The Private Well Class – Outreach & Education For Groundwater Protection

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Illinois State Water Survey, University of Illinois

The Private Well Class is Sponsored, Funded, & Supported By
The Rural Community Assistance Partnership & USEPA
ILLINOIS STATE WATER SURVEY

FROM 1895 TO 1904, ARTHUR W. PALMER ANALYZED THOUSANDS OF ILLINOIS WATER SAMPLES IN THE NEWLY ESTABLISHED ILLINOIS STATE WATER SURVEY. HE CREATED THE FIRST SYSTEMATIC DOCUMENTATION OF THE QUALITY OF ILLINOIS WATER. THESE DATA BECAME THE BASIS FOR SANITARY AND PUBLIC HEALTH REFORM, STANDARDS OF WATER QUALITY, AND THE SCIENCE OF AQUATIC ECOLOGY.

UNIVERSITY OF ILLINOIS
CASES OF TYPHOID FEVER
APRIL 16 TO MAY 9, 1916
CITY OF
PANA, ILL.

A. C. STANFIELD, CIVIL ENGR.
Research-Service-Data

- Research
  - Regional Water Supply
  - Contaminant Studies
  - Groundwater Modeling
- Public Service
  - Lab Services
  - PWC
  - Requests for Information
- Data Collection
  - House States Well Logs
  - Statewide Ob Well Network
  - 30k Water Quality Samples
RCAP’s Private Well Program

- A national outreach and well owner education program funded by USEPA.
- Being implemented through the Rural Community Assistance Partnership (RCAP) and its 6 regional affiliates to support private well owners.
- RCAP Partners include [www.PrivateWellClass.org](http://www.PrivateWellClass.org) at the University of Illinois, NEHA, NGWA, and the WSC. As well as 5 state extension programs (TX, VA, MS, PA, RI).
Goal

- Give well owners direct targeted information and advice:
  1. why their well is important,
  2. why they should understand how it works,
  3. how to help protect themselves from risk.
The Private Well Class

• A series of 10 lessons sent to participants via email over 10 weeks. Self-paced.
  • Over 6,000 participants so far.

• Webinars that will provide specific information supporting the 10 lessons, giving participants a chance to ask questions.
  • Over 15,000 participants including EHP’s, realtors, labs.

• NEHA version of the class on eLearning platform, each lesson worth 1 CEU, also an Illinois LEHP CEU provider.
The Private Well Class

• Multimedia lessons (videos, podcasts, recorded webinars)

• Workshop materials for RCAP staff
  • over 120 completed around the country

• Sanitary Survey-like assessment tool, developed by a committee of 13 experts
  • tablet version and guide available soon
  • RCAP has completed over 1500 individual assessments nationwide
Do you know how your well works?

Take our Free Class

LEARN BY EMAIL
Take our flagship course to get 10 lessons in your email inbox, one per week.

LEARN BY AUDIO
Subscribe to our podcast to learn about private well care while on the go.

LEARN BY VIDEO
Get answers to specific questions with video lessons and webinar recordings.
1. The Science of Groundwater
This lesson explains the water cycle, defines groundwater, and provides basic information about how water moves through the ground.

2. Groundwater and Well Contamination
This lesson describes how water moves between the ground and your well, including the key ways in which contamination occurs.

3. Well Construction & Related Issues
This lesson explains the different types of wells and how well construction impacts the well’s vulnerability to contamination.

4. Your Water Well System
This lesson provides an overview of the basic parts of water well systems and the most common variations a well owner might encounter.

5. Operations, Maintenance & Best Practices
This lesson shares the most important well care practices as well as common operations and maintenance issues.
6. Emergency Situations & Problem Solving
This lesson explains what to do when unexpected events interfere with the operation of your well or affect the well water quality.

7. Getting Help & Finding Local Answers
This lesson identifies the myriad of resources, locally and beyond, that are available to help well owners with maintenance and troubleshooting.

8. Groundwater Quality & Source Water Protection
This lesson describes the most common groundwater quality issues and how to protect water supplies and aquifers from contamination.

