

## PrivateWellClass.org and Resources for Working with Private Well Owners



Steve Wilson, Jennifer Wilson & Katie Buckley

Illinois State Water Survey  
at the University of Illinois

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

## RCAP's Private Well Program

- A national outreach and well owner education program.
- Being implemented through the Rural Community Assistance Partnership (RCAP) and it's 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 and 5 state well education programs (coop extension).



**RCAP Rural Community Assistance Partnership**  
Practical solutions for improving rural communities

**Western RCAP**  
Rural Community Assistance Corporation  
(916) 447-2854  
[www.rcac.org](http://www.rcac.org)

**Midwest RCAP**  
Midwest Assistance Program  
(850) 798-4334  
[www.map-inc.org](http://www.map-inc.org)

**Southern RCAP**  
Communities Unlimited  
(479) 443-2700  
[www.communitiesu.org](http://www.communitiesu.org)

**Northwest RCAP**  
RCAP Solutions  
(800) 488-1969  
[www.rcapsolutions.org](http://www.rcapsolutions.org)

**Great Lakes RCAP**  
WSOS Community Action Commission  
(800) 775-9767  
[www.glrcap.org](http://www.glrcap.org)

**Southeast RCAP**  
Southeast Rural Community Assistance Project  
(866) 928-3731  
[www.southeastrcap.org](http://www.southeastrcap.org)

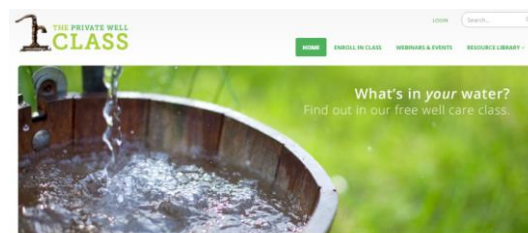
**RCAP National Office**  
1701 K St. NW, Suite 700  
Washington, DC 20006  
(800) 321-7227  
[www.rcap.org](http://www.rcap.org) | [info@rcap.org](mailto:info@rcap.org)

## RCAP's Private Well Program

- Includes both Online and Boots on the Ground Efforts.
  - U of IL Private Well Class – online lessons, webinars, videos, podcasts, newsletter, phone and email support.
  - RCAP – face to face workshops for well owners, sanitarians, and other stakeholders; one-on-one well vulnerability assessments (over 1,000 so far).
  - NEHA – online class for sanitarians, support for PWC.
  - NGWA – WellOwner.org, newsletter, webinars, videos, financial information, and more.
  - Webinars to support the lessons and take questions.
  - WSC – hotline, factsheets, well owner manual
  - Extension – workshops, sampling in 5 states

## About The Private Well Class

- A series of 10 lessons sent to participants via email over 10 weeks. Self-paced.
- Webinars that will provide specific information supporting the 10 lessons, giving participants a chance to ask questions. (6 topic centered)
- A website, [www.PrivateWellClass.org](http://www.PrivateWellClass.org), that will serve as a resource to private well owners.
- Multimedia lessons (videos, podcasts, webinars)



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.

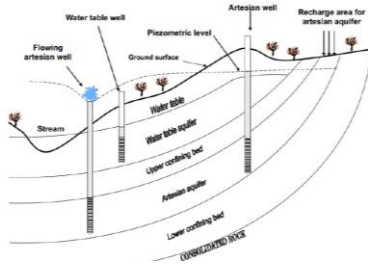
## Groundwater Flow

In a groundwater system, water flows naturally according to the hydraulic pressure put on the system. The flow can be horizontal through a geologic unit, or vertical through several different geologic units, or sometimes some of both. In Lesson 1, we used Figure

11 to show natural groundwater movement. The thin layers with horizontal dashes in Figure 2.1 represent confining layers (aquiclads) that separate the aquifers, shown in blue. As you can see in the figure, because the high point of the water table is near the left edge, water is flowing downward from the high point toward areas

where it sits in the pore spaces in the aquifer material above the water table. In other words, the water level in a water table well is at the water table elevation, which is below the top of the aquifer.

