RURAL matters

RCAP

The magazine of the Rural Community Assistance Partnership

2010
Issue 5/6

Mapping Ground Water Rule requirements – part 3

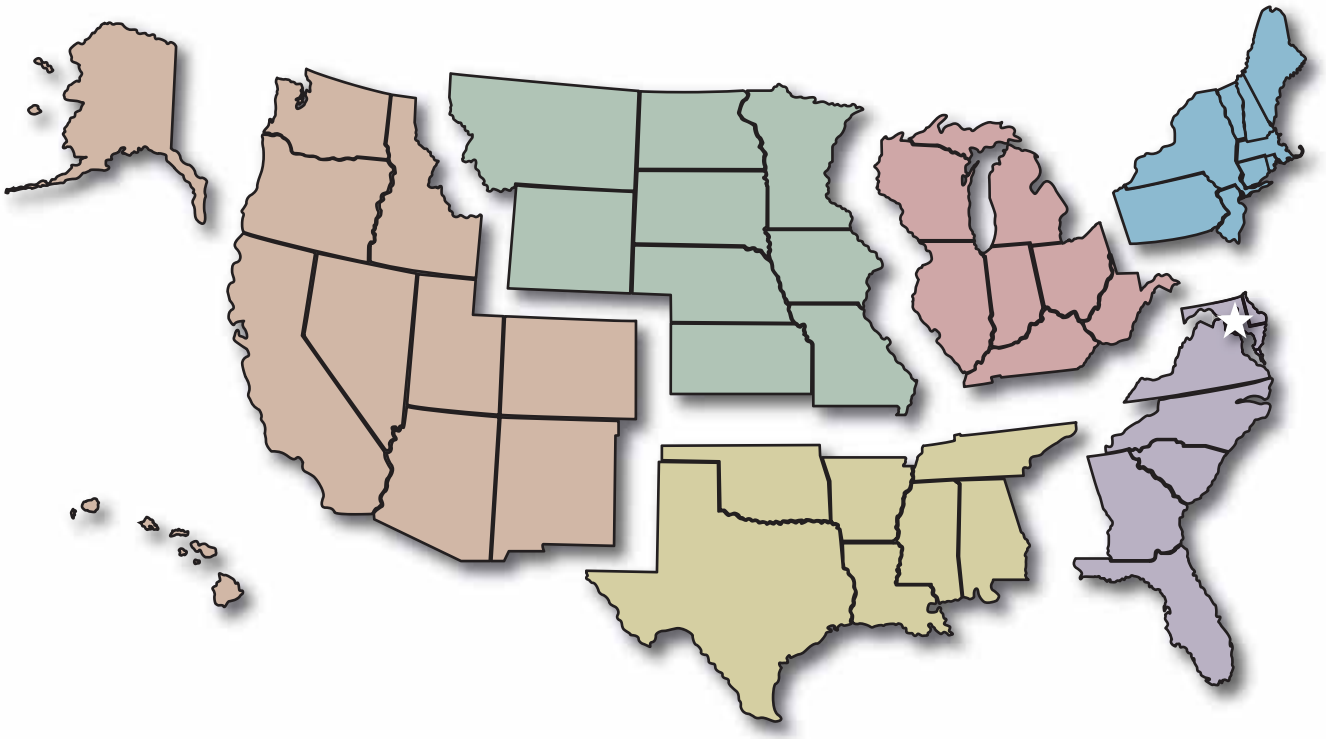
Understanding financial reports: A primer

Also in this issue:

Gathering in Ohio

Nutrient pollution high in our streams and groundwater

Rural Community Assistance Partnership:
A network of six regions and a national office



Western RCAP
Rural Community Assistance Corporation
3120 Freeboard Drive, Suite 201
West Sacramento, CA 95691
(916) 447-2854
www.rcac.org

Midwest RCAP
Midwest Assistance Program
P.O. Box 81
212 Lady Slipper Avenue NE
New Prague, MN 56071
(952) 758-4334
www.map-inc.org

Southern RCAP
Community Resource Group
3 East Colt Square Drive
Fayetteville, AR 72703
(479) 443-2700
www.crg.org

Northeast RCAP
RCAP Solutions
P.O. Box 159
205 School Street
Gardner, MA 01440
(800) 488-1969
www.rcapsolutions.org

Puerto Rico
(Northeast RCAP)

Great Lakes RCAP
WSOS Community Action Commission
P.O. Box 590
219 S. Front St., 2nd Floor
Fremont, OH 43420
(800) 775-9767
www.glrcap.org

Southeast RCAP
Southeast Rural Community Assistance Project
P.O. Box 2868
145 Campbell Avenue SW, Suite 800
Roanoke, VA 24001
(866) 928-3731
www.southeastrcap.org

★ RCAP National Office ★
1522 K Street NW, Suite 400 • Washington, DC 20005
(202) 408-1273 • (800) 321-7227
www.rcap.org

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Issue 5

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features

departments

Photo by Peggy Greb, USDA

Photo courtesy of Melissa L. Jones

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1522 K Street NW, Suite 400; Washington, DC 20005
Tel: (202) 408-1273 Fax: (202) 408-8165
www.rcap.org
Subscription/editorial/advertising inquiries: *ruralmatters@rcap.org*

PUBLISHER
Robert Stewart, RCAP Executive Director

MANAGING EDITOR
Stephen H. Padre, Director of Communications

EDITORIAL AND DESIGN SERVICES
Lauri Murphy Logan

CONTRIBUTING WRITERS
Ari Neumann
Stephen Shapanka

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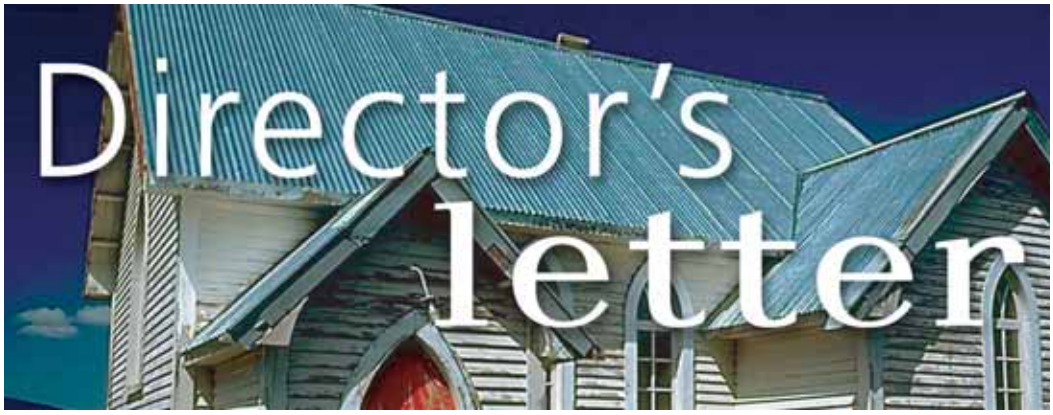


Robert Stewart
RCAP Executive Director

Autumn. A simple word that can call to mind countless images and memories. In many parts of rural America, fall means harvest time and all the associated activities of bringing in crops for sale or storage and the many preparations for winter. This also is the time of year for returning to school, football, county and state fairs, changing leaves, cooler temperatures, Halloween, Thanksgiving—and, yes, elections. For rural water utilities, this season often means reduced demand as a result of cooler temperatures and increased rainfall. However, regardless of the season, the weather conditions, or other events that come and go, your local water and wastewater utility continues to work every day to provide critical services upon which communities depend. RCAP takes pride in assisting rural communities every week of the year in dealing with their unique issues and concerns. This issue of *Rural Matters* provides a sampling of the approaches RCAP takes to assist communities.