9. Sampling & Interpreting Results
This lesson explains how to take a private well water sample and understand the results of a laboratory analysis.

10. Water Treatment Solutions
This lesson covers the most common types of treatment to improve the quality of private well water and how to determine if and when it should be added.
1. The Science of Groundwater

- Water Quality Information for Consumers, Cornell University Cooperative Extension.
- Well Owner's Handbook, Environmental Health Division, Minnesota Department of Health.
- Groundwater Hydrology, National Ground Water Association Website.
- Iowa's Groundwater Basics, Iowa Geological Survey Educational Series 6, Iowa Department of Natural Resources.
- Groundwater in Ohio, Feb 2010, Ohio EPA.

2. Groundwater & Well Contamination

- Groundwater Study Guide, 2006, Wisconsin Department of Natural Resources.
- Sources of Groundwater Contamination, The Groundwater Foundation.
- State Water Quality Profiles, WellOwner.org.
¿Tienes preguntas acerca de tu pozo?

Toma nuestra clase gratis

La Clase de Pozos Privados es una colaboración entre la Rural Community Assistance Partnership y University of Illinois, a través del Illinois State Water Survey del Prairie Research Institute, con fondos del U.S. EPA.

Contáctenos

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@help4wellowners
facebook.com/privatewellclass
youtube.com/privatewellclass

ClasePozosPrivados.org
El ciclo hidrológico

El agua está en perpetuo movimiento. El agua se mueve por muchos procesos entre los que se incluyen precipitación, evaporación, escorrentía, infiltración, absorción de las plantas, percolación, y transpiración (Figura 1.1). El agua que tomas hoy seguramente ha pasado a través del ciclo hidrológico incontables veces en el pasado. Ha estado en los océanos, en un continente distinto—alguien más quizás ya la ha tomado. Es un continuo y siempre cambiante ciclo.

El agua en el suelo hoy se infiltró desde la superficie. Lo que no fue usado por las plantas o retenido en el suelo migró hacia abajo a través del suelo hasta la tabla de agua para hacerse agua subterránea. Como subterránea, es retenida en los espacios libres (poros y fisuras) del suelo, incluso en el lecho rocoso.

La tabla de agua o nivel freático es el nivel por debajo del cual los espacios porosos están completamente llenos (saturados) de agua. (Figura 1.2).

Pero no se detiene allí. Porque el agua fluye cuesta abajo, la presión desde arriba “empuja” el agua a través del suelo hacia áreas con menor presión tanto horizontal como verticalmente. Puede seguir migrando hacia abajo a través de distintas unidades geológicas o moverse horizontalmente a través de un sólido material geológico hasta un punto de descarga. En el ciclo hidrológico, el punto de descarga es generalmente un punto bajo en el terreno donde el agua puede drenar a un lago, un río o al océano (Figura 1.3). Entonces el ciclo empieza de nuevo. Como se muestra en la Figura 1.3, en ocasiones el agua puede pasar miles de años en el suelo antes de completar su camino de regreso a la superficie.

La recarga del agua subterránea es típicamente, aunque no siempre, un proceso local. Primero, la lluvia se infiltra en el suelo y se hace paso a las formaciones geológicas debajo. Allí, se almacena en los poros, entre los materiales del suelo (arenas no consolidadas, arcillas, y limos) o en grietas y fisuras abiertas en el lecho rocoso (material consolidado). Tu pozo penetra es-

Figura 1.1 El Ciclo Hidrológico. Fuente: Minnesota Department of Health.

Figura 1.2 La tabla de agua. Fuente: New York State Water Resources Institute.
The Private Well Class online course is designed to help users better understand how to properly care for their water well, to ensure their water remains safe to drink.

If you work with well owners and are not familiar with the Private Well Class, please visit our partners page at http://privatewellclass.org/partners. There you can sign up for the PWC newsletter and get information to share with your well owners about how they can take the well owner class themselves online.