When an aquifer is below a confining unit, the situation is different. Wells in confined aquifers can have water levels above the



## What Well Owners Need to Know About Lead in Drinking Water - Recorded Live August 30, 2016

August 30, 2016 By Katerina Haddock Training Interest Video 10

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.



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.

**THE PRIVATE WELL CLASS**

HOME ENROLL IN CLASS WEBINARS & EVENTS RESOURCE LIBRARY

Enroll in Class

The Private Well Class is designed to help a homeowner 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 water supplies, this class will provide a homeowner the tools needed to ensure a safe water supply and help extend the life of the well.

To enroll in class, please enter your first name and email address on the form. Ten lessons will arrive by email, one lesson per week.

Email Address

First Name

Where Do You Live?

Interests  
 Class Instruction Emails - Every 7 Days  
 Outreach Partnership



## 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. Kelley 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

### 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

### FREE WEBINARS

Future webinar events and their recordings will be posted at the links below.

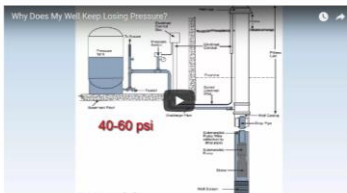
- See upcoming webinar schedule



## Why Does My Well Keep Losing Pressure?

January 25, 2016 By Cassie Smith Training Interest Video 9

Private water systems rely on pressure tanks to supply pressurized water to the home. Incorrect tank sizing and other tank problems can lead to loss of water pressure at the faucet. Watch the video to learn more.



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.

## 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.



## It's All About Being Aware

- Understand your well log and where your water is coming from (depth, pump setting, screen).
- Know if there are naturally occurring contaminants or water quality issues associated with your water source.
- Learn to ask the right questions, contact local sources of information.
- Sample your well.



Past Issues Translate

Issue #11 for September 2017 [Click the email to send button](#)

### THE PRIVATE WELL CLASS

Partners  
AN OUTREACH NEWSLETTER

#### 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 "Call 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 5, 2016 in Missouri, IL.

Local partners and organizers of the event included the St. Charles County Health Department, Missouri State University, Department of Geology, the Mid-Missouri County Groundwater Protection Educator Committee, and Gargano Well & Pump Service, LLC.

[Click here to watch the video.](#)

#### 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, replace, or replace homes, or remove health and safety hazards. This

## Surveyed Well Outreach Programs

- Evaluate well owner education and outreach programs from around the country. (Why don't well owners test?)
- Surveyed 93 programs to gather information on implementation, methods, results and logistics.
- Qualitative look at challenges, experiences, lessons learned and suggested best practices.

## Challenges

- Lack of funding for private well programs.
- Differences in Construction Codes/ Rules:
  - What is a private well.
  - Permitting and well log submittal.
  - New Jersey vs Pennsylvania.
  - Especially in enforcing what rules they have.
- Not a lot of training available for County/Local Health Departments on private well issues.
- Has led to mostly local approaches to support well owners in many parts of the country.

## A Lot Is Going On Nationally

- We learned about programs that are active at the state and local level, some unique with great ideas.
- Also learned about the challenges everyone is facing
- We realized that sharing solutions and ideas would be a powerful way to support each other.
- We were in a unique position of gathering information about programs nationally that could help inform.
- We decided a workshop to bring everyone together to share challenges, ideas, successes, and develop partnerships was needed.

## A Great Workshop Model

**14th Annual EPA Drinking Water Workshop**  
Small Systems Challenges and Solutions  
August 22-24, 2017 - Hilton Netherland Plaza - Cincinnati, Ohio

Sponsored by the U.S. Environmental Protection Agency (EPA)  
in partnership with the Association of State Drinking Water Administrators (ASDWA)

