



Well Water Community Action Toolkit

Congratulations on deciding to address private well water safety in your community. This toolkit was designed to help communities increase private well water testing and treatment. In this toolkit, you will find:

- Background information on private wells in New Hampshire
- A step-by-step guide for planning community activities
- Useful resources
- Communication materials
- Project planning worksheets

This toolkit may be used progressively from start to finish or you may choose to jump to the most relevant section that meets your community's needs. Either way the guidance and information provided here will help you work with your community partners and, over time, will create lasting community change.

Introduction

WHY USE THIS TOOLKIT?

This toolkit was created for the NH Department of Environmental Services (NH DES) and NH Department of Health and Human Services (NH DHHS), as part of a two year US Centers For Disease Control and Prevention (CDC) grant, titled “Assessing and Managing Risks Associated with Exposure from Arsenic in Private Wells” (Grant # 1U53EH001110-01). It was designed to share lessons learned, with a specific focus on actions that work within local communities to increase community knowledge of private well water contaminants, and to increase well water testing and treatment.

While NH has one of the highest rates of citizens served by private wells, many people are not aware of the importance of testing their wells on a regular basis. Of those who are aware, many still choose not to test. Focus groups conducted under the grant identified lack of awareness, cost, and inconvenience as the major barriers to water testing. By following the process described within this toolkit and implementing the two local level “interventions” we recommend, your community can address identified barriers by increasing awareness, testing and, by extension, treatment. This toolkit was designed for community groups or individuals who are already interested in, and motivated to, address this issue. If this topic is new to you, please check out the additional resources for more background information.

WHAT IS AN INTERVENTION?

Throughout this toolkit we use the word “intervention” to describe community events or activities designed to address issues related to private well water safety. For example, holding an in-person event to hand out well water testing kits is referred to as an intervention. The distribution of town communication materials would also be considered an intervention. This is a common public health planning term.

UNDERSTANDING CONTAMINANTS IN PRIVATE WELL WATER IN NH

The NH DES estimates that more than 46 percent of New Hampshire residents rely on private wells at home.ⁱ While homes served by a *public* water supply benefit from federal regulations requiring regular testing for contaminants, it is up to the private well owner to maintain the testing and if needed, the treatment of their well water.

Certain contaminants found in New Hampshire’s groundwater occur naturally due to geologic



Introduction

or soil conditions, while others are associated with human activities. For example, arsenic and radon are common contaminants found in bedrock and consequently in well water. Potential human sources of contamination include leaking underground fuel tanks, chemical spills, closed landfills, road salt and other land uses. Regardless of the source of contamination, water must be tested and treated to ensure it is safe to drink.

Trace elements, such as arsenic, lead, manganese and uranium can be particularly worrisome and private well owners should take note. Recently, the U.S. Geological Survey (USGS) and U.S. Environmental Protection Agency- New England (EPA) conducted a trace metals study on 232 private well water samples in Southeastern New Hampshire.ⁱⁱ Key findings included:

- Nearly 3 out of 10 (28 percent) water samples contained trace metal concentrations that exceeded one or more of US EPA's drinking water standards.
- As of 2010, estimates of the numbers of residents in the study area that may have private wells in bedrock aquifers that supply water with trace-metal concentrations exceeding standards are:
 - 8,600 people have lead exceeding 15 µg/L
 - 7,500 people have uranium exceeding 30 µg/L
 - 14,900 people have manganese exceeding 300 µg/L

Exposure to contaminants through drinking water can have a variety of adverse health effects. Some contaminants, such as certain strains of *E.coli* bacteria or high levels of nitrate, can result in immediate illness, such as gastroenteritis. Other contaminants, when consumed over a long period of time at low doses, increase the risks for developing certain forms of cancer, cardiovascular diseases and neurological disorders.