One of the recurring topics in this issue of *Rural Matters* is source water. A newly released report from the U.S. Geological Survey reveals that nutrient loading into our nation's rivers and streams continues to increase. A lack of effective land-management strategies, increased commercial and industrial wastewater discharges, improper use of fertilizers, and runoff from urban areas combine to adversely affect the quality of our nation's surface and ground waters. One tool for increasing everyone's awareness of the need to protect water sources is the "Your Water. Your Decision" guide that has been development by the Source Water Collaborative. This short pamphlet, which may be customized for your community, can be used to initiate discussions over the best practices that your local area can adopt to mitigate source water degradation.

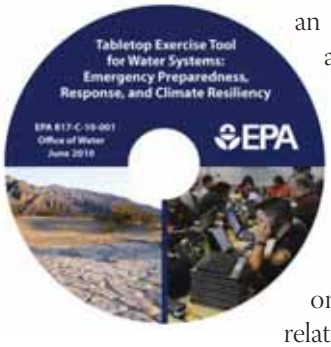
With the large number of small and rural water utilities needing assistance with managerial, financial and operational challenges, RCAP continues to develop and provide practical tools and training resources for utility boards and staff. We currently are working on various informational guides and instructional material designed to ensure the sustainability of small utilities. By expanding our training and educational materials, RCAP is able to provide assistance to many more communities in a time when everyone is seeking to stretch limited resources. The recent Ohio RCAP conference, described in this issue, is an excellent example of being able to provide training and educational opportunities to approximately 100 communities over a two-day period. The Southern RCAP, Community Resource Group (CRG), will be producing a comprehensive financial management guide as part of this process to create and update critical training materials. A small preview of that work is contained in the article concerning financial reports.

I want to take a moment to welcome Ari Neumann to the RCAP national office staff. Ari is the Director of Policy Development and Applied Research, with primary duties that include the management of our agreements with USDA Rural Development. Ari grew up in Genesee, Idaho, a small farming community of around 800 people. He graduated from Stanford University and the University of Washington School of Law and has experience working with congressional offices and many of the organizations with which RCAP collaborates during the course of our work.

Be sure to visit our website at *www.rcap.org* for additional information on all of our staff, our programs and recent developments in areas of concern to rural communities. ■

News and resources from the Environmental Protection Agency

Tabletop Exercise Tool for Water Systems: Emergency Preparedness, Response, and Climate Resiliency



The EPA has developed an updated tool to assist utilities and other interested parties in planning and facilitating tabletop exercises that focus on water sector-related issues.

The Tabletop Exercise Tool for Water Systems: Emergency Preparedness, Response, and Climate Resiliency (the "TTX Tool") introduces users to the potential impacts of climate change on the water sector within the context of an all-hazards approach to emergency preparedness and response. The 15 scenarios in the tool include natural hazards, human-caused incidents, and potential climate change impacts. Five climate change-related scenarios provide an opportunity for utilities to consider and implement long-term planning measures in order to mitigate the potential impacts of climate change.

The TTX Tool includes materials that users can customize, allowing them to conduct a tabletop exercise to meet their specific needs.

Mini-DVD copies of the tool are now available. To request copies, e-mail *ttxtool@epa.gov* with your mailing address and number of copies.

Climate Ready Water Utilities Toolbox

EPA recently released the Climate Ready Water Utilities (CRWU) Toolbox. The toolbox provides a searchable database for water utilities to identify relevant climate change-related impacts and target resources for responding to those challenges, including:

- Current federal, state and association activities related to climate change impacts on water resources and utilities
- Grant programs that could support climate-related actions by utilities and municipalities
- Publications and reports
- Tools and models
- Workshops and seminars

These resources are searchable by utility type and size, region, water resources, climate change impacts, and climate-response strategies. The toolbox is available on EPA's website at *www.epa.gov/safewater/watersecurity/climate/toolbox.htm* The toolbox will be updated periodically so that it provides access to the latest available information.

EPA launches web discussion forum on how to best protect America's drinking water

WASHINGTON (EPA) – The EPA is launching a web-based discussion forum to gather public input on how the agency can improve protection of drinking water. The information will be used in implementing EPA's new drinking water strategy announced by Administrator Lisa P. Jackson in March.

"We look forward to reviewing the ideas and feedback from the public," said Peter S. Silva, assistant administrator for EPA's Office of Water. "This online discussion is for anyone who wants to share their input on protecting drinking water and improving public health."

EPA seeks input from water professionals, advocates and anyone interested in

drinking water quality issues about the best solutions for issues facing our nation's drinking water—planning, developing scientific tools, controlling water pollution, and use of resources.

The discussion forum will feature a series of topics based on the four segments of the drinking water strategy: addressing contaminants as groups rather than one at a time; fostering development of new technologies; using the existing authority of several statues to protect drinking water; and partnering with states to share more complete data. The forum will discuss each topic separately.

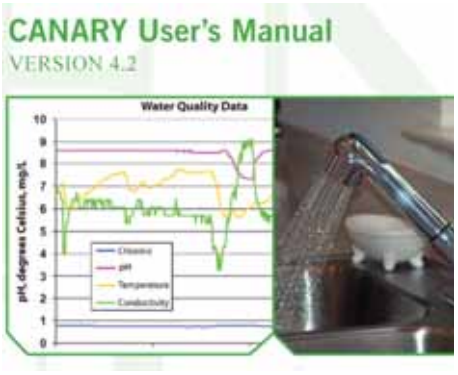
To join the discussion:
http://blog.epa.gov/dwstrat

More information on the new Drinking Water Strategy: *www.epa.gov/safewater/sdwa/dwstrategy.html*

EPA develops innovative software to secure nation's water supply

Canary software enhances detection of hazardous contaminants in drinking water systems

WASHINGTON (EPA) – Scientists from the EPA and the Department of Energy (DOE) have collaborated in developing innovative water-quality software that enhances a water system's ability to detect when there has been intentional or unintentional contamination. The Canary software can help detect a wide variety of chemical and biological contaminants, including pesticides, metals, and pathogens. Once contamination is detected quickly, a water utility can issue a "Do not drink" order to prevent customers from ingesting the water.



"This cutting-edge technology helps to protect all Americans and secure our nation's water supply from threats," said Paul Anastas, assistant administrator for EPA's Office of Research and Development. "The new software also improves our drinking water systems and allows water utilities to quickly advise customers when their water is not safe to drink."

Drinking water utilities use the software in conjunction with a network of water-quality sensors to rapidly detect contamination and to more accurately assess when and how they need to respond. The software helps to distinguish between natural variation in water-quality measurements and hazardous contamination and sends an alarm to indicate when water utilities should take steps to investigate and respond to potential contamination. In addition to achieving homeland security goals, Canary can be used to enhance day-to-day water-quality management and ensure the safety and security of water for all consumers.

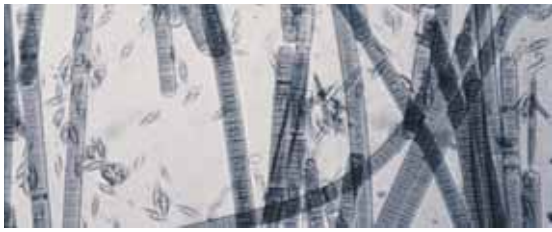
The Greater Cincinnati Water Works is the first utility to pilot the software and has been using Canary to assist in detecting and managing contamination incidents since 2007. The software is currently being evaluated in four other U.S. cities – New York, Los Angeles, Philadelphia and San Francisco – and in Singapore.

EPA and DOE received a 2010 "R&D 100 Award" from R&D Magazine for developing Canary. The R&D 100 awards recognize the top high-technology products of the year.

As a free software tool, Canary is available worldwide to drinking water utilities striving to provide safe water to their customers. The software has been accessed by more than 600 users in 15 countries.