**Course Overview:**

Homeowners in small communities and rural areas without a public water supply often lack appropriate understanding of best practices for managing, operating, and protecting their private well.

In a nationwide technical assistance and training initiative, funded by a grant to the Rural Community Assistance Partnership (RCAP) from the US Environmental Protection Agency, a step-by-step education framework has been developed to assist well owners and other stakeholders in understanding groundwater hydrology, well fundamentals, well care best practices, and finding assistance locally.

The Private Well Class online course is designed to help users better understand how to properly care for their water well, to ensure their water remains safe to drink. By understanding the basic science of water wells and following best practices to maintain and protect your water supply, homeowners can ensure a safe water supply and help extend the life of their home water well.

The Private Well Class online course leverages web-based and publicly-available content to educate on this important health topic. This course compiles the ten modules from the program's popular email-based course into one reference.

The Illinois State Water Survey and the Illinois Water Resources Center, at the University of Illinois, have collaboratively developed the curriculum for this program, under contract with RCAP.

1. **The Science of Groundwater**

After reviewing Lesson One, click on the quiz below and answer the questions. Upon successful completion of the Quiz you may complete the evaluation then print your certificate for this section.
What Well Owners Need to Know About Lead in Drinking Water - Recorded Live August 22, 2018

In this webinar recording we will cover how lead can enter drinking water in homes with private wells and what to do next if you suspect your family is at risk. The webinar will answer questions such as:

- Sources of lead in the home and consequences of exposure,
- Why and when lead is likely to leach from plumbing materials, and
- Best practices for reducing the risk of lead in drinking water.

Visit our YouTube channel

PrivateWellClass.org is a service of the University of Illinois at Urbana-Champaign. Funding has been provided by the U.S. Environmental Protection Agency and the Rural Community Assistance Partnership. Click here to sign up for our free well care e-course.
Lead in Drinking Water

In addition to working with technical experts, many resources were consulted during preparation of our "What Well Owners Need to Know about Lead in Drinking Water" webinar. These include:

Basic Information about Lead Sources and Health Effects

- Public Health Statement for Lead - CDC’s summary of health information
- CDC lead portal - information about all sources of lead
- U.S. EPA lead portal - information about all sources of lead
- What Do Parents Need to Know to Protect Their Children? - Information about blood lead levels from CDC

Lead in Drinking Water

- Lead in Private Water Systems - webinar presentation from Dr. Kelsey Pieper
- Basic Information about Lead in Drinking Water - information from U.S. EPA, primarily related to public water systems
- Sources of Lead: Water - information from CDC, primarily related to public water systems
- Drinking Water from Household Wells - 2002 pamphlet from U.S. EPA
- Research on lead in DC water - data and analysis of CDC research in Washington, DC
- Lead in Drinking Water - information from Penn State about lead in drinking water

Water Filters for Lead Reduction

- How to Filter Lead from Your Tap Water - short article from Environmental Working Group
- Point-of-Use Water Treatment Units for Lead Reduction - brochure from Minnesota Department of Health
- Certified Product Lists for Lead Reduction - special consumer guide from NSF
- Search for NSF certified treatment units - searchable database from NSF
- Water Health Series - Filtration Facts - home water treatment facts from USEPA

LIST OF CERTIFIED LABORATORIES

- List of Certified Laboratories
Well Care Videos

What Water Testing Labs Need to Know about Private Wells - Recorded Live June 19, 2018

In this webinar recording we will cover what water testing laboratories need to know to answer questions from well owners that go beyond water quality. We'll also cover examples of successful partnership programs and effective educational and outreach tools. The webinar will answer questions such as:

- The proper care of a private well,
- The importance of testing well water, and
- Deciphering and understanding sample results.

Visit our YouTube channel
Well Care 101 - Recorded Live on March 15, 2018

In this webinar recording you'll learn well care best practices and how to ensure the water in your well is safe to drink. The webinar will answer questions such as:

- How to determine if your water is safe for drinking,
- Simple best practices for well maintenance, and
- Solutions to the most common well problems.