### Agenda

Tuesday, August 22, 2017	
7:45 am	<b>Registration</b> (Entrance to Pavilion Ballroom)
8:30 am – 10:00 am	<b>SESSION 1: WELCOME AND KEYNOTES</b> Moderator: Thomas Speth, EPA's Office of Research and Development (EPA-ORD)
8:30 am	<b>Agenda Review and Logistics</b> Thomas Speth, Michelle Latham, Darren Lytle, and Thomas Sory (Workshop Organizers), EPA-ORD <b>Year in Review and a Look Ahead</b> Cynthia Sonich-Mullin, Director of EPA-ORD, National Risk Management Research Laboratory
9:15 am	<b>Agency Priorities and Introduction of Keynote Speaker</b> Richard Formosa, Deputy Assistant Administrator for EPA-ORD
9:30 am	<b>Keynote Address</b> Craig Butler, Ohio EPA Director and The Environmental Council of States (ECOS) Committee Chair for Water and Region 5 Representative
10:00 am	Break

## Why EPA Workshop Has Been So Successful

- They pick the topics and invite the speakers they want
- They pay for each state to send 1-2 people who are working with small systems.
- Mostly a single track, with some breakouts, panels, and time to learn from experts.
- Have expanded breaks and activities to encourage interaction.
- Let anyone come for free and provide conference materials.



The Private Well Conference	
Tuesday, May 23, 2017	
7:45 am	Registration (Hyatt Place – Basement Foyer)
8:15 am	<b>Welcome and Introduction</b> Steve Wilson, Illinois State Water Survey
Session 1 – Private Well Challenges & Opportunities	
8:30 am	Social Dimensions of Private Well Testing: Why Don't People Test their Well Water? Barbara Liikkonen, University of Minnesota Water Resources Center (retired)
9:00 am	Private Well Owner Risk Perceptions and Protective Behaviors after Receiving an Elevated Arsenic Test Result Deanna Scher and Frieda von Quaken, Minnesota Department of Health

- Free to attend
- Paid speaker travel for many
- Provided slides to attendees
- Recorded presentations
- 2.5 days
- Encouraged interaction
  - Long breaks
  - Interests in Binder

The Private Well Conference	
Tuesday, May 23, 2017	
7:45 am	Registration (Hyatt Place – Basement Foyer)
8:15 am	<b>Welcome and Introduction</b> Steve Wilson, Illinois State Water Survey
Session 1 – Private Well Challenges & Opportunities	
8:30 am	Social Dimensions of Private Well Testing: Why Don't People Test their Well Water? Barbara Liikkonen, University of Minnesota Water Resources Center (retired)
9:00 am	Private Well Owner Risk Perceptions and Protective Behaviors after Receiving an Elevated Arsenic Test Result Deanna Scher and Frieda von Quaken, Minnesota Department of Health

- 26 – 30-minute presentations
- 12 – 5-minute lightning talks
- 90-minute drillers panel
- 117 attendees
- 32 states represented

**Harvey, David**  
 Department of Sanitation Facilities Construction  
 Indian Health Service  
 Deputy Director  
 5600 Fishers Ln.  
 RM 10N13  
 Rockville, MD 20857  
 (301) 443-0159  
 david.harvey@ihs.gov

*CAPT David Harvey is the Deputy Director of the Division of Sanitation Facility Construction (DSFC) within the Indian Health Service. The DSFC plans, designs and constructs private well installations along with other sanitation facilities that serve nearly 400,000 American Indian and Alaska Native homes in 38 states. In addition the IHS provides technical assistance to help tribal homeowners and utilities operate and maintain the sanitation facilities provided.*

**Henrich, David**  
 Bergerson Caswell, Inc.  
 Vice President  
 5115 Industrial Street  
 Maple Plain, MN 55359  
 (763) 479-3121  
 david@bergersoncaswell.com

*We are a full service water well contractor in MN, serving municipal, residential and industrial water wells. I am also the president-elect of the National Groundwater Association.*

**Hollenbeck, Katie**  
 Illinois Water Resources Center  
 Water Resources Outreach Specialist  
 1101 West Peabody Dr.  
 NSRC 038, MC-635  
 Urbana, IL 61801  
 (217) 244-8239  
 kholl@illinois.edu

*I work for the Private Well Class to help reach well owners on a national scale. We develop content and educate private well homeowners on how to care for their private well by facilitating webinars, hosting a 10 week online course, producing blogs, videos, and a podcast and have a variety of other multimedia vehicles.*

**Ihms, Ann**  
 Criterion Water Labs, LLC  
 Lab Manager  
 329 East Firmin  
 Kokomo, IN 46902  
 (765) 438-4995  
 water@critterionwaterlabs.com