Among potential private well water contaminants, arsenic is of particular concern in New Hampshire.ⁱⁱⁱ Arsenic has been linked to cancer in humans. Based on the potential adverse effects of arsenic on the health of humans and the frequency and level of arsenic occurrence in public drinking water systems, the EPA has set the arsenic maximum contaminant level (MCL) for public drinking water systems at 10 parts per billion (ppb).^{iv}

Past studies in NH estimate that a relatively high number of private bedrock wells contain concentrations of arsenic exceeding the MCL.^{v, vi, vii} The southeastern region of the state has



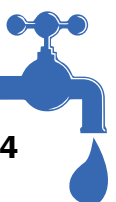
Introduction

the greatest potential for arsenic concentrations greater than or equal to 10 ppb. There may be 41,000 people in just the counties of Merrimack, Strafford, Hillsborough, and Rockingham who are drinking water with arsenic levels above the EPA standard.^{vii, ix} Arsenic cannot be seen, smelled or tasted. Testing your water on a regular basis – for arsenic and other contaminants – and treating the water if results indicate the need to, is the only way to ensure safe private well water.

A COMPREHENSIVE APPROACH

Any coordinated effort – great or small – to increase well testing and limit consumption of contaminants in well water is a step in the right direction. As you use this toolkit and become more organized with your efforts, it is important to consider a few things:

- A single effort may create short-term change. A combination of a few different efforts or repeating a single effort, on a regular basis will likely create long-term change.
- When possible, a comprehensive approach is the way to go. This means looking at different activities within your local community, region and state and thinking about how they fit together and complement each other. For example, maybe you should hold an event on Earth Day or during Drinking Water Week or Ground Water Awareness Week, since people will already be hearing messages that will reinforce your efforts.
- This also means looking at different spheres of influence. An individual gets information from a variety of people including friends, families, and coworkers. How can you use these relationships in your planning? Individuals are also influenced by their environments including work, church, schools, and community groups. How can you use these interconnected relationships to your advantage?
- The most successful plan is a comprehensive, ongoing plan. That said, any new effort you employ will likely move the community in the right direction.



Where should you start?



Creating a plan that works for you and your community

STEP 1: COMMUNITY ASSESSMENT

WHAT IS ALREADY HAPPENING IN YOUR TOWN?

Community assessments don't have to be complicated. The first step is to simply understand **what has or has not worked in your community before**. Perhaps another group already tried an intervention at the school and it was not successful. What can you learn from their efforts? Collecting this information would help you avoid the same mistakes. Second, focus on the **identification of gaps**. Perhaps many town officials have worked on this issue in the past, but no one has reached out to local private well water testing labs. Identification of gaps will help increase your success and your capacity. Third in a community assessment is the identification of **community resources** that might help you with your plan. Does the local college have an active environmental studies program with students already studying this topic? Perhaps they could lend their expertise at a testing event. Maybe there is a private well water testing company nearby who would supply testing kits? These are important resources that might prove useful as you move forward. All of this information gathering will help illuminate what is happening in your community! The **assessment worksheet in Appendix C** will help you with completing Step 1.

STEP 2: CAPACITY BUILDING

WHO IS ALREADY INVOLVED AND WHO SHOULD BE INVOLVED?

Your community assessment should help you identify who has already been working on the issue. There are a variety of community sectors to consider engaging including:

Youth	Schools	Service organizations
Parents	Healthcare professionals	Housing and development
Local businesses	Town and state government	Faith-based organizations
Media	Community organizations	

Capacity building is as simple as identifying who you think should be on your team and recruiting them. Be sure to cast a wide net; you never know who has a personal passion for clean water.

STEP 3: PLANNING

A. IDENTIFY YOUR GENERAL GOAL (e.g. education, increased testing, increased treatment)

Many groups fail to identify a goal before they start implementing their intervention and then assume their effort has been a success because they took some sort of action. Goals do not have to be complicated and can be fairly easy to identify. For example, your goal might be to educate new homeowners on the importance of regular well water testing. This one clearly defined sentence can provide an outline, guidance, and boundaries for the rest of your plan.



B. IDENTIFY YOUR AUDIENCE

Give some thought to whom you are trying to reach with your intervention. Does everyone in your town own a well? If no, then who does have a well? Perhaps you have a large summer population and they are unaware of private well upkeep. Identifying whom you are trying to reach and why will guide your planning process. Based on a statewide survey conducted in Year 1 of our grant project the following populations were identified as good potential audiences for interventions addressing well water safety, specifically arsenic: non-white residents, residents of a multi-family or seasonal home, and residents with a single-family home who did not talk to friends or family about water quality.

