain barrels as a fundraiser for the team's groundwater education activities.
Marshfield Area WI

Community Profile:
The 20,000 residents of the Marshfield area receive all their drinking water from local groundwater supplies. Marshfield's municipal wells are shallow (50‐90 feet deep) and exist in narrow, confined bedrock channels. Domestic and farm wells are low yielding wells drilled into fractured rock. Top soil consists of 8 to 10 feet of tight clay soils, which limits recharge. Marshfield uses Groundwater Guardian to promote education and awareness of the need for groundwater protection.

Result Oriented Activities:
Continued to maintain and update the website for the Marshfield Area Groundwater Guardians. The site communicates with team members and the general public regarding efforts to promote groundwater education and protection. -- Held a Green Expo that provided displays, presentations, workshops, and hands-on activities regarding conservation, efficiency, and groundwater protection for approximately 800 visitors. The event was planned and supported by a number of community groups and volunteers. -- Continue to promote and educate residents about the efforts of the Marshfield Groundwater Guardian program to generate interest in the group's efforts and recruit new team members. An ad runs on the local AM and FM radio stations monthly, as well as on the Utility's telephone system. -- Continued the Rx Round-Up Pharmaceutical Take-Back Program. A permanent site has been established for residents to take their unused/expired pharmaceuticals for proper disposal through incineration. Since the program began in 2006, nearly 4,400 pounds have been collected. -- Continued to promote the Groundwater Guardian Green Site program and offer assistance throughout the community.
Milladore Area WI

**Community Profile:**

The Village of Milladore and the Towns of Eau Plaine and Milladore make up the Milladore Area, with a population of approximately 2,000 people. This area relies solely on groundwater for all its drinking water needs. Testing has indicated the presence of bacteria in drinking water, and nitrate levels have been a concern. The Milladore Area Groundwater Guardian team uses the program to educate the public and youth about keeping groundwater a priority in their everyday lives.

**Result Oriented Activities:**

Coordinated with the Marshfield Area, Wisconsin Groundwater Guardian team on a Green Living Expo. The event was attended by 1500 people and provided information on ways to be green, including conserving water and energy, rain gardens, rain barrels, and proper pharmaceutical disposal. A water taste test and children's activities were also featured.
Casper Aquifer Protection Network WY

Community Profile:
The Casper Aquifer Protection (CAP) Network is made up of private well owners located in or near the Casper Aquifer Protection Zone, and includes roughly 1000 people that depend on groundwater for all their drinking water needs. While there are no serious problems with the area's groundwater supply, Network members want to educate rural property owners about ways they can protect groundwater quality through wellhead and septic tank maintenance, regular water quality testing, and environmental awareness. The CAP Network uses Groundwater Guardian to provide information to property owners in the community.

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Result Oriented Activities:
Held a training session for 50 local landowners about the possibility of the State of Wyoming purchasing land with the primary purpose of protecting local groundwater supplies and becoming a state park. A summary of the presentation was provided to the entire Network. -- Participated in a local Fourth of July celebration with a booth to provide information and handouts about the geology of the Casper Aquifer, groundwater protection, and best management practices. -- Distributed a CAP Network newsletter for property owners located on or near the Casper Formation Aquifer with information about groundwater protection through well testing and maintenance, septic tank maintenance, and environmental awareness.
Groundwater Guardian Affiliates
Affiliate Profile:

Mission: To educate the general public about pesticides, use, safety, worker protection and endangered species with special programs in pesticide waste collection, plastic pesticide container recycling, worker protection standards and school IPM. To be the state lead agency in regards to FIFRA and the implementation of all pesticide laws. Service Area: The State of Alabama.

Result Oriented Services:

Worked to recruit new communities into the Groundwater Guardian program through breakout sessions at the annual groundwater conference. -- Assisted with the state's Groundwater Festivals program by helping find funding and providing support to add to the counties in Alabama with active festival programs. -- Continued to work to implement the School Integrated Pest Management Program into Alabama's school systems. Integrated pest management has been expanded into one new school district and has reached over 100,000 students since starting in 2000.
Affiliate Profile:

Mission: To provide technical, financial and program support to communities and utilities throughout the state regarding groundwater protection and assessment. Service Area: The State of Alabama.