More information on Canary: *www.epa.gov/nhsrc/news/news122007.html*

More information on EPA's Water Security initiative: *http://cfpub.epa.gov/safewater/watersecurity/index.cfm*



Treating contaminants of emerging concern: A literature review

EPA has published the results of an extensive review of the recent literature on wastewater treatment technologies and their ability to remove a number of chemical contaminants of emerging concern (CECs). It has also made available a computer-searchable format of the data from this literature review. The new tools provide an accessible and comprehensive body of historical information about current CEC treatment technologies.

The report discusses 16 of the more than 200 CECs present in the database and the average percent removals achieved by full-scale treatment systems that employ six of the more than 20 reported treatment technologies.

Wastewater treatment plant operators, designers and others may find this information useful in their studies of ways to remove CECs from wastewater. The report is not designed to promote any one technology nor is it intended to set agency policy or priorities in terms of risk. The literature review report and the searchable file were peer-reviewed for completeness and usability.

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More information can be found at: *http://water.epa.gov/scitech/swguidance/ppcp/results.cfm*

Tribal drinking water operator certification program

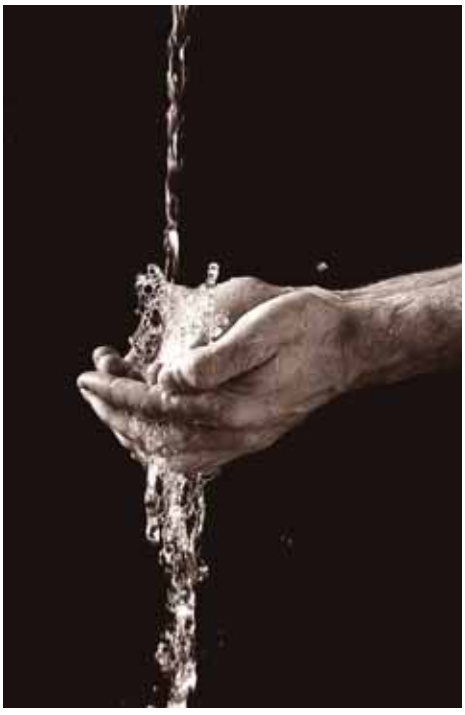
EPA is announcing a voluntary Tribal Drinking Water Operator Certification Program, effective Oct. 1, 2010. The program will enable qualified drinking water operators at public water systems in Indian country to be recognized as certified operators by EPA. This program will provide the benefits of certification to both the public water system operators and the Tribal communities they serve.

Through the training required to receive and maintain certification, operators learn how to supply drinking water that meets national standards and gain understanding of the associated public health benefits. Certification designates the water system operator as a public health professional and demonstrates the operator has the skills, knowledge, education and experience necessary to deliver safe water, supporting consumer confidence.

Access more information about the program on EPA's website at *www.epa.gov/safewater/tribal.html* or by contacting the Safe Drinking Water Hotline at 800/426-4791.

New Office of Water website

In August, EPA's Office of Water (OW) launched its redesigned website – *http://water.epa.gov* – replacing four OW content areas on www.epa.gov. Information is now organized by topic in a way that should be more straight-forward and useful to visitors. Visitors to the agency site looking for water-related content will be redirected to appropriate pages on the new OW site.



New web clearinghouse of information for Lake Shoreland Protection Resources

EPA's Office of Water has launched a new web clearinghouse of Lake Shoreland Protection Resources at *http://water.epa.gov/type/lakes/shoreland.cfm*, which provides practitioners with links to key resources to protect and restore fragile lake shorelands and to promote better stewardship by lakeside property owners and others who recreate on lakes.

The clearinghouse, which includes links to fact sheets, webcasts, videos and other helpful resources for lakeshore protection, is part of an outreach campaign to educate the public and others about the key findings of the National Lakes Assessment (NLA). According to the NLA, poor lakeshore habitat and high levels of nutrients are leading stressors affecting the biological health of lakes. Among the key findings:

- 56 percent of our lakes are in good biological condition.
- More than one-third of our lakes exhibit poor shoreline condition; poor biological health is three times more in lakes with poor lakeshore habitat.
- Nearly 20 percent of lakes have high levels of nutrients. Lakes with excess nutrients are 2.5 times more likely to have poor biological health.
- Microcystin, an algal toxin that can harm humans, pets and wildlife, is present in about one-third of lakes across the country.

In 2007, EPA, the states, Tribes and others partners sampled more than 1,000 lakes as part of this first-ever national assessment of the ecological condition of the nation's lakes. For a print copy of the report (EPA publication number EPA 841-R-09-001) contact EPA's publications warehouse at 800/490-9198. To download a copy of the report or the data used in developing the report, visit *www.epa.gov/lakessurvey* ■

Reviews of helpful websites

By Stephen Shapanka

Find out your 'water footprint'

The concept of a "carbon footprint" is becoming more well-known. For instance, more and more air travelers are paying an extra fee – a carbon offset – to compensate for the CO2 that their portion of their flight will put into the atmosphere.

Applying that concept to water, there is a website operated by The Water Footprint Network (WFN) that helps consumers learn about, calculate and monitor their water footprint. The WFN is an international nonprofit network based in the Netherlands.

Like carbon-based fuels, water is a commodity that is used every day in visible and invisible ways by individuals and producers – everything from your morning shower to the hundreds of gallons that were put into producing the hamburger you eat for dinner. WFN's website – *www.Waterfootprint.org* –unveils the hidden "costs" of water to consumers in the ways that water is used to produce everyday products like apples, beef, cotton and energy.

www.Waterfootprint.org invites consumers to consider what their impact on the water supply is and how their water footprints compare to those of others around the world.

The website provides visitors with a number of tools with which they can expand their knowledge about water footprints. Visitors can search through a variety of individual products that Americans consume regularly and see how much water is required to produce them. Visitors can check what their country's national water footprint is in comparison to other countries. Perhaps most notably, visitors can use either a quick or extended water footprint calculator in order to determine their own individual water footprint.

This calculator is both entertaining and educational. It is important to note that many of its measurements use the metric system. As a quick reference, a large bottle of soda is 2 liters, and one kilogram converts to about 2.2 pounds. If you want a quick and easy conversion, visit a website like *www.convertunit.com* and simply plug in the amount you would like converted and instantly get the alternate measurement you are looking for.

As described on its website, "The mission of the Water Footprint Network is to promote the transition towards sustainable, fair and efficient use of fresh water resources worldwide by [among others]:

- increasing the water footprint awareness of communities, government bodies and businesses and their understanding of how consumption of goods and services and production chains relate to water use and impacts on fresh-water systems; and
- encouraging forms of water governance that reduce the negative ecological and social impacts of the water footprints of communities, countries and businesses."

www.Waterfootprint.org explains at length why water is a global resource and what citizens can do in order to lower their own footprints. And if you do not want to take their word for it, they provide dozens of links to other websites which discuss water, ecological and carbon footprints.

Shapanka is the Communications Intern in the RCAP national office.

Help for talking with policymakers about protection of water sources

If you are looking for help reaching your local policymakers regarding the protection of your water sources, then The Source Water Collaborative has created a tool for you. This group of 23 federal, state and local partners that have come together to protect America's drinking water from the source has designed "Your Water. Your Decision.", a website to assist citizens in getting policymakers to take action.

The site, *www.yourwateryourdecision.org*, allows visitors to create a customized guide for their policymakers. The guide provides "a tool for starting a conversation with local officials about what can be done in your community," the site states.

The tool is designed to raise awareness of local and regional issues and provide community and state resources. The guide can be customized and allows you to add logos (such as the logo from your grassroots citizens organization), contact information, local photographs, web links, and other resources. The information supplied in the guide has been approved by all 23 of the participating organizations.