C. SELECT YOUR INTERVENTION

While there are many types of community interventions, here we cover two examples:

Town Communications

Town communication interventions focus on utilizing town communication channels to spread your message. This might mean posting a PDF flyer on a town webpage, handing out information at the library, or speaking at a Select Board meeting. To help you succeed with your efforts, samples of communication materials that may be used for your project are included in Appendix A.

Testing Events

Testing events focus on distributing well water test kits. The NH Public Health Laboratory will provide kits for towns interested in implementing such an event, as will some private labs. Ideally, people will be more likely to complete the test if the kit is easily accessible. Some communities have chosen to return the kits to the lab on behalf of community members. This takes additional coordination as you must also coordinate payment. That said, setting up an event like this can be done easily and the rewards can be very meaningful.

To learn more about some recent interventions in NH, check out Appendix B.

D. CHOOSE A SPECIFIC SUCCESS MEASURE

Now that you have selected your general goal you need to track the success of your specific intervention and link it back to your goal. Doing so will help ensure you are making the change you want and will help you identify modifications that need to be made. You should track **process measures or outputs** and identify relevant **outcome measures**. Process measures or outputs have to do with the process of the intervention, while an outcome measure looks at how your efforts have achieved the final, larger goal. Sample process measures might include the number of hours spent hosting the in-person event or the



number of posters distributed. An outcome measure of success would be an increase in event attendees, increase in test kits distributed, increase in test kits returned to the lab, or increased understanding of the importance of regular well water testing by new home owners.

Don't let this process overwhelm you. The **Planning Worksheet in Appendix C** includes a few helpful examples. The important thing is to think about what you are trying to accomplish and how you know when you have done so.

E. IDENTIFY YOUR TIMELINE (e.g. once a month, annual event)

What is your timeframe for implementing your intervention-- once or twice a year? Maybe some communication once a month? Perhaps there is a special community or national event or a local meeting within which you would like to integrate your efforts. Identifying the timeframe will help you plan your implementation, think about the needs of your audience, and track your success.

F. SETTING UP LOGISTICS

Setting up logistics starts with your audience. If you are trying to reach summer residents then a testing event during March Town Meeting will not work. A working audience will only be accessible at night or on the weekends. What materials do you need? Also, keep in mind that selection of the location is key to a successful in-person event. Consider a popular location with heavy foot traffic. If the location is outside, you need to plan on weather issues. If the location is inside, you'll likely need signs directing people. Use the attached **planning and implementation worksheets in Appendix C** to figure out what will work best for you.

STEP 4: IMPLEMENTATION

Now that you have a plan you like, it's time to implement. While unexpected issues are bound to occur, there are some simple steps you can take to make sure the implementation of your intervention goes as smoothly as possible. They include:

- Utilizing a variety of community members. A minimum of two volunteers per in-person event is ideal.
- Make sure your volunteers are well versed on the topic.
- If your event is outside be sure to plan ahead for changes in weather.
- Remember to track your measures as you go.
- Be sure to publicize in-person events beforehand.

Make sure to reflect on an in-person event and any unexpected changes you had to make soon after you hold the event. This will help you adjust your plans in the future.



STEP 5: MONITORING

A. TRACKING YOUR EFFORTS

Start with the **worksheets included at the end of this toolkit** or use your own tracking system. After implementation, look back at your original goal and your measures. Did you reach your goal? Was that the best success measure for what you are trying to achieve?

B. REFLECTION ON THE WHOLE PROCESS

What worked? What didn't? What would you change? Identify one or two small manageable changes that could be made the next time around that could result in greater success.

Many people are drawn to taking action and they erroneously think that action equals change. It does not. In reality, action equals action. That is why it is important to step back and make sure you are still headed in a direction that makes sense for you and your team. This does not have to be a lofty or exhaustive process. By simply taking the time to do this you are more likely to improve your second attempt at implementing an intervention and continue to increase success across your community.