Result Oriented Services:

Continued to work to recruit new Groundwater Guardian Communities. -- Provided education and information support to current and potential Alabama Groundwater Guardian teams through the annual Alabama Groundwater Conference, which approximately 170 people attended. -- Continued to partner with the Alabama Rural Water Association to provide technical assistance to communities developing a wellhead protection program, installing new wells, conducting potential contaminant source inventories and developing protection programs at the local level. Thirteen source water assessments were reviewed. -- Provided funding for groundwater and water festivals around the state of Alabama. This is the 15th year of groundwater and water festivals. In 2012, 27 festivals were held with approximately 22,186 children attending.
Affiliate Profile:

Mission: To manage and protect the Niles Cone Groundwater Basin and ensure a reliable supply of high quality water that satisfies present and future uses of the service area at a reasonable cost. Service Area: The cities of Fremont, Newark and Union City; a 104.8 square-mile area with a population of over 330,000.

Result Oriented Services:

Continued education and information support in area schools and communities. Over 400 students participated in programs that stress the importance of groundwater during the 2010-2011 school year. Another 92 classes received materials about groundwater. Pamphlets and brochures explaining the importance and benefits of groundwater protection, pollution prevention and water conservation methods were distributed at public events as well as in water bill inserts. -- Posted information and updates about the groundwater basin, District programs and Groundwater Guardian on the District’s website. -- Continued to update the District’s groundwater management policy, including groundwater monitoring and reporting on groundwater conditions. -- Continued to implement an ordinance to regulate wells, exploratory holes, and other excavations in district communities. -- Used historical maps and documents to locate abandoned wells and evaluate their potential to negatively impact the groundwater basin.
Mission Springs Water District CA

Affiliate Profile:
Mission: To provide, protect, and preserve our most valuable resource - water. Service Area: The district operates three separate water distribution systems and two separate wastewater collection and treatment systems, serving Desert Hot Springs, 10 smaller communities in Riverside County, mobile home parks, resorts and a small portion of Palm Springs. The service area includes 135 square miles and over 25,000 people.

Result Oriented Services:
Continued to provide support to the Desert Hot Springs Groundwater Guardian team in the form of office storage, operating space, administrative support and technical support. -- Provided $30,000 in funding to support the various groundwater protection and education activities of the Desert Hot Springs Groundwater Guardian team during the 2010/2011 fiscal year.
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Affiliate Profile:  
Mission: To aggressively protect the groundwater basin from contamination and the threat of contamination, and ensure groundwater supplies are sustained. The District manages Santa Clara County's wholesale drinking water resources, coordinates flood protection, and provides stewardship for the county's 10 reservoirs and more than 700 miles of streams. Service Area: Santa Clara County, a 1,300 square mile area with a population of over 1.8 million people.

Result Oriented Services:  
Continued to implement a water conservation program which included rebates for water-efficient water fixtures in homes and businesses, free "Water Wise House Calls," and extensive outreach and education. In 2011, the District conducted 1,330 "Water Wise House Call" surveys, issued rebates for/or installed 3,237 residential and 1,463 commercial high-efficiency toilets, issued 306 commercial clothes washer rebates and issued 303 landscape rebates. The program saved over 54,200 acre feet of water, which is approximately 13% of the total water used in the county. -- Continued a groundwater management program that provides services to well owners and groundwater users in the area, including offering free basic water quality testing (sampling 280 wells for nitrate, bacteria, electrical conductivity, and hardness), providing copies of a guide for private well owners, hosting an open house, and utilizing their website and social media to increase groundwater awareness. Staff also participating in a county onsite wastewater advisory group. -- Continued an educational outreach program, making classroom presentations, giving tours, and training teachers. Over 20,000 students and 975 educators were involved during the 2011-2012 year. Staff also engaged high school students in a career development program, encouraging them to pursue careers in the water industry, as well as hosting informational booths at a number of local community events.
Water Education Foundation CA


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**Affiliate Profile:**

Mission: To create a better understanding of groundwater issues and help resolve groundwater problems through educational programs. Service Area: The western United States, particularly the states sharing the Colorado River (California, Nevada, Arizona, Utah, Colorado, New Mexico and Wyoming).