The website also provides users with tips for using the guide and talking points for speaking with policymakers.

The guide can be printed from any color office printer with just two sheets of paper.

If you want something less customized, a general guide is also available for download on the site.

The participating national organizations and their state contacts can be found at *www.protectdrinkingwater.org* ■

Elevated nitrogen and phosphorus still widespread in much of the nation's streams and groundwater

RESTON, Va. (USGS) – Elevated concentrations of nitrogen and phosphorus, nutrients that can negatively impact aquatic ecosystems and human health, have remained the same or increased in many streams and aquifers across the nation since the early 1990s, according to a new national study released Sept. 23 by the U.S. Geological Survey.

Photo courtesy of the Natural Resources Conservation Service

"This USGS report provides the most comprehensive national-scale assessment to date of nitrogen and phosphorus in our streams and groundwater," said Marcia McNutt, USGS director. "For years we have known that these same nutrients in high concentrations have resulted in 'dead zones' when they reach our estuaries, such as during the spring at the mouth of the Mississippi, and now we have improved, science-based explanations of when, where, and how elevated concentrations reach our streams and aquifers and affect aquatic life and the quality of our drinking water."

"Despite major federal, state and local efforts and expenditures to control sources and movement of nutrients within our nation's watersheds, national-scale progress was not evident in this assessment, which is based on thousands of measurements and hundreds of studies across the country from the 1990s and early 2000s," said Matthew C. Larsen, USGS Associate Director for Water.

According to the U.S. Environmental Protection Agency, nutrient pollution has consistently ranked as one of the top three causes of degradation in U.S. streams and rivers for decades.

USGS findings show that widespread concentrations of nitrogen and phosphorus remain two to ten times greater than levels recommended by the EPA to protect aquatic life. Most often, these elevated levels were found in agricultural and urban streams. These findings show that continued reductions in nutrient sources and implementation of land-management strategies for reducing nutrient delivery to streams are needed to meet EPA-recommended levels in most regions.

Nutrients occur naturally in water and are needed for plant growth and productive aquatic ecosystems; however, in high concentrations, nutrients often result in

the growth of large amounts of algae and other nuisance plants in streams, lakes and estuaries. The decay of these plants and algae can cause areas of low dissolved oxygen, known as hypoxic, or "dead," zones that stress or kill aquatic life. Some forms of algae release toxins that can result in health concerns.

The study also found that nitrate is a continuing human-health concern in many shallow aquifers across the nation that are sources of drinking water. In agricultural areas, more than one in five shallow, private wells contained nitrate at levels above the EPA drinking water standard. The quality and safety of water from private wells—which are a source of drinking water for about 40 million people—are not regulated by the Safe Drinking Water Act and are the responsibility of the homeowner.

Because nitrate can persist in groundwater for years and even decades, nitrate concentrations are likely to increase in aquifers used for public drinking water supplies during at least the next decade, as shallow groundwater with high nutrient concentrations moves downward into deeper aquifers.

"Strategies designed to reduce nutrient inputs on the land will improve the quality of water in near-surface parts of aquifers; however, decades may pass before quality improves in deeper parts of the aquifer, which serve as major sources for public-supply wells," said Neil Dubrovsky, USGS hydrologist and lead scientist on this study. "Unfortunately, similar time delays for improvements are expected for streams that receive substantial inputs of groundwater."

A variety of sources can contribute nutrients to surface and groundwater, such as wastewater and industrial discharges, fertilizer and manure applications to agricultural land, runoff from urban areas, and atmospheric sources. USGS findings show that nutrient sources and resulting concentrations vary across the nation. For example, concentrations of nitrogen generally are highest in agricultural streams in the Northeast, Midwest, and the Northwest, which have some of the most intense applications of fertilizer and manure in the nation.

Differences in concentrations across the nation also are due to natural features and human activities. For example, concentrations of nitrogen in streams draining parts of the agricultural Midwest are increased by contributions from artificial subsurface tile drains that are used to promote rapid dewatering of poorly drained soils. Conversely, concentrations of nitrate in streams draining parts of the Southeast appear to dissipate faster as a result of enhanced natural removal processes in soils and streams.

"This nationwide assessment of sources and natural and human factors that control how nutrients enter our streams and groundwater helps decision-makers anticipate where watersheds are most vulnerable to contamination and set priorities and management actions in different geographic regions of the country," said Dubrovsky.

For more than 125 years, the USGS has served as the nation's water monitoring agency, including flow and quality in selected streams and rivers across the U.S. USGS continues to work closely with the EPA, U.S. Department of Agriculture, the states, and local watersheds to assure that USGS monitoring and assessments provide useful information for managing nutrients throughout the nation.

Water-quality data from more than 1,300 locations, much of it in real-time, is available through USGS Water Quality Watch. Additional information about surface water, groundwater and water quality is available at National Water Information System Web Interface. You can also receive instant, customized updates about water conditions by subscribing to WaterAlert, a new service from the USGS.

Complete findings, as well as a USGS fact sheet, podcast, and graphics are available at *http://water.usgs.gov/nawqa/nutrients/pubs/circ1350/* ■

USGS
science for a changing world

Ohio RCAP hosts conference for leaders of rural communities

By Stephen Shapanka

Ohio RCAP hosted a first-ever conference for community leaders Aug. 24 and 25 in Columbus under the theme "Small Towns, BIG Futures."

"This was an ambitious effort, and we are so pleased with the outcome," said Deb Martin, director of Great Lakes RCAP.

More than 275 leaders from across Ohio and other states in the region attended the conference.

The conference featured some prominent leaders from the state and federal agencies as keynote speakers.

Sherrod Brown (D), the state's junior senator, addressed the means to improve rural economies in his speech.

"RCAP and Ohio's community action agencies represent why rural Ohio is a key to our state's overall economic prosperity. Strong rural communities are essential to Ohio's economic prosperity and serve as a barometer for our economy's health," Brown said. "By investing in water infrastructure and broadband and expanding agriculture's role in the clean energy economy, we can make all Ohio communities—large and small, urban and rural—competitive in the 21st century."

When the Senate reconvenes, Brown will introduce legislation that would provide funding for organizations like RCAP that provide technical assistance to small communities to navigate the complexities of federal funding.

Another keynote speaker, Judy Canales, Administrator for Business and Cooperative Programs, USDA-Rural Development, discussed various activities that her agency is engaged in to assist rural communities with development needs. She encouraged active participation in the economic development of rural communities.

Edward (Ned) Hill, the dean and a professor at the College of Urban Affairs at Cleveland State University, gave a fast-paced and entertaining address on the fundamentals of economic development over lunch on the conference's first day.

The RCAP national board of directors, which met during the conference, hosted a reception for Rep. Zack Space (D), who hails from a large and rural district in central eastern Ohio.

Space was one of the recipients of Ohio RCAP annual awards. He was recognized as a Rural Community Champion, an award that is given for "exceptional support of programs and policies designed to meet the needs of small communities."

Ohio's other senator, George Voinovich (R), received the Lifetime Achievement award, given "in gratitude for outstanding leadership in serving the citizens of small communities throughout Ohio. It represents a career of making a difference."

Other awards given at the conference were to small communities around the state that Ohio RCAP has worked with for the communities' work in areas such as solving problems creatively using unconventional solutions and overcoming many barriers.

The Jackson County Water Company received the Carpe Diem award for seizing "every opportunity to improve and expand its services and meet the needs of residents." Jackson and Vinton County's newspaper, *The Telegram*, profiled the company following its award.