Additional Resources and Local Experts

WEB LINKS

NHDES Private Well Testing Program

http://des.nh.gov/organization/divisions/water/dwgb/well_testing/index.htm

Be Well Informed Water Treatment Tool

<http://xml2.des.state.nh.us/DWITool/>

Environmental Protection Agency Ground Water

<http://water.epa.gov/type/groundwater/index.cfm>

Dartmouth Toxic Metals Superfund Research Program

<http://www.dartmouth.edu/~toxmetal/>

STATE PARTNERS

Dartmouth Toxic Metals Superfund Research Program

(603) 650-1524

<http://www.dartmouth.edu/~toxmetal/>

NH DHHS Public Health Laboratories

(603) 271-4661

<http://www.dhhs.nh.gov/dphs/lab/index.htm>

NH Department of Environmental Services

(603) 271-2513

<http://des.nh.gov/organization/divisions/water/dwgb/index.htm>

NH DHHS/DPHS Environmental Public Health Tracking Program

(603) 271-4988

<http://www.dhhs.state.nh.us/dphs/index.htm>



Appendix A

SAMPLE INTERVENTIONS

TOWN COMMUNICATIONS

Town communication interventions focus on utilizing town communication channels to spread your message. This might mean posting a PDF flyer on a town webpage, handing out information at the library, or speaking at a Select Board meeting. To help you succeed, samples of communication materials that may be used for your project are included here.

TESTING EVENTS

Testing events focus on distributing well water test kits. The NH Public Health Lab will provide kits for towns interested in implementing such an event, as will some private labs. The hope is that people will be more likely to complete the test if the kit is easily accessible. Some communities have chosen to return the kits to the lab on behalf of community members. This takes additional coordination as you must also coordinate payment. That said, setting up an event like this can be done easily and the rewards can be very meaningful. Add your details to these communication materials and distribute them to promote your event.

These communication materials highlight testing for arsenic, as they were created as part of an arsenic focused CDC grant. Given the prevalence of arsenic in NH it is a good idea for all NH private well owners to test for arsenic on a semi-regular basis. If your community is interested in communication materials addressing other contaminants please reach out to NH DES for assistance.

SAMPLE COMMUNICATION MATERIALS

GENERAL COMMUNICATION MATERIALS

FLYER

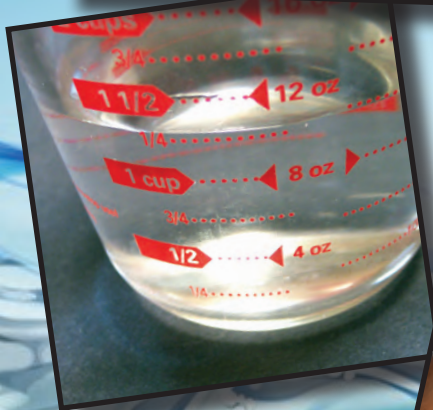
POSTCARD

EVENT MATERIALS WITH SPACE TO ADD YOUR EVENT DETAILS

TWO FLYERS

POSTCARD





You can't see it.
You can't smell it.
You can't taste it.

IS THERE ARSENIC IN YOUR WELL WATER?



1 in 5

homeowners' wells in
New Hampshire contain
unsafe levels of arsenic



15
dollars

is all it costs to test your
well water for arsenic



10
minutes

is all it takes to
collect a water sample



3-5
years

is the recommended
frequency for testing

ARSENIC IS COMMON IN WELL WATER.

- **Arsenic is present in New Hampshire well water** because of the state's granite and other types of rock.
- Arsenic in well water can cause **serious health issues over time**, such as heart problems and bladder, skin, and lung cancer.
- **Children are especially vulnerable** to the effects of arsenic in water.
- Everyone's wells need testing, so **do not rely on the results of your neighbor's test**. Arsenic levels vary from house to house.
- **Common treatment methods, such as boiling, pitcher filters, or a water softener, do not remove arsenic.**
- There are **many resources available** to help! We suggest you start at: <http://www.dartmouth.edu/~toxmetal/arsenic>

TESTING YOUR WATER IS EASY.

