

# Exploring Alternatives to Regulating Small Drinking Water Systems

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British Columbia Centre for Disease Control and  
the National Collaborating Centre for Environmental Health  
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for Environmental Health

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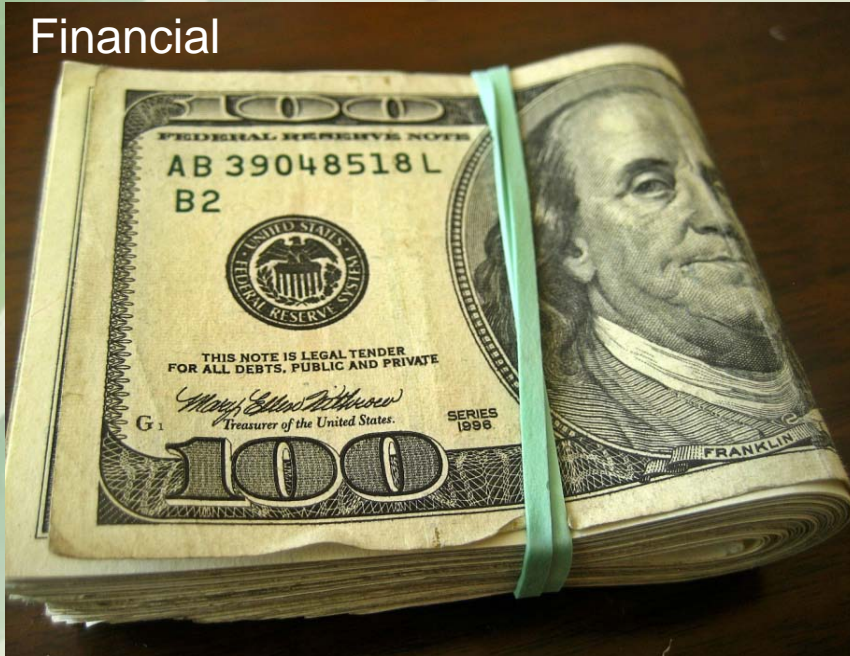


BC Centre for Disease Control  
An Agency of the Provincial Health Services Authority



# Why Small Water Systems?

Financial



Technology



Rural, Remote



Operator retention





# What is a small system?

- Small System range  
Micro, very small,  
or small
- Population served
- Number of  
connections
- Flow rate
- Service (continuous  
or intermittent)



# What is the extent of the issue?

- Estimated 3.7 million served by SDWS in US, Canada approx 5 million
- Boil Water Advisories
  - 1,760 across Canada, majority in BC and Ontario (2008)
  - BC: Interior 22% of systems on advisory, 79 % on long-term (2011)



# Characteristics of SDWS on Boil Water Advisories - BC

- Untreated surface water is a major driver of systems being on and remaining on advisory
- Size matters but type of governance system better predictor for being on and remaining on an advisory for residential systems

# Waterborne Disease Events in SDWS in Canada

- Lack of source water protection
- Precipitation, spring thaw/run-off and high turbidity
- Inadequacy or failure of water treatment
- Malfunctioning water distribution systems
- Other factors - maintenance