**Result Oriented Services:**

Held an executive briefing and various tours of the portions of the state that discuss various water issues. Groundwater issues, the value of groundwater education, and the Groundwater Guardian program were included in the events.
Affiliate Profile:

Mission: To develop and implement local programs aimed at preventing groundwater contamination. The organization attempts to do this by educating adults and children about risk factors and methods of pollution prevention. Service Area: Central Illinois, including Mason, Peoria, Tazewell and Woodford Counties.

Result Oriented Services:

Continued to co-sponsor the Clean Water Celebration for nearly 3,000 students to learn about water and encourage them to make a difference in the protection of this precious natural resource. -- Organized the Tazewell County Health Department Environmental Education Day for 400 county 5th graders, who participated in hands-on activities and learned about groundwater geology, the water cycle, recycling and pollution prevention. -- Provided a program for snow and ice removal operators to educate them about chlorides and their potential hazards. Many operators found that proper calibration of equipment allowed them to reduce the quantity of road salt applied while still being effective.
Affiliate Profile:
Mission: To advocate groundwater protection practices, procedures, and education throughout the Northeastern Planning Region. The Northeastern Illinois Groundwater Regional Protection Planning Committee is organized as a protective and collaborative effort of citizens, businesses, and local and state government officials to further groundwater protection in this sensitive region. Service Area: DuPage, Kane, Kankakee, Kendall, and Will counties.

Result Oriented Services:
Held a Field Day, where information about groundwater protection and conservation was presented to the general public. -- Continued program to purchase ample quantities of bentonite to provide through local health departments to private well owners who want or need to seal a private well. The committee also provides funding to each health department to promote the program. -- Participated in many regional community outreach events with activities and giveaway items, which reached several thousand people, including open houses, the Kendall County Natural Resource Tour, school group meetings and Earth Day and Arbor Day celebrations. The Committee also maintains a Facebook page and posts brochures in public places like libraries and city buildings to reach additional members of the public. -- Provided a program for snow and ice removal operators to educate them about chlorides and their potential hazards.
Affiliate Profile:


Result Oriented Services:

Worked with McHenry County to develop a Water Resources Action Plan to ensure ample water supply. -- Continued to develop programs to educate county boards, city councils, and planning/zoning officials about groundwater protection, which included working with McHenry County on their groundwater protection program, attending meetings of the Regional Water Supply Planning Group as part of the Chicago Metropolitan Agency for Planning and working with communities to become Groundwater Guardians. -- Conducted public education and outreach by participating in the 17th annual youth groundwater festival at Rock Valley College which drew more than 200 fourth and fifth graders, the Boone County Fair, Winnebago County Field Day, and other local initiatives. -- Continued to work with Winnebago, Boone and McHenry Counties to abandon unused wells. Over 245 have been abandoned since 2001, and an additional 10 were abandoned last year. -- Helped support a water table management structure, along with the Boone County Conservation District, 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. -- Helped support an unused and expire medications collection sites. -- Continued work on development of a partnership with ISAWWA and the Northeast Regional Groundwater Protection Committee to get water into the classrooms.
Southern Regional GW Protection Planning Comm. IL


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Affiliate Profile:

Mission: To advocate groundwater protection practices and procedures throughout the Southern Illinois Planning Region. Service Area: Madison, St. Clair, Monroe and Randolph Counties in Southwestern Illinois.

Result Oriented Services:

Hosted a groundwater field day with various educational activities and speakers. Over 50 people attended. -- Continued to maintain and update a library of groundwater educational materials for loan to citizens, schools, and other interested groups. The library consists of books, pamphlets, flow models, videos, and a traveling display. -- Offered 100 free private well tests for nitrates and bacteria. -- Continued to promote well sealing as a means of groundwater protection and to provide betonite for use in sealing. -- Continued to work to recruit new Groundwater Guardian Communities within the four county area. -- Promoted and assisted homeowners with well sampling and testing for bacteria and nitrates.
Affiliate Profile:

Mission: To implement federal and state regulations to protect human health and the environment while allowing the environmentally sound operations of industrial, agricultural, commercial, and government activities vital to a prosperous economy. This includes the review and approval of wellhead protection plans for community drinking water supplies, assisting communities in source water protection efforts, and promoting local efforts to protect Indiana's groundwater resources.