- The **first step to keeping your family safe** is to test your well water for arsenic and other contaminants.
- The cost to test your water ranges from about **\$15 for just arsenic to \$85 for a standard package** of tests of the most common contaminants.
- **Sample collection bottles are easily available** from state or private labs. Bottles **can be mailed to you** and samples **can be mailed back**. Directions will be included in your kit.
- If testing shows that you have unsafe levels of arsenic, there are **reliable options** to address it.
- For a list of certified labs, visit:
<http://www2.des.nh.gov/CertifiedLabs>

TEST YOUR WATER TODAY, AND THEN AGAIN EVERY 3 TO 5 YEARS.

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TEST YOUR WATER TODAY, AND THEN AGAIN EVERY 3 TO 5 YEARS.

You can't see it. You can't smell it. You can't taste it.



“

I had no idea the water we were drinking and cooking with was unsafe. I have lived in my house for 10 years and didn't realize I had arsenic in my water that could affect my family's health. It looked, smelled and tasted fine. The fix was easy and not too expensive. I feel so much better knowing the water is safe

to drink.

”

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TEST YOUR WATER TODAY, AND THEN AGAIN EVERY 3 TO 5 YEARS.

A dynamic background featuring a large, energetic splash of water in shades of blue and white, with droplets and ripples visible throughout.

ATTENTION RESIDENTS WITH PRIVATE WELLS

Well Water Testing Event - Pick up a
WELL WATER TEST KIT!

- ▶ **Where:**
- ▶ **When:**
- ▶ **Time:**

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- ▶ **Time:**

Appendix B

WHAT WORKS IN NH?

A LOOK AT COMMUNITY EFFORTS IN BOW AS DESCRIBED BY A COMMUNITY MEMBER

How did your community get started addressing well water testing and water quality?

In 2005, the Drinking Water Protection Committee was established by the Select Board to help develop source water protection plans for municipal facilities. The committee recognized the need to protect water quality and over time has added private well testing to the topics it addresses.

Who is involved with this effort in your town?

The Drinking Water Protection Committee – a group of volunteers, including those representing the school board, planning board, and conservation commission, as well as representatives from the department of public works, operator of the municipal well system. We have also had interested residents participate on individual projects without the commitment of being a member of the committee.

How long have you been working on it?

Although the committee was formed in 2005, the committee's attention to education about private well testing has occurred within the past 5 years.

Has your group or team identified any short or long-term goals?

While we have a plan that addresses protection of drinking water and groundwater through various means, we have not yet establish goals in the area of private well testing.

Please describe some of the activities you have implemented in your community:

We have been distributing well test kits at town events, such as town meeting, voting days, and school open houses. In addition, we have made well testing, drinking water quality and septic system maintenance information available on a display board. We have had great cooperation from our school district in helping publicize well testing events and allowing us to have a table at school open house events. These activities are in addition to other work we have done, such as developing a Well Head Protection Program Implementation Plan for Bow's new one-million gallon a day municipal water supply, developing criteria for identifying land for protection/purchase by the town for drinking water protection, and conducting a study in response to homeowner complaints about water quality affecting their well pumps and the possible involvement of road salt.



A LOOK AT COMMUNITY EFFORTS IN BOW, CONTINUED

What have you learned along the way? Have you hit any snags along the way?

While we have been available at town events and have had mixed success (more limited response than we had hoped), our recent participation in Dartmouth and DES's Arsenic project showed us that we can have a successful stand-alone event distributing water test kits as long as it is well publicized—and we know what that means as well!

Any advice you would offer a person or community group just getting started?

Assemble existing educational materials and make them available to residents and businesses in your town – on the web, in town offices and at local events. While you may want to start with participation at town events, holding a well testing kit distribution event that is well publicized may bring out interested people who have bypassed your display at other events. The support of your Select Board or Town Manager can contribute to the success of your efforts, so work with them – and seek their input and support.

WHAT WORKS IN NH?