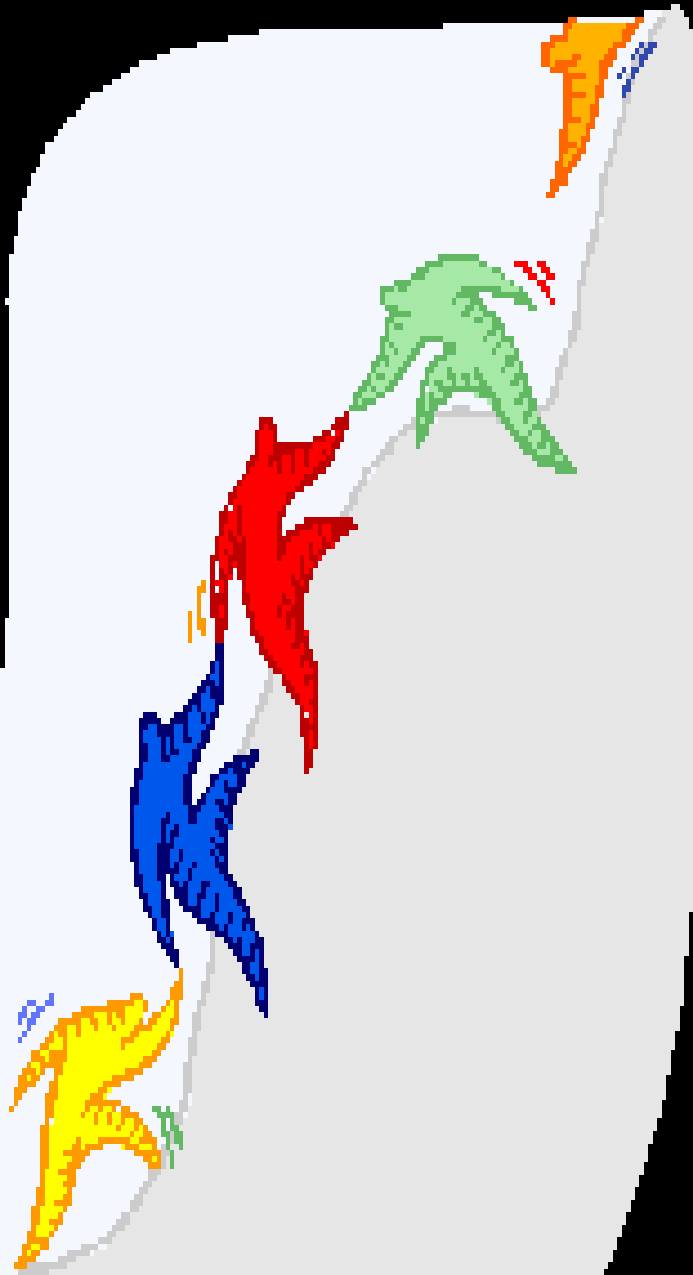
# What are options to regulation?

- Health Promotion
- Private Well Initiative
- *Know your system*, risk assessment tools
- Consolidation of utilities



# Health Promotion

- Engaging interest, behavioural change, tools
- Goal is improved system functioning
- Provide platform for SDWS to meet guidelines
- Address needs for information
- Financial Planning, performance indicators and benchmarks





# Private Well Initiative

- Private wells and other sources
- Resource for Public Health and Environmental Health practitioners
- Characterise systems
- Pilot testing data collection
- Funding





# *Know your system/ risk approach*

- Foundation for targeted intervention
- Multiple barriers
- Structured approach
  - Identification
  - Prioritization
- Risk assessment tools
  - Health Canada and World Health Organization
  - British Columbia Ministry of Health



# Utilities Consolidation

- Amalgamation of smaller systems into larger systems systems to make them viable; either physically or operationally
- Sharing of assets/operator/finance
- ARUC-Alaskan Rural Utility Collaborative
  - Economies of scale
  - Technical support
  - Centralized billing



# Other Resources

- Testing and surveillance
  - Real-estate transaction
- Training – Circuit Riders
- Web-based resources for system operators

Le M-L. Circuit rider training program for water operators. Fact sheet. Vancouver, BC: National Collaborating Centres for Public Health 2010 September. Available from: <http://www.nccph.ca/docs/CircuitRidersTrainingProgramforWaterOperators2.pdf>

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A-Z Index: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

## Drinking Water

Drinking Water Home  
Public Water Systems  
Private Water Systems  
Private Wells

Basics  
Siting & Contaminants  
Testing  
Treatment  
Maintenance  
Retirement  
Emergency Treatment  
Diseases & Contaminants  
Nonpublic Water Sources  
Water Fluoridation  
Camping, Hiking, Travel  
Bottled Water  
Water & Nutrition  
Publications, Data & Statistics  
CDC At Work  
Policy  
Drinking Water FAQ

### Healthy Water Home

Drinking Water  
Healthy Swimming / Recreational Water  
Global Water, Sanitation, & Hygiene  
Other Uses of Water  
Water-related Emergencies &