Visit our YouTube channel
What Should I Know About a Shared Private Well?

January 25, 2016  By Cassia Smith  Training Videos  video  0

Do you share well water with one or more of your neighbors? This video discusses reasons why wells might be shared, possible downsides, and things to keep in mind if you get water from a shared well.

PrivateWellClass.org is a service of the University of Illinois at Urbana-Champaign. Funding has been provided by the U.S. Environmental Protection Agency and the Rural Community Assistance Partnership. Click here to sign up for our free well care e-course.
How Does My Private Well Pressure Tank Work?

January 25, 2016 By Cassia Smith  Training Videos  video  0

Pressure tanks help store water from your well and push it out into the faucets in your home. This video explains how pressure tanks operate and describes the differences between traditional pressure tanks, bladder tanks, and the tanks used in constant pressure systems.

PrivateWellClass.org is a service of the University of Illinois at Urbana-Champaign. Funding has been provided by the U.S. Environmental Protection Agency and the Rural Community Assistance Partnership. Click here to sign up for our free well care e-course.
How is the podcast different from the lessons?
The Private Well Podcast covers the bulk of the Private Well Class lessons in a free multimedia, audio-only format for those who would rather listen and learn. But it is different from the Private Well Class lessons because it includes a laid back, conversational tone between the host, Katie Hollenbeck, and an actual groundwater hydrologist, Steve Wilson. Plus, it is full of stories, examples, and anecdotes for easy listening.

Listen on the Web
1. The Science of Groundwater
2. Groundwater & Well Contamination
3. Well Construction & Related Issues
4. RDF Radio Network Interview
5. RDF Radio Network Interview Continued
6. RDF Radio Network Abandoned Wells

How to Subscribe
When you subscribe to a podcast, new episodes will be downloaded automatically for you. The Private Well Podcast is available on iTunes and Stitcher Radio.

Computer: You may subscribe to the podcast from your computer with the iTunes desktop app (PC or Mac) or with the Stitcher app in your web browser.

iOS devices: In your Podcasts app, search for “Private Well Podcast” and then click “Subscribe”.

Android devices: Use the Stitcher app from the Google Play store. In Stitcher, search for “Private Well Podcast” and click the plus sign (+) to add it to your Favorites List. Now go to the Favorites List and tell it to download new episodes by clicking on the gear icon in the upper right corner.
Abandoned Well Sealing Video

To celebrate the National Groundwater Association’s “Protect Your Groundwater Day” on September 5, the Private Well Class, in collaboration with many local partners, has released a new video to go along with the “Cap It, Plug It” theme. The video explains the process of properly sealing an abandoned well, which took place during a public demonstration event on August 9, 2016 in Macomb, IL.

Local partners and organizers of the event included the McDonough County Health Department, Western Illinois University Department of Geology, the McDonough County Groundwater Protection Education Committee, and Gingerich Well & Pump Service, LLC.

[Click here to watch the video.]

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Own Your Future: Home Financing from USDA Rural Development

USDA Rural Development has many programs to help rural populations improve their living conditions. For example, the Single Family Housing Repair Loans and Grants Program can provide funding to low-income homeowners for private water well and septic system repair and replacement. These loans or grants can be used to repair, improve, or modernize homes, or remove health and safety hazards. This means homeowners can address issues such as broken pipes, leaking faucets, and sewage leaks. By doing so, they can improve their living conditions and maintain a safe and healthy environment.
Many public health and groundwater experts who work with private well owners do so on a local or regional scale, providing assistance and education directly to consumers.
The Private Well Conference

National workshop unites private well community, emphasizes importance of collaboration and partnerships

The 2017 Private Well Conference, held May 23-25, 2017 in Champaign, IL, was the first of its kind with national scope and exclusive focus on private drinking water supplies. This conference brought together members of the private well community to learn new ideas and share experiences to strengthen outreach, education, and research programs around the country.