Service Area: The state of Indiana with a population of 6.48 million.

Result Oriented Services:

Provided education and support to public water systems in Indiana communities through various outreach activities. Groundwater and wellhead protection were promoted through the Hoosier Water Guardian and Groundwater Guardian programs. Worked with the Groundwater Guardian Community of Carmel, IN to host a well abandonment field day, which was attended by over 150 well drillers and operators. Presentations focused on the laws and reasoning behind well abandonment, and a demonstration was conducted.
Mission: USGS has the principal responsibility within the federal government to provide hydrologic information and understanding needed by others to achieve the best use and management of the nation's groundwater. To accomplish this, USGS, in cooperation with state, local and other federal agencies, systematically collects and analyzes groundwater data; conducts water-resource appraisals describing the occurrence, availability, and physical, chemical, and biological characteristics of groundwater; conducts basic and problem-oriented hydrologic and related research that aids in alleviating groundwater problems; and provides and understanding of groundwater systems sufficient to predict their response to natural and/or human-induced stress. Service Area: The State of Michigan and multi-state initiatives sponsored by the USGS and other federal agencies.

Result Oriented Services:

Made real-time data available online for two groundwater stations. Continuous and discrete data, as well as water quality data, is available for other groundwater sites throughout the state, and assisted a local community with the design of a groundwater flow model to be used in schools and other areas of the community. -- Continued investigating the potential effects of irrigation withdrawals on aquifer levels and local streamflow through a number of groundwater model scenarios. -- Presented at the Lansing Area Children's Groundwater Festival. -- Completed a water use task plan and began compiling water data for public supply, irrigation, industrial, and thermoelectric uses throughout the state as part of a water use report for the state.
Affiliate Profile:

Mission: In order to protect the public's health through the protection of groundwater resources, the Groundwater and Wastewater Program approves and oversees private wells, wastewater treatment and disposal systems and other regulated sites. Service Area: Mecklenburg County is a 528 square-mile area located in the southern Piedmont region of North Carolina. It is home to more than 600,000 people (20 percent utilizing groundwater) and is the center of a seven county metropolitan statistical area with an aggregate population of more than 1.3 million people. Mecklenburg County is divided into seven incorporated municipalities, ranging in size from Charlotte at 207 square miles to Pineville at 3.0 square miles.

Result Oriented Services:

Supported the Mecklenburg County Groundwater Guardian team's Well Contractors training by hosting the workshop, providing professional speakers, providing administrative support for registration and the submittal of the continuing education credits to the North Carolina Well Contractors Certification Board. Over 60 well contractors participated in the event. --Participated in North Carolina's new Source Water Collaborative, which will mirror the National Source Water Collaborative. The Collaborative's participants will promote source water protection, enhance information collection and sharing, forge partnerships and create connections, and identify and create incentives for source water protection.
Affiliate Profile:
To coordinate, implement, and facilitate water and water-related research, extension, teaching, and outreach programming within the University of Nebraska system as part of its Robert B Daugherty Water for Food Institute. The Water Center has been a fixture at UNL for more than 40 years, being established as the Nebraska Water Resources Research Institute by Congressional mandate in 1964. It is one of a network of more than 54 water resources research institutes at Land Grand Universities nationwide. The Robert B. Daugherty Water for Food Institute at the University of Nebraska is a research, policy analysis, and education institute committed to helping the world efficiently use its limited freshwater resources, with a particular focus on ensuring the food supply for current and future generations. Service Area: State of Nebraska.