CDC.gov > Healthy Water Home > Drinking Water Home > Private Water Systems

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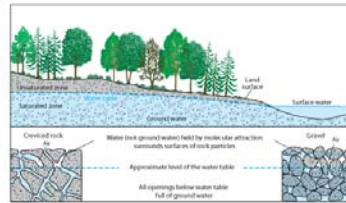
## Private Ground Water Wells

Many people in the United States receive their water from private ground water wells. EPA regulations that protect public drinking water systems do not apply to privately owned wells. As a result, owners of private wells are responsible for ensuring that their water is safe from contaminants. Here you may find information on the basics of wells, proper methods of siting and location for wells, all about testing and how often to test a well, proper treatment of wells and maintenance of wells, information on well retirement, common diseases and contaminants associated with wells, emergency treatment of wells, and answers to frequently asked questions about wells.

### Ground Water and Wells

When rain falls, much of it is absorbed into the ground. Water that's not used by plants moves downward through pores and spaces in the rock until it reaches a dense layer of rock. The water trapped below the ground in the pores and spaces above the dense rock barrier is called ground water, and this is the water we get when we drill wells. Another common term for ground water is "aquifer" or "ground water aquifer."

- Over 15 million U.S. households regularly depend on private ground water wells (1).
- All private wells use ground water.



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1600 Clifton Rd  
Atlanta, GA 30333  
800-CDC-INFO (800-232-4636)  
TTY: (800) 332-6340  
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8am-5pm ET/Monday-Friday  
Closed holidays  
cdcinfo@cdc.gov

EPA United States Environmental Protection Agency

Learn the Issues Science & Technology Laws & Regulations About EPA

## Water: Private Wells

You are here: water > Drinking Water > Consumer Information > Private Drinking Water wells


### Private Drinking Water Wells

If your family gets drinking water from a private well, do you know if your water is safe to drink? What health risks could you and your family face? Where can you go for help or advice?

The information contained in this web site will help you answer these questions.

EPA regulates public water systems; it does not have the authority to regulate private drinking water wells. Approximately 15 percent of Americans rely on their own private drinking water supplies, and these supplies are not subject to EPA standards, although some state and local governments do set rules to protect users of these wells. Unlike public drinking water systems serving many people, they do not have experts regularly checking the water's source and its quality before it is sent to the tap. These households must take special precautions to ensure the protection and maintenance of their drinking water supplies.

- Basic Information - Learn about the types of drinking water wells and guidelines for proper construction.
- Where You Live - Find information about private drinking water wells in your region or state.
- Frequent Questions - This page answers questions you may have about your well water.
- Human Health - Learn about health risks associated with drinking water wells.
- Partnerships - Several organizations are working to keep private drinking water wells safe.
- What You Can Do - Learn how to do your part in keeping your drinking water well safe.
- Publications - Download or order copies of brochures, booklets, posters, reports, and multimedia publications.
- Related Links - Link to web sites with additional information on private drinking water wells.
- Glossary - Look up unfamiliar terms in EPA's electronic glossary.



Water Home  
Drinking Water  
Analytical Methods and Laboratories  
Consumer Information  
Drinking Water Standards  
Emergency Preparedness  
Local Drinking Water Information  
Private Wells  
Virtual Tour of Water Treatment Plant  
Water Contaminants  
Water Security  
Water on Tap: Consumer's Guide  
Education & Training  
Grants & Funding  
Laws & Regulations  
Our Waters  
Pollution Prevention & Control  
Resources & Performance  
Science & Technology  
Water Infrastructure  
What You Can Do

# Recommendations

- Characterize systems
- Provide low cost loans, grants or other financial tools
- Increase status of DW operators
  - Public Health role in the community
  - Adequate pay for responsibility
- Amalgamate services for economies of scale

# Thank you!

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For more information about SDWS, please visit [http://www.ncceh.ca/en/major\\_projects/drinking\\_water](http://www.ncceh.ca/en/major_projects/drinking_water)

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