The Telegram quoted Ohio RCAP State Director Randy Hunt as saying that the company was chosen for recognition because of "their pro-active approach in providing water service to unserved and under-served areas. This was most evident with their purchase of Vinton County Water. This purchase brought the Vinton System into a much larger system that will have the economy of scale to be sustainable and continue expansions to new customers."

"It's a good program," General Manager Larry Foster said of RCAP in *The Telegram* article, "and does good work."

The awards luncheon also recognized 22 community residents who had attended Ohio RCAP's four-part training program in the areas of utility management; financial management; asset management, budgeting and rate setting; and applied asset management.

The conference also offered a variety of workshops in infrastructure, economic development, management, leadership and legislative affairs tracks and gave participants an opportunity to network. ■

Photos by Joyce Huntley, WSOS. Shapanka is the Communications Intern in the RCAP national office.

Legislative Update

By Ari Neumann

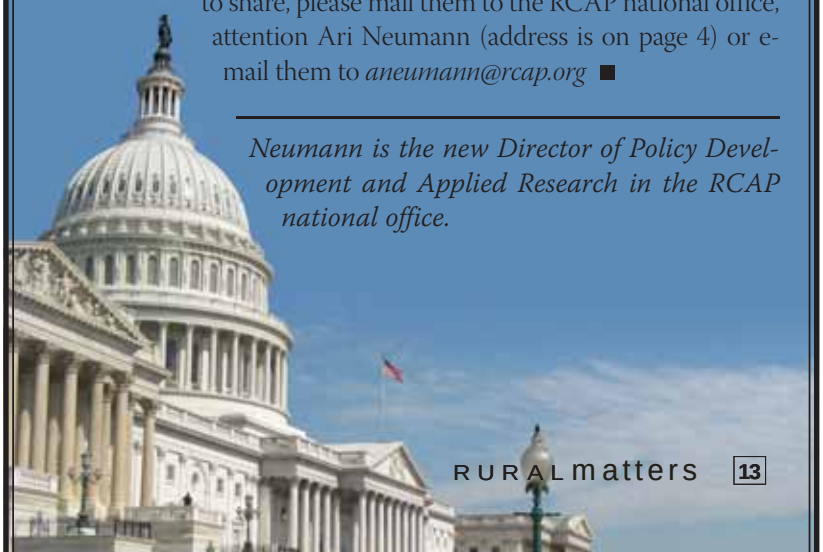
With this fall's elections in their sights, members of the 111th Congress adjourned their legislative session in late September to head home and spend time in their districts before election day. Although both chambers have yet to finalize the FY2011 budget, they both passed what is known as a "continuing resolution," or "CR," before adjourning to ensure that the government keeps running. The CR authorizes the government to continue to operate at current funding levels until a new budget is passed.

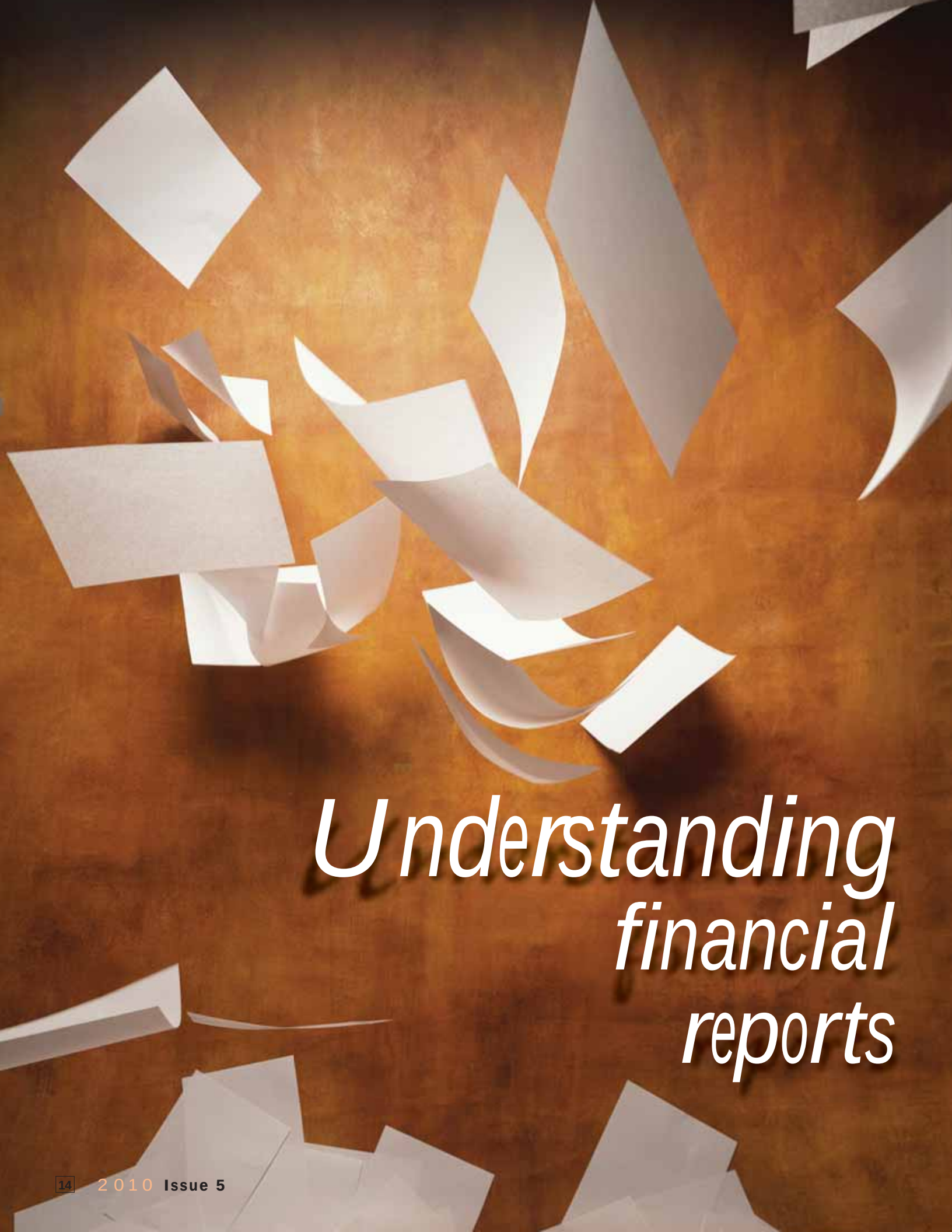
This means that RCAP will continue to receive federal funding at current levels until a new budget is finalized. Depending on the outcome of the November election, the 2011 budget may be passed during a lame duck session that is planned to start on Nov. 15. This session would be the last chance for the current members of Congress to finish up their legislative work before handing business over to the 112th Congress in early January. One of the top goals of this session will likely be passing next year's budget, which, as things currently stand, is likely to include funding for most or all of the federal programs in which RCAP participates.

Another possibility for consideration in the lame duck session is Senate Bill 1005, co-sponsored by Senators Boxer (D-Calif.), Cardin (D-Md.), Inhofe (R-Okla.) and Crapo (R-Idaho). S. 1005 is a water infrastructure bill that would authorize grant and loan programs to help communities comply with the Clean Water Act and Safe Drinking Water Act. Through the work of RCAP and others, the bill includes programs targeted specifically for small water and wastewater systems (fewer than 10,000 residents), including increased authorizations for technical assistance.

If you have a success story about how RCAP has helped your community or letters of support for RCAP's programs that you would like to share, please mail them to the RCAP national office, attention Ari Neumann (address is on page 4) or e-mail them to *aneumann@rcap.org* ■

Neumann is the new Director of Policy Development and Applied Research in the RCAP national office.





Understanding financial reports

This article is a preview of a new financial management guide for water systems that is being produced by RCAP for small communities and their leaders. The guide is part of a family of many resources that are being produced to assist communities in the technical, managerial and financial areas of their water and wastewater systems. These resources will be released in spring 2011 and will be distributed in print, on CD, and on the RCAP website.