A LOOK AT COMMUNITY EFFORTS IN TUFTONBORO AS DESCRIBED BY A COMMUNITY MEMBER

How did your community get started addressing well water testing and water quality?

We attended a NH DES Drinking water conference and heard a compelling lecture on arsenic in well water. We realized that only we had the motivation to make it happen.

Who is involved with this effort in your town?

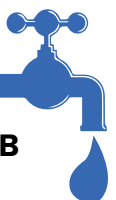
The Conservation Commission with the support of the Selectmen.

How long have you been working on it?

Four and one half years. In that time we have helped process about 400 well tests.

Has your group or team identified any short or long-term goals?

Yes, to continue to offer the program and look for new and more effective ways to educate and involve the public.



A LOOK AT COMMUNITY EFFORTS IN TUFTONBORO, CONTINUED

Please describe some of the activities you have implemented in your community.

Information in the press, workshops, messages in tax notice mailing, personal contacts, water testing events.

What have you learned along the way? Have you hit any snags along the way?

We learned that the average person is incredibly difficult to reach and then difficult to educate. People don't want to listen to bad news or find out that they may have to be responsible to solve a problem. Younger home owners and parents are the most difficult to reach. Life is difficult enough and besides "the water looks and tastes good". We have a great problem solving group. No real snags.

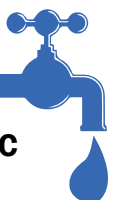
Any advice you would offer a person or community group just getting started?

Save yourself some work, read our narrative then add your own ideas. We have already "invented a lot of the wheel." Use the toolkit and add materials developed by Dartmouth TM. A lot of good work went into that stuff. Do your homework, educate yourself so you can talk in a convincing and compelling way. Figure out a way to make it easy for people to participate.

Appendix C

WORKSHEETS

- **ASSESSMENT OF CURRENT OR PAST EFFORTS**
- **CAPACITY BUILDING**
- **PLANNING**
- **IMPLEMENTATION**
- **TRACKING AND REFLECTION**



Assessment of Current or Past Efforts

Event/ Effort	Resources Used	Implementation Group	Target Audience	Timeframe	Measure	Lessons Learned
Example: Clean Water Day	<ul style="list-style-type: none"> Created posters and about importance of well water testing 	Pelham Middle and High School	Science classes	Each April 15 th , for the past 5 years	# of posters posted	Other community groups to take part?
Well Water Awareness Announcement	<ul style="list-style-type: none"> Newsletter Writer/ creator for announcement Editor for announcement 	Town Health Officer and town staff	New Homeowners	Every May	# of new homeowners receiving newsletter	While this happens in May because of Well Water Awareness day, we need to work on reaching new homeowners year round
Gaps: Example - None of the current efforts reach summer residents, most current work happens online, so people who are less computer savvy are not being reached.						
Community Resources: Example - The library has a great resource room and lots of people use it; there is a local private water testing company; our local newspaper is always looking for human interest stories, our community has a number of DES employees with content expertise.						

Capacity Building Worksheet

[illegible]

Planning Worksheet

Goal: To increase general knowledge about arsenic in private well water and how you can test it!

[illegible]

Implementation Worksheet						
Event/ Effort	Testing Event					
Date/ Time	Saturday, 9-3					
Location	Parking lot of the community building					
Staffing of Event	Morning: Roger, Paul Afternoon: Laurie, Karen					
Data to be collected	# of total attendees # of kits distributed # of kits collected for return					
Special Notes	<ul style="list-style-type: none"> It might rain in the afternoon Make sure Paul has read the most recent fact sheet Be sure the laboratory knows we will be returning a bunch of kits on Thursday of next week 					

Tracking and Reflection Worksheet

[illegible]

Community Toolkit References

- ⁱ USGS (Kenny, Circular 1344, see below) estimated 42 percent in 2005. A survey by NH Department of Health and Human Services in 2006 found 44.4 percent of households using private wells. Source: JoAnne Miles, September 7, 2007, Drinking Water Source Data Brief, N.H. Environmental Public Health Tracking Program. In 2014 NHDES revised the estimate to 46 percent as of 2010 based on new wells drilled since 2006.
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