*We host an annual open house for the lab and a radio program. The County Health Department refers customers to us with questions and testing needs. We link homeowners with inspectors and well drillers. We work with mortgage and refinance customers to meet their requirement for well testing.*

## What We Wanted To Happen

- Expand the national dialogue we were creating with the RCAP private well program.
- Provide an opportunity for practitioners, those working with well owners directly, to share their experience, and develop relationships with like-minded professionals.
- Decided that if we brought 20-30 experienced professionals in to speak, even if no one came, we would have a great workshop, so we paid their travel expenses.
- Wanted it to be free to attend to attract those w/o a travel budget. (had a number from IL and IN who drove in.)
- Start new collaborations, opportunities to learn from each other, leave wanting more and excited to get to it.

## Role As Facilitator

- We know there is a lot of great work going on around the country. We wanted to bring those folks with a passion of supporting private well owners together.
- Help develop non-traditional partnerships (we are convinced drilling/GW professionals and sanitarians need each other to create highly successful efforts.)
- Introduce private well practitioners to RCAP and their efforts around the country.
- Elevate common goals we have related to educating private well owners. (raise the bar on expectations nationally)

## Audience and Focus

- Sanitarians, groundwater professionals, extension, drillers, regulators, labs, educators, researchers (all were there)
- Set up conference to step through what we have learned from the Private Well Class Program.
  - **Challenges and Opportunities** – about wells and well owners, the same/similar issues in many areas.
  - **Perspectives** – meaning view of well owner, vs regulator, vs educator, vs driller, why each is important for the other to understand.
  - **Innovations** – what are some of the cool ideas and things some have learned and others need to know
  - **Partnerships** – a full day on how we can go farther together and the role each of us can play.



1.4 - Kelsey Pieper - What Practitioners Need to Know about Lead in Well Water

47 views

privatewellclass

SUBSCRIBE 337

## Challenge – Lead, Arsenic

- Many older homes with lead premise plumbing
  - Complicated, education is difficult
  - Treatment can affect corrosivity
  - Galvanized drop pipe and premise plumbing
  - Corrosivity of natural groundwater
- Arsenic is well known and understood problem, yet
  - Many well owners don't seem that concerned
  - Sometimes have no choice.



## Challenge – Well Owners

1.1 - Barbara Liukkonen - Well Owners

**Conclusions**

- People believe their water is safe
  - Sometimes without validating information
- Barriers to testing:
  - Don't know they should test, how or what to test for
  - Cost
- Local arsenic risk prompts testing (not nitrate)
- People want information from local sources & online

- Barb Liukkonen – Minnesota Extension
- Surveyed 1700 well owners in 3 states
  - 87% not or only slightly worried about well water
  - Many have never tested
  - 8% said “don't want to know.”
  - 53% said “We've been drinking it for years.”



## Challenge – Well Owners

**Actions Respondents Took**

Action	Percent
Did nothing	35
Drinks bottled water	35
Installed treatment system for arsenic	34

**Where Respondents Look for Info**

Where	Percent	First choice for:
Water testing lab	42	Older age groups & lower education/income
Internet Search	39	Younger age groups & higher education/income
Local govt. website or office	34	N/A, 2nd choice for youngest age group, highest education group
Well driller	30	N/A, 2nd choice for oldest age group, lowest education/income group

MDH

- Minnesota Department of Health
- Surveyed 795 well owners with high arsenic test result
  - 35% took no action
  - 83 % still drank untreated water