This article was written by Community Resource Group, the Southern RCAP, and originally appeared in its *Community Water Bulletin*. This is part one of a series of articles, some of which will appear in future issues of *Rural Matters*. The entire series of articles will form the chapters of the financial management guide, which will be available for free in communities where RCAP is working.

Sustainability. It's a word that is applied to a variety of things today: sustainable organizations, sustainable agriculture, sustainable communities. If you are responsible for a community water utility, *sustainability* refers to your ability to consistently provide safe, high-quality water to your customers while meeting all of your regulatory responsibilities, over the *long term. Financial* sustainability is a large part of meeting this mission. Being financially sustainable means you are selling water or wastewater disposal services to your customers at a rate that consistently generates enough revenue to meet all of your expenses (in both the short and long term).

Now comes the most difficult task: maintaining a financially sustainable utility and providing water and/or wastewater disposal services at an affordable cost to your customers.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) amendments passed by Congress in 1996 contained special provisions related particularly to small water systems. Small water utilities were given special consideration and resources to make sure they have the managerial, technical and financial capacity to comply with drinking water standards.

State agencies that have the primary enforcement responsibilities for implementation of the SDWA (state "primacy" agencies) were also required to establish and implement state capacity development strategies designed to insure that small water utilities develop and maintain the technical, managerial and financial capacity to meet their responsibilities for providing water over the long term.

Since passage of the SDWA amendments, there has been a much greater emphasis on financial sustainability of water utilities. Numerous tools and resources have been made available to help utilities achieve greater financial stability. A greater emphasis has been placed on implementing concepts such as full-cost pricing and asset management in small utility operation.

Full-cost pricing simply means calculating and setting rates that reflect the true cost of producing and selling water, including all operating expenses, debt service, and reserve funds for equipment replacement and future improvements. Asset management refers to a planning process for efficiently preserving and/or planning the replacement of critical infrastructure. Asset management is similar to capital improvements planning or long-range planning.

Ultimately, the key for determining the financial sustainability of your utility is found in the financial statements produced by your bookkeeping staff, accountant or independent auditor. This and future articles in this series (and the financial management guide these articles will be compiled into) will help you analyze some of the more important financial statements produced for your utility, which will better enable you to manage your system's finances.

Financial statements

The full cost of doing business in your utility will be reflected in your financial statements. There are three major components:

- The balance sheet, sometimes called the statement of financial position, shows your system's net worth–how much your system is worth at a particular point in time. The heading of the statement will tell you the date–the point in time for which the balance sheet is relevant. On the example on the following page, the date is December 31, 2008, which is compared to the figures for December 31, 2007.
- The income statement, or statement of activity, shows the results of operations over a period of time—how much revenue the system has earned vs. the amount of expense it has incurred.
- The cash-flow statement breaks down all of the financial transactions of the system in terms of how they affected cash. These statements may be presented comparatively–showing the balances from the current and previous year side-by-side. These types of statements allow for easy comparison between periods.

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Balance sheet

The balance sheet is comprised of three components: assets, liabilities and equity. Below we look in-depth at each of these components. Why is it called a "balance" sheet? Because the statement must be "in balance." That means the total assets in one section must equal the total liabilities and equity in the other sections (assets = liabilities + equity). What if the liabilities of the utility are more than its assets? In that case, the system has what is called deficit equity. Deficit equity occurs when the system has incurred more in net losses over the life of the system than net income. Deficit equity will normally be indicated by parentheses around the numbers in the equity section of the balance sheet.

Particular care should be taken when reviewing a balance sheet of a system with deficit equity. Questions should be asked to determine how the system got into a deficit position, and a plan should be formed for moving the system back to a stable or positive equity position.

Rural Water System
Example Balance Sheet
Period ending Dec. 31, 2008

ASSETS	2008	2007
Current Assets		
Cash and cash equivalents	$430,762	$253,573
Accounts receivable	$60,026	$65,040
Inventory	$14,248	$15,302
Short-term investments	$2,219	$0
Prepaid assets	$4,982	$4,957
Total Current Assets	**$512,237**	**$338,872**
Fixed Assets		
Land	$6,950	$6,950
Property, plant & equipment at cost	$2,915,599	$2,915,599
Less accumulated depreciation	($1,628,594)	($1,523,462)
Total Fixed Assets	**$1,293,955**	**$1,399,087**
Long-Term Assets		
Investments	$86,660	$186,660
Total Long-Term Investments	**$86,660**	**$186,660**
TOTAL ASSETS	**$1,892,852**	**$1,924,619**
LIABILITIES AND NET ASSETS		
Current Liabilities		
Accounts payable	$8,432	$7,987
Current portion of long-term debt	$56,123	$54,238
Withheld & accrued payroll taxes	$3,158	$3,479
Accrued interest	$13,355	$0
Meter deposits	$43,504	$44,602
Other accruals	$1,425	$1,335
Total Current Liabilities	**$125,997**	**$111,641**
Long-Term Liabilities		
Long-term notes payable	$1,297,938	$1,354,061
Total Long-Term Liabilities	**$1,297,938**	**$1,354,061**
Equity		
Contributed capital (membership)	$56,415	$56,415
Donated capital (govt. grants)	$1,720,300	$1,720,300
Retained earnings	($1,307,798)	($1,317,798)
Total Equity	**$468,917**	**$458,917**
TOTAL LIABILITIES AND NET ASSETS	**$1,892,852**	**$1,924,619**

An example of a balance sheet, with the assets section highlighted.

Assets

Assets represent the total economic resources of the system that are expected to provide benefits to the system in the future. Assets are normally listed in liquidity order, which means they are listed based on how easy they are to convert to cash. So, naturally, the first items listed will be cash and cash equivalents. The assets section is also broken down into current assets; long-term assets and property; and plant and equipment.

Current assets

Current assets are items than can be converted to cash within one year of the date of the balance sheet. Current assets include cash and cash equivalents; accounts receivable; inventories; short-term investments; and prepaid assets.

- Cash and cash equivalents include the amount of money currently available in the system's demand accounts. Cash equivalents include any security which has a maturity date of less than 90 days. In the sample, Rural Water System Example Balance Sheet, in the cash and cash equivalents section, there is a certificate of deposit included that will mature on February 28, 2009, less than 90 days from the balance sheet's statement date of December 31, 2008.
- Accounts receivable is money owed to the system. This includes outstanding

water bills, connection fees owed to the system, reconnection fees, etc.

- Inventory includes the value of products related to the business that are or will become available for sale within the next year—for example, new meters, pipe, equipment, or replacement parts.
- Short-term investments include investments with maturities more than 90 days from the balance sheet's date but less than one year from the balance sheet's date. In the example balance sheet, the short-term investments are certificates of deposit with maturity dates of July 8, 2009, and December 26, 2009.
- Prepaid assets are expenses paid in advance—for example, an insurance policy that is purchased and for which the annual premium is paid "up front." The value of the insurance premium will be recorded as a prepaid asset until the premium is used. In the balance sheet example, prepaids of $4,982 are listed, which is the result of a property insurance premium paid on December 15, 2008. The insurance policy is effective from January 1, 2009, through December 31, 2009. Since the system will receive the benefit of this policy during the next fiscal year (2009), the amount paid is considered an asset on the effective date of the example balance sheet—December 31, 2008.

Fixed assets

Property, plant and equipment (fixed assets) are the land, buildings, furniture, and fixtures that the system owns and uses in its day-to-day operations. On the balance sheet example, fixed assets are broken out to show the cost of each category; then the amount of accumulated depreciation is subtracted to "net down" to the book value of the assets. Some systems may choose to show only the book value of the assets on their financial statements. Both presentations are acceptable.