Result Oriented Services:
Facilitated a partnership between local Groundwater Guardian teams and UNL faculty and students. Team members volunteered their time to present at public education events, primarily in partnership with UNL Extension and UNL School of Natural Resources. -- Provided Nebraska Groundwater Guardian teams the opportunity to publicize their work in the Water Center’s publications.
South Platte Natural Resources District NE

**Years Designated**  
2012, 2011, 2010

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**Affiliate Profile:**

Mission: To formulate and instigate forward-looking plans and programs through a cooperative process that will provide for the long-term protection and enhancement of the district's natural resources while ensuring that major economic and social impacts are fully considered. State law gives Nebraska’s Natural Resources Districts (NRDs) the first responsibility for protecting groundwater from overuse, nonpoint source pollution, or conflicts between users of groundwater and surface water. In many cases, NRDs accomplish this by establishing groundwater management areas and adopting regulatory controls in those areas. Groundwater is a vital resource to the district. Homeowners, cities and industry rely on groundwater as their sole source of water. Service area: The Nebraska counties of Kimball, Cheyenne, and Deuel. The area includes 1.65 million acres with a population of over 16,000.

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**Result Oriented Services:**

Worked to introduce the Groundwater Guardian program to communities within the District, and offered assistance in forming teams and implementing activities. --- Coordinated and hosted the Western Nebraska Children's Groundwater Festival, attended by over 220 4th grade students and volunteers from throughout the District. --- Held a Landscape Wise workshop that provided education about plant selection, irrigation, mulching, composting, and responsible chemical use. --- Worked with the City of Sidney, the Nebraska Department of Environmental Quality, and Cabela's corporate facility to construct a large scale stormwater management project at the Cabela’s site. In addition two large rain barrels were installed at the NRD offices and in the City park.
Affiliate Profile:

Mission: The mission of the USGS Nebraska Water Science Center is to provide hydrologic information and understanding needed by others to achieve the best use and management of the nation's groundwater. The Nebraska Water Science Center works to create and take advantage of opportunities to educate both young people and adults about the groundwater resource. Service Area: The State of Nebraska.

Result Oriented Services:

Participated in several outreach events in Nebraska to help communicate water science to the public and to tell them about the Groundwater Guardian program, including the Nebraska's Children's Groundwater Festival and Science Olympiad contests.
Miami Conservancy District OH

Affiliate Profile:
Mission: To maintain a groundwater monitoring network that provides valuable data on groundwater quality and quantity in the watershed of the Great Miami River. To conduct special groundwater investigations individually or in partnership with other government agencies that address groundwater issues of concern in the watershed. Service Area: The watershed of the Great Miami River in southwest Ohio. The watershed encompasses over 5,000 square miles, is home to 1.3 million people, and groundwater provides drinking water to 91 percent of the population.

Result Oriented Services:
Continued work on a Groundwater Monitoring Network to provide important data on groundwater quality and quantity in the Great Miami River Watershed. Sampling has been conducted on the Great Miami River twice a month for pathogens, and groundwater from public supply wells has also been sampled. Results indicate that E. coli concentrations in the river and tributaries tend to be low during long periods without precipitations; however, small amounts of precipitation raise E.coli levels. -- Promoted the Groundwater Guardian Green Site program to sites in the District. A workshop was held, and two new sites have applied to be Green Sites and received financial assistance to implement groundwater-friendly practices.
Affiliate Profile:

Mission: To provide technical and/or financial assistance to Kewaunee County landowners, landusers, and municipalities in their effort to combat nonpoint source water pollution and its detrimental impacts on the County's local surface and groundwater resources. To establish groundwater protection as a high priority in Kewaunee County and to assist Wisconsin in promoting stewardship and sound management of groundwater resources. Service Area: Kewaunee County, with a population of 20,648 and covering 331 square miles, with it roughly 76 percent agricultural land, 4.4 percent residential development, 13 percent forests and 8 percent wetlands. The County includes 15 inland lakes, 26 rivers and streams, and a variety of woodlands, forested wetlands and grasslands.

Result Oriented Services:

Continued to assist the local Kewaunee County Groundwater Guardian Community through running local meetings, assisting with activities, providing funding, and expanding membership. -- Continued a private well testing program, testing over 425 wells since the program began in 2004. Ninety new wells were tested in this round, and an educational seminar was held for people receiving their well test results.