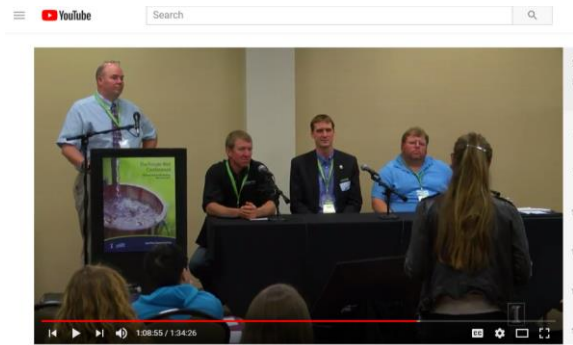
## Challenge – Well Construction



Tom Christopherson – Nebraska DHHS

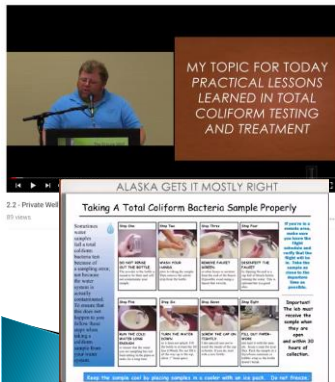
- Nebraska Grout study
- One grout does not fit all
- Bentonite chips make the best seal
- Sometimes grout regs don't fit

## Perspectives – Drillers Panel



2.2 - Private Well Drillers - Panel Discussion

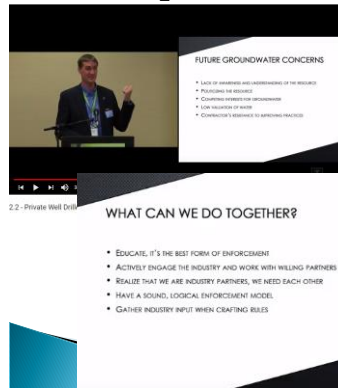
## Perspectives – Drillers Panel



Mark Layten – Kickapoo Drilling - Coliform Testing

- Why there are so many bad tests today
- The fact that drillers are doing so much more than drilling (sampling, treatment, etc.)
- Explained procedure

## Perspectives – Drillers Panel



David Henrich – Bergerson-Caswell & NGWA

- Discussed his public service, NGWA, relationship with state.
- Drillers are affected by so many rules.
- Future GW issues.
- How to elevate the industry, knowledge, and well owner engagement by working together.

## Perspectives - Drillers Panel



Corwin Gingerich – Gingerich Well Drilling

- Talked about relationships, and why good drillers are good colleagues with public health and regulators.
- Family business, believes in community.
- Volunteers, and willing to share resources.

## Drillers Panel

- Point was to provide the industry an opportunity to engage participants who are regulators and public health practitioners.
- Not only to share their perspective, but to help them understand how valuable drillers can be in their program.
- Also a chance for the audience to ask questions.
  - Discussed what is guaranteed (products & workmanship), learned that quality of the driller certainly matters
  - Shock chlorination
    - Level of chlorine
    - What procedure to use
  - Regulations that don't make sense or too difficult
    - Sometimes hurt the "good guys", others ignore
    - Those that don't follow the rules give all a bad name
  - Educating well owners, drillers role

## Perspectives – Labs

**General Takeaways and Next Steps**

- Lots of variety in lab capabilities, how they interact with well owners/the system, what they offer and what they're allowed to do.
- Commonalities:
  - Older E. coli/Total Coliform test
  - Provide bottles and written sampling instructions
  - Most are fee-for-service
  - Usually have greater capabilities than what is advertised

**Other lab thoughts:**

- Some labs are not allowed to advertise and therefore public is not aware of capabilities (partners can though!)
- A certified lab is highly recommended
- Public health labs may be able to trend data to a regional issues/challenges
- Eager to find partners!

Sarah Wright - APHL

- Did a survey of their members to present at this conference.
- Labs value partners and are eager to do so.
- Lack of regulations makes supporting well owners a bigger challenge.

## Lessons Learned – Penn State Ext.

**Overall Lessons Learned**

- The need for education is great
- Educator-CDOs make a difference
- Knowledge and clinical skills are needed to reach this target audience

**Where Do Well Owners Turn for Answers?**

Source	Percent That Would Use Each Source
Testing Lab	60
Penn State / NHDES	55
Bulletin	50
Internet	45
EPA	40
Hummer	35
Treatment Vendor	30
Friend	25
Conservation District	20
Family	15
Local Gov.	10

Susan Bosser – Penn State Extension

- Education works, well owners can be taught.
- A variety of approaches needed to reach well owners
- Master Well Owner Network – trained to help

## Innovation – Be Well Informed Tool

**Many Questions, Many Choices**

**The NHDES Be Well Informed Guide**

Pierce Rigrod – NH DES

- Provides well owner with evaluation of water sample.
- Recommends treatment based on results.
- Provides guidance
- Offered code, since conference 6 states have asked for it and are developing similar sites.