What does all of this mean? Over time, fixed assets are "used up." Periodically one must account for the decrease in value of these assets from their normal use and due to age. This is done by recording depreciation.

There are several methods for calculating depreciation. The easiest is the "straight-line" method. Under all methods, the system's managers must determine the life of the asset, that is, how long you can expect to be able to use the asset. For example, the normal life of a building is 30 years. If a building cost $100,000 and has a life of 30 years, it will depreciate $3,333 ($100,000/30 years) a year. The building will "use up" $3,333 in value each year. So this year it is worth $3,333 less than last year, and next year it will be worth $3,333 less than this year, etc. The amount of what is "used up" is tracked and added together in the accumulated depreciation account.

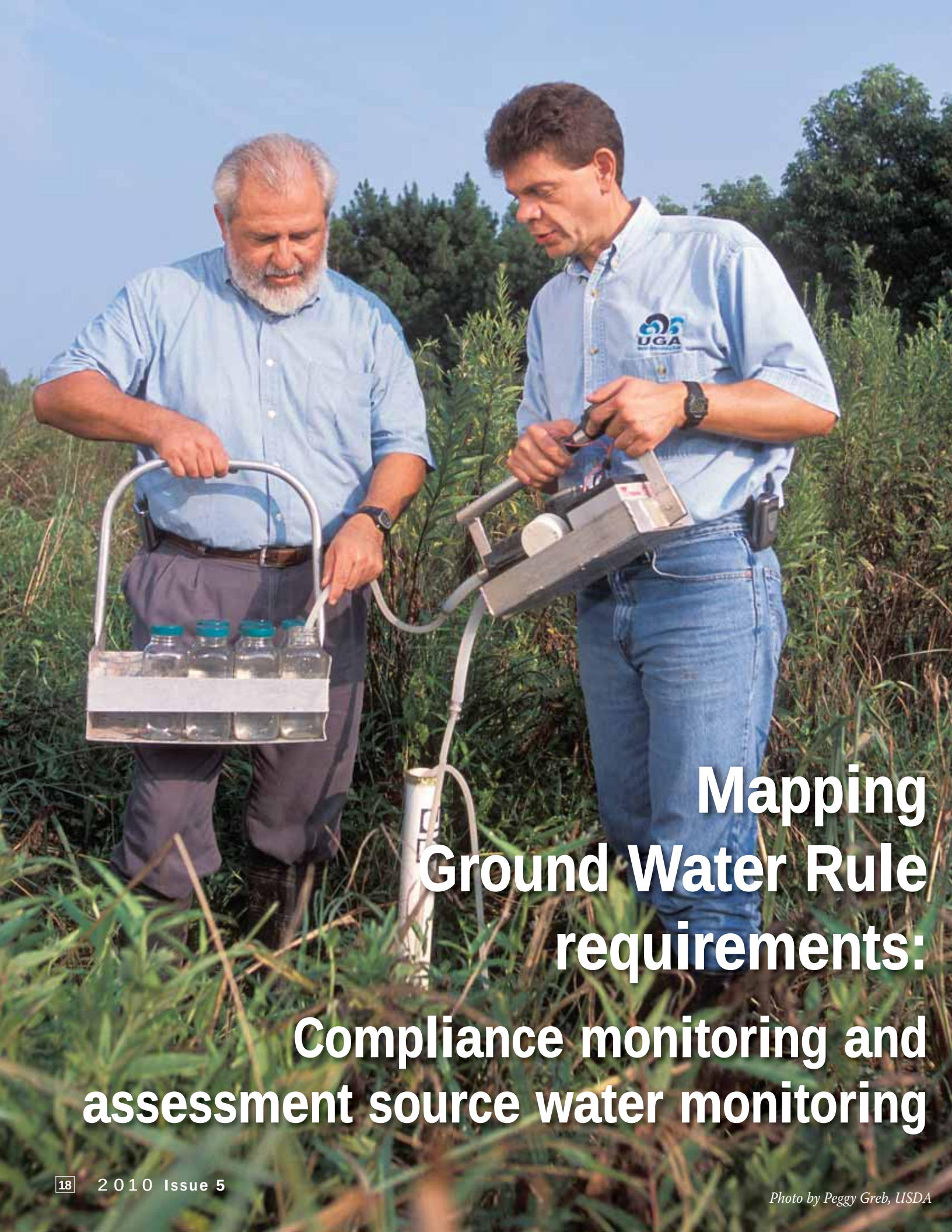
The accumulated depreciation is separated from the original cost so that what was paid originally for the asset and how much of the asset has been "used up" can be seen. The net value of the asset (or book value) provides to the utility's management a current estimate of the value of the plant, property or equipment, that is, the current resale value. Land value does not depreciate.

Long-term assets

Long-term assets include items that can not be converted to cash within one year of the balance sheet's date. Common examples of long-term assets include investments with maturity dates of more than one year. In the balance sheet example, the utility has a certificate of deposit with a maturity date of January 2, 2010–two days longer than one year.

Adding current assets to fixed assets and long-term assets provides the total assets.

What is owned is listed and totaled. Now what is owed and what the system is worth must be determined. The liabilities and equity will reveal this. The next article in this series will take you step-by-step through this portion of the balance sheet. ■



Mapping Ground Water Rule requirements:

Compliance monitoring and assessment source water monitoring

Photo by Peggy Greb, USDA

This is the third in a series of five articles by the U.S. Environmental Protection Agency (EPA), Office of Ground Water and Drinking Water (OGWDW) that summarize key components of the Ground Water Rule (GWR). As with all drinking water rules, please check with your primacy agency for specific, state-related requirements.

After all five articles are published in Rural Matters, *they will be joined together in one booklet, which will be available on the RCAP website.*

Disclaimer: This article is not a rule and is not legally enforceable. As indicated by the use of non-mandatory language such as "may" and "should," it does not impose any legally binding requirements. This article describes requirements under existing laws and regulations and does not replace any existing established laws or regulations.

Compliance and assessment source water monitoring

As stated in the first article of this series, the Ground Water Rule has four basic requirements: (1) triggered and additional source water monitoring; (2) compliance and assessment source water monitoring; (3) sanitary surveys; and (4) corrective action. This article discusses in further detail the compliance monitoring and assessment source water monitoring components.

continued on next page

An overview of this series of articles on the Ground Water Rule

The goal of this series of articles is to help ground water systems (GWSs) navigate their way through the Ground Water Rule (GWR) requirements.

- Article 1: Introduction to the rule
  Some of the key elements of the rule were introduced. Find this article in *Rural Matters* 2010 issue 3, page 18 or at *www.rcap.org/sites/default/files/rcap-files/RM/2010/May-June2010.pdf*
- Article 2: Triggered and additional source water monitoring
  Find this article in *Rural Matters* 2010 issue 4, page 18 or at *www.rcap.org/sites/default/files/rcap-files/RM/2010/issue4/RuralMatters-JulyAug2010-final.pdf*

➲ *Current article:* Article 3: Compliance monitoring and assessment source water monitoring

- Article 4: Sanitary surveys and corrective action
  Sanitary surveys require utilities to evaluate eight critical elements of a public water system as well as identify significant deficiencies that may exist at the water system. Corrective action will be required for any system with any significant deficiencies.
- Article 5: Ground Water Rule Public Notification and Consumer Confidence Report requirements for community and non-community water systems
  The GWR has new public notification, special notice, and consumer confidence report requirements that affect community and non-community water systems, as well as wholesale and consecutive water systems.

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As seen in Figure 1, compliance monitoring is required for ground water systems (GWSs) that have notified the state that they reliably provide 4-log treatment of viruses. Compliance monitoring is required as a form of corrective action or in lieu of triggered source water monitoring. Assessment source water monitoring is a tool available to the states that suspect that a system's ground water source might be vulnerable to fecal contamination.

Compliance monitoring

GWSs that provide at least 4-log treatment of viruses were required to provide written notification to the state and begin compliance monitoring by Dec. 1, 2009, to avoid triggered source water monitoring (see the second article in this series – *Rural Matters* 2010 issue 4, page 18; or visit *www.rcap.org/sites/default/files/rcap-files/RM/2010/issue4/RuralMatters-JulyAug2010-final.pdf*). The purpose of compliance monitoring is to ensure that systems are reliably and consistently achieving 4-log treatment (i.e., inactivation, removal, or a state-approved combination of removal and inactivation) before or at the first customer. GWSs providing 4-log treatment as a corrective action must also conduct compliance monitoring. Figure 1 provides a graphic representation of these requirements.

GWSs using chemical disinfection that will be conducting compliance monitoring and that serve more than 3,300 people must monitor the residual disinfectant concentration continuously before the first customer or at a location approved by the state. The system must maintain a state-determined minimum disinfectant residual and record the lowest daily value. The rule allows for the system to collect grab samples every four hours if the continuous monitoring equipment fails; however, the system has 14 days to repair the equipment and bring it back online.

GWSs using chemical disinfection and conducting compliance monitoring that serve 3,300 people or less can either monitor continuously to meet the requirements described in the previous paragraph or take daily grab samples during the peak hourly flow at a location approved by the state. The system must maintain a state-determined minimum disinfectant residual and record the lowest daily value. If the residual falls below the established

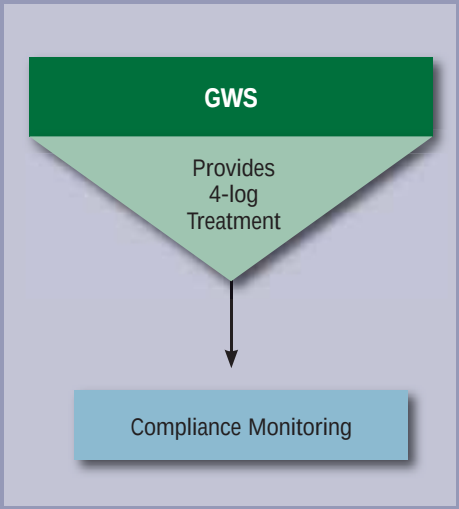

Figure 1. GWR Requirements for GWSs Providing 4-log Treatment

Photo courtesy of Elba3 Photography

Glossary of terms

Ground water system (GWS): A public water system that relies on ground water sources; any system that mixes surface and ground water if the ground water is added directly to the distribution system and provided to consumers without treatment.

Community water system (CWS): A public water system serving at least 15 service connections used by year-round residents or regularly serving at least 25 year-round residents.

Non-transient non-community water system (NCWS): A public water system that is not a CWS and that regularly supplies water to at least 25 of the same people at least 6 months per year.

Transient non-community water system (TNCWS): A non-community water system that does not regularly serve at least 25 of the same persons over six months of the year.

Consecutive system: A public water system that receives some or all of its finished water from one or more wholesale systems.

Wholesale system: A public water system that treats source water, as necessary, to produce finished water and then delivers some or all of that water to another public water system.

Photo by Scott Bauer, USDA

minimum concentration, then the system must take samples every four hours until the residual meets the required level.

Systems that use membrane filtration or alternative treatment technologies alone or in combination to reliably provide 4-log treatment of viruses must operate and monitor according to the state-specified requirements. Table 1 provides a summary of compliance monitoring requirements.

A GWS may discontinue providing 4-log treatment and compliance monitoring if the state makes the determination that the system has met the state's criteria for discontinuing treatment. If the system discontinues 4-log treatment and compliance monitoring, then the system is subject to triggered source water monitoring.

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Table 1: Summary of Compliance Monitoring Requirements

System type	Monitor for	Frequency	Sample location
GWS > 3,300 using disinfection	Residual disinfectant concentration *(must meet state minimum)*	Continuous only [2,3]	state-approved location
GWS ≤ 3,300 using disinfection	Residual disinfectant concentration *(must meet state minimum)*	Daily [1,2] or continuous [2,3]	
GWS using membrane filtration	Membrane filtration process performance	Consult state for specific information	
GWS using state-approved alternative treatment	Alternative treatment performance		

1. *If any daily grab sample is less than the minimum disinfectant residual concentration, the system must take follow-up samples every four hours until residual meets or exceeds the minimum.*
2. *Systems must record the lowest residual disinfectant concentration each day that water from the ground water source is served to the public.*
3. *If the continuous monitoring equipment fails, the system must take grab samples every four hours and has 14 days to repair the equipment and bring it back online.*

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Assessment source water monitoring

The GWR provides the states with the authority to direct GWSs that the state believes may have sources that may be vulnerable to fecal contamination to conduct assessment source water monitoring. States may require assessment source water monitoring at any time and on a case-by-case basis. It is up to the state to determine the frequency and duration of monitoring as well as the fecal indicator to be monitored. Due to the monitoring costs and possible seasonal variations in the source water, EPA recommends that states consider requiring collection of a minimum of one sample per month for 12 months. Assessment source water monitoring might also be used by the state before a new ground water source comes online and provides water to the public.

Assessment source water monitoring samples may not be used to satisfy Total Coliform Rule (TCR) routine or repeat samples. However, a triggered source water monitoring sample may be used to meet the assessment source water monitoring requirement if approved by the state and analyzed for *E.coli* using an EPA-approved method. The same public notification requirements that apply to a fecal indicator-positive (FI+) triggered source water monitoring sample will apply to any FI+ sample collected during the assessment source water monitoring. This means that for any FI+ source water sample collected under assessment source water monitoring, the GWS is required to provide Tier 1 Public Notification (PN).

PN and the Consumer Confidence Report requirements for the GWR and how they apply to community and non-community water systems will be discussed in further detail in the fifth article, titled "Mapping Ground Water Rule Requirements: Consumer Confidence Report, Public Notification, and Special Notice."

Training opportunities

EPA headquarters has concluded its workshops and webcast training on the GWR at this time. However, there still may be training sponsored by your state, EPA region, or technical assistance providers. Contact your EPA region or state for more information on workshops or training that might be conducted near you. For more information on the GWR, please visit the GWR homepage at: *www.epa.gov/safewater/disinfection/gwr* ■

Photo by Stephen Ausmus, USDA

Frequently asked questions regarding compliance monitoring and assessment monitoring

Q: For a consecutive system that purchases water from a wholesaler that does not provide 4-log treatment, when the consecutive system learns of a total coliform-positive (TC+) sample in its distribution system, what must the consecutive system do?

A: Within 24 hours of being notified of the TC+ sample result, the consecutive system must notify the wholesaler of the TC+ sample result. If the consecutive system has its own groundwater source, does not provide 4-log treatment, and purchases water from the wholesaler, it must begin triggered source water monitoring.

Q: If a wholesaler not providing 4-log treatment is notified of a TC+ result from a consecutive system, what does the wholesaler have to do?

A: The wholesaler would have to begin conducting triggered source water monitoring. The wholesaler would also have to notify all other consecutive systems that receive water from the source if the triggered source water monitoring reveals a FI+ source water sample result. However, if the wholesaler has been approved by the state to provide 4-log treatment and is conducting compliance monitoring, it would not have to comply with the triggered source water monitoring requirements.

Q: If a system takes corrective action at the direction of the state to install 4-log treatment, does that system have to conduct compliance monitoring?

A: Yes. If the 4-log treatment of viruses is installed as part of a corrective action, the system must conduct compliance monitoring.

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