The 2.5 day agenda featured a mixture of oral presentations from invited speakers and accepted abstracts, as well as panel discussions, a "lightning session", and opportunities for networking. Funding for this conference was provided by the U.S. Environmental Protection Agency and Rural Community Assistance Partnership (RCAP).

The conference was recorded and the videos are now available on YouTube:
Are you among the roughly 15 million American households that rely on a private well for drinking water?

If so, you’re essentially the operator of your own tiny water system, taking on full responsibility for ensuring that your drinking water is safe and that your well is properly maintained. How can you make sure your water is safe to drink—and that it remains safe to drink?
Many well owners just assume their water is safe. To truly have confidence in your well it’s recommended that you do a baseline test for environmental contaminants such as arsenic and other metals, as well as annual testing for nitrate and coliform bacteria.

Even if everyone in your home appears healthy, well testing is critical to identify contaminants, like lead, that post a heightened risk to young children, as well as those that can build up to cause harm over time.

Ask your local health department where to get your well water tested and if there are other groundwater concerns in your area.

Even if testing shows that your well water is safe, you still need to maintain the well to ensure the safety of your drinking water over time. Following these simple best practices will help you protect your well and your family:

- **Test your water** annually, as well as anytime there is a change in taste, odor, or color. You should also test if a member of the household is pregnant or there is a new infant in the home.

- **Visually inspect your well** at the end of every season. Make sure the well remains sealed and clear of debris, including plant material. Look for damage to the wellcap and cracks in the visible portion of the well casing.

- **Keep a file** on your well that includes a well log (if you have it), any service records, emergency instructions, and contact information for your local health department, driller, contractor, etc.

- **Take care of your septic system**, do not dispose of kitchen grease in the sink, do not flush personal hygiene products besides toilet paper, and pump your septic tank every three to five years.

The FREE Private Well Class program will help protect your family’s health, avoid costly well problems, and extend the life of your private well. The 10-lesson virtual course can be taken on your own time, at your own pace, from your own home. The class will familiarize you with the basic science of wells and the best practices you can use to maintain your well and protect your water supply.

Since 2012, thousands of homeowners have benefitted from the Private Well Class:

"This is VERY critical information for the health of homeowners and private well owners, yet so few people understand even the most basic concepts. This was an EXCELLENT course!!"

To enroll in the free, 10-lesson Private Well Class, go to privatewellclass.org. You will receive one easy-to-read lesson per week by email, as well as opportunities for additional free learning through online videos and live webinars. To receive your lessons in hard copy, call 1-866-522-2681 or write to info@privatewellclass.org.
¿Hace parte de los 15 millones de hogares americanos que obtienen su agua de un pozo privado?

Si es así, usted es el operador de su pequeño sistema de agua y es el único responsable de garantizar que el agua de su pozo sea de buena calidad y de hacerle un mantenimiento adecuado a su pozo. ¿Cómo puede asegurarse de que su agua es potable y que continúa siéndolo a través del tiempo?
The U of I put together a national workgroup of experts from extension and public health; also groundwater hydrologists and drillers, to develop a tool to assess risk of an individual well.

Goal was to create a tool that can be used by an qualified health, groundwater or extension person to help a well owner understand their potential risks and vulnerabilities.

- Site assessment
- Well assessment
- Geologic assessment
- Recommendations

Plus opportunity to raise awareness about testing, BMP’s understanding vulnerable geologies or well construction.
Assessments Provide Support For Well Owners

- Like a Sanitary Survey For Private Wells
- Educate Well Owners About Their Specific Situation and Well
- Promote Best Practices
- Encourage Communication and Increase Well Owner Awareness of Issues
Site Assessment Program

- Over 1500 assessments, many requested by a state or local health agency to support a problem well.
- 36+ workshops led by RCAP staff, 800+ professionals trained.
- Developing partnerships, supporting state and county efforts.
Ongoing/Upcoming Projects (funding through Sept 2021)

- Brochure Distribution this fall (email us)
- Virtual ½ day Conferences in 2018 and early 2019
- 2nd Private Well Conference (May 21-23, 2019)
- Mobile App of the Assessment Tool
- Guidance Manual for Assessment Tool
- New Podcast Series on Rural Water Issues
- RCAP doing more workshops and site assessments
MAY 21-23, 2019
Harrisburg, PA

- **EXPERT TALKS + PANELS**
  Hear from experienced public health and groundwater professionals.