## Innovation Partnerships – Lane Co.

**Sample Locations**

**Unique Partnership to Provide Well Water Screening**

Lane County Environmental Health and Marist High School partner to provide free well water screening in Oregon

Sarah Puls – Lane County Oregon

- Wrote grant to get testing equipment.
- Provided to 2 high schools in county.
- Do testing, send out kits, send out letters.
- Learning experience for science students.

## Lightning Talks

**Well user resource needs**

**Government resources**

**Hand Pump Wells**

4.1.12 has 15+ minutes of questions to speakers.

Some Topics Covered:

- Poor construction
- Flooding
- Well maintenance
- Well assessments
- Water quality

## Takeaways

- Well owners aren't looking to well drillers for information on safety and quality of well water (labs, internet, and govt ahead of drillers)
- The biggest two issues in protecting the health of private well owners:
  - Old/Poor Construction
  - Well Owner Knowledge and Education
- Private well owner issues are a growing concern and more communication is leading to:
  - Better understanding of the issues nationally
  - Better collaboration among stakeholders
  - A growing group of stakeholders who are passionate about private well issues and public health.

## Partnerships

- So many wells, well issues, and uninformed well owners.
- Programs that are successful are built on partnerships with many players. They:
  - Share costs.
  - Share Effort.
  - Spread the word.
  - Provide local buy-in.
- Public Health Labs are eager to be partners in many states
  - Contact your state lab or a nearby lab and find out what they offer.
  - Provide sampling information to every customer.

## Basic Steps - Partnerships

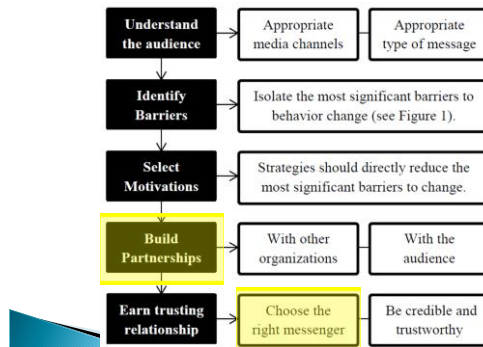
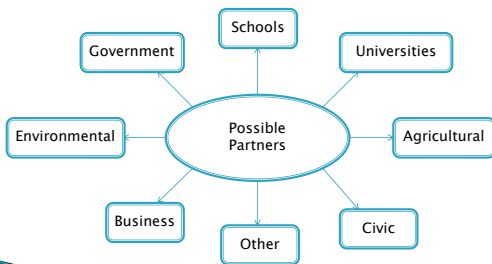


Figure 2: Basic steps for creating an effective outreach program.

## Components of a Successful Campaign

### Program Partners



## Get Involved

- What you can do
  - Contact local extension or health department and offer to present at public meetings for well owners.
  - Be a resource to answer well owner questions.
  - Pass out materials (see me for info)
- We all have to be engaged in providing solutions to raise public awareness of private well issues. It will:
  - Elevate your business
  - Earn you respect locally
  - Help educate regulators and educators
  - Provide advertising for your business.
- So be an active partner in supporting well owners you serve.
  - **We can help you get started, contact us.**

## Successes

- Evaluations were phenomenal
  - Best conference I have EVER been to.
  - Every presentation was relevant to what I do.
  - I learned so much, and made excellent contacts.
  - Can't wait for the next one.
- Lots of relationships and partnerships started.
  - VT met FL and TX folks at conference
  - 1100 samples in TX
  - 600 samples in FL
  - We were called to facilitate with state agency
- Most attendees said that they had no idea so much was going on around the country.

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 conference was recorded and the videos are now available on YouTube.

1.1 - Barbara Luukkonen - Why Don't People Test their Well Water?

**Challenges**

- Developing questions
- To give useful information
- Understandable - some
- Incentives
- Signs
- Incentives





## Questions



Thanks for attending!

