

What's a Private Well Owner to do?



Eight Tips for Maintaining Your Well

By **Cliff Treyens**, Director of Public Awareness,
National Ground Water Foundation



Suppose you're a private well owner in Anywhere, USA. Perhaps you've moved out to the country to get away from urban sprawl and found yourself the proud owner of a water well for the first time. Or maybe you've relied upon a water well most your life.

Either way, you probably don't have an owner's manual that goes with your well. That seems okay until you need help. It's at times like those that you'll wish you knew some basics about water well system maintenance.

1

Don't try to service your own well.

When well owners try to service their own wells, they usually fail to solve the problem or make it worse. Qualified professional water well system contractors use specialized equipment, materials, and techniques to keep well systems operational and water supplies safe.

At the National Ground Water Association (NGWA), we've heard countless stories of well-intentioned homeowners fouling up their wells in an attempt to fix a problem. For instance, there's the gentleman who poured six gallons of bleach down his well to get rid of an odor in the water. After flushing thousands of gallons of water out of his well, the odor he was unable to eliminate was the bleach.

Moreover, every time a well owner removes a well cap and attempts to service the well in some way, there's the potential to unwittingly introduce bacterial

or other contamination into the well. There's also the potential for dropping objects (tools for instance) into the well, getting the pump stuck in an effort to replace it, or even electrocution when working with submersible pumps.

It's always best to contact a qualified professional water well systems contractor to conduct any kind of service on your well.

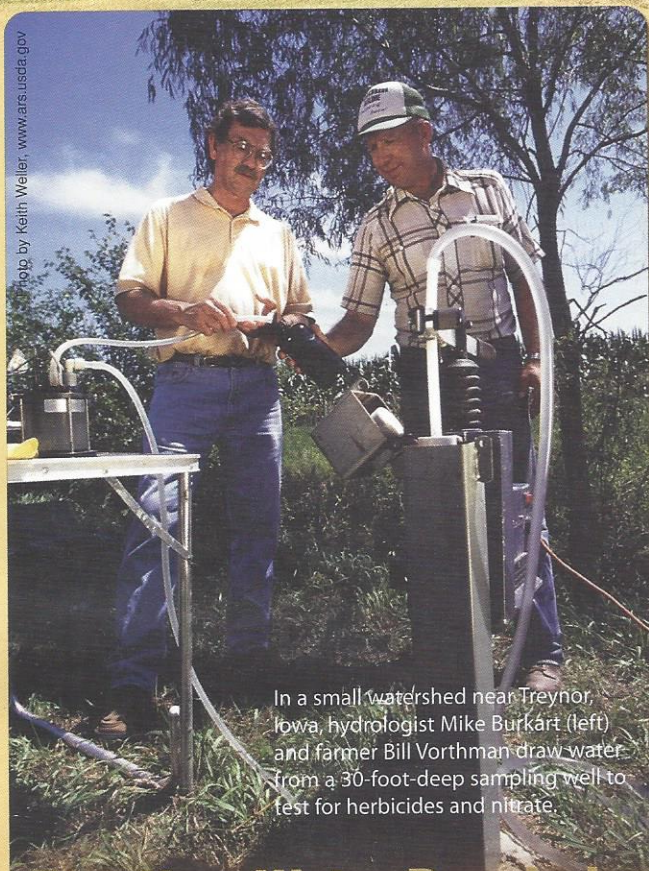
2

Preventive maintenance is less costly in the long run.

Often, it's human nature to be penny-wise and pound-foolish, particularly where privately owned water wells are concerned. The NGWA conducted a poll not too long ago, and the results confirmed what we expected: 80 percent of those responding had never had a well maintenance inspection.

What often happens is that a small, easily correctable problem becomes a large, inconvenient, much more expensive problem. Treating your water well system this way would be like never having an auto mechanic look under the hood of your car until a catastrophic breakdown.

Few people argue that preventive maintenance is unwise. The problem is that few people follow through on their own



In a small watershed near Treynor, Iowa, hydrologist Mike Burkart (left) and farmer Bill Vorthman draw water from a 30-foot-deep sampling well to test for herbicides and nitrate.

Test Your Water Regularly

The National Ground Water Association recommends that well owners test the water:

- annually for bacteria, nitrates/nitrites, and any contaminants of local concern;
- any time there is a change in the taste, odor, or appearance of the well water, or if a problem occurs such as a broken well cap or a new contamination source;
- if family members or houseguests have recurrent incidents of gastrointestinal illness;
- if an infant is living in the home; or
- if you wish to monitor the efficiency and performance of home water treatment equipment.

You should also check with your local health or environmental health department for recommendations regarding the type and frequency of testing best suited to your location. Many water well system contractors will take water samples for testing by a certified water-testing laboratory.

common sense when it comes to preventive maintenance for their water well system. What makes this doubly important for well owners is that you're consuming what comes out of that well. So, it's a matter of health as well as convenience and cost.

3 Do some homework before getting your water well system serviced.

This is a good idea whether you're getting a well maintenance check-up or service for a specific issue.

A well maintenance check-up should include four components. First, is a flow test to determine system output, along with a check of the water level before and during pumping (if possible), pump motor performance (check amp load, grounding, and line voltage), pressure tank and pressure switch contact, and general water quality (odor, cloudiness, etc.). Next, is an inspection of well equipment to assure that it is sanitary and meets local code requirements. Third, is a test of your water for coliform bacteria and nitrates, and anything else of local concern should be performed. Finally, a concise, clear, written report should be delivered to you following the check-up that explains results and recommendations and includes all laboratory and other test results.

4 Take some simple, ongoing steps to maintain your well.

Here's a homeowner's well maintenance checklist from the NGWA:

- Always use licensed or certified water well drillers and pump installers when a well is constructed, a pump is installed, or the system is serviced.
- An annual well maintenance check, including a bacterial test, is recommended. Any source of drinking water should be checked any time there is a change in taste, odor or appearance, or anytime a water supply system is serviced.
- Keep hazardous chemicals, such as paint, fertilizer, pesticides and motor oil away from your well.
- Periodically check the well cover or well cap on top of the casing (well) to ensure it is in good repair.



- Always maintain proper separation between your well and buildings, waste systems, or chemical storage facilities. Your professional contractor knows the rules.
- Don't allow back-siphonage. When mixing pesticides, fertilizers or other chemicals, don't put the hose inside the tank or container.
- When landscaping, keep the top of your well at least one foot above the ground. Slope the ground away from your well for proper drainage