- **COMMON WELL ISSUES**
  Learn how to identify well problems and answer the most frequent questions.

- **OUTREACH + PARTNERSHIPS**
  Discover how the private well community is coming together nationally.

- **CONTAMINATION SOURCES**
  Find out about advances in septic system management and emergency response.

- **PRIVATE SYSTEM TREATMENT**
  Explore the pros and cons of various options from experts.

Many public health and groundwater experts who work with private well owners do so on a local or regional scale, providing assistance and education directly to consumers.

This conference aims to bring together experts and practitioners to share their successes and experience for the benefit of the private well community at large. Through our unique position as managers of a national private well program, we have developed relationships around the country with private well experts and stakeholders. This conference will leverage those experts to provide new information and insights to help you in your efforts to educate and provide support to private well owners.

**Registration is free.** Building on the success of the 2017 Private Well Conference, the 2019 conference will share information on new and emerging issues, as well as advances in well owner outreach in education, to help us all improve our private well programs. We all have a lot to learn from each other. For additional details, please visit:

PRIVATEWELLCLASS.ORG/CONFERENCE
What We’ve Learned

• Many well owners are hard to reach/convince.
• Bad information out there making our job harder.
• The message needs to be consistent nationally.
• Partnerships/shared effort are only way to make a dent.
• This program has a national voice that is building trust and serving as a facilitator for other efforts.
Partnerships and Providing Support

• Asked to support NEHA effort to develop a national workgroup to evaluate materials and provide guidance.

• Serve as a resource for others.
  • Support other programs, eg Cherokee Nation.
  • Participate in events, invited (IN DOH ex).
  • Review information, provide advice.

• Partnerships in many places:
  • Involved in APHL, NEHA, CDC-state efforts.
  • RCAP working at state and local levels.
    • 5 funded extension programs.
    • MO, TN, RI examples.
    • Dozens of relationships and growing.
Questions
Short on time?

We've collected the best resources on the web just for you.

Get Email Updates

SEARCH THE CALENDAR

Find water operator training events in your location and on the internet.

BROWSE THE RESOURCES

Discover free tools and downloadable documents to make your job easier.

READ THE BLOG

Get quick tips and new insights at your fingertips in our weekly blog posts.
GROUNDWATER AND WELL CARE FOR NON-COMMUNITY PUBLIC WATER SYSTEMS

taught by Steve Wilson

Enroll for free
Groundwater and Health Gaps

• Groundwater is Complicated
  – Multiple Aquifers
  – Wells Where There Are No Aquifers

• Well Water Issues Are Not Straightforward
  – They Are Not Community Water Supplies (John Hopkins)
  – Groundwater Samples vs Drinking Water Samples
  – Dealing With Well Construction Issues
  – No Information On Treatment or Bottled Water

• Professionals from Both Disciplines Can Learn From Each Other’s Viewpoint
  – Your Team Should Have Both
  – High Arsenic Example
  – Lagoon Example
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- **A** — Mahomet aquifer
- **B** — aquifers in the upper Banner Formation
- **C1** — aquifers in the lower Glasford Formation
- **C2** — aquifers in the upper Glasford Formation
- **D** — shallow and surficial aquifers
Best Thing To Do

• Develop A Relationship With Your Scientific Surveys, Related Groundwater Resource Agency, and Extension
  – USGS, State GS, State WS(IL)
  – DNR, DEQ, DHHS, DOE, DPH, etc.
  – County or State Level Extension

• The Folks That Map Aquifers, Maintain Well Logs, Collect Groundwater Quality Information

• They Are A Great Resource
  – Geology
  – Hydrology
  – Well Construction
  – Natural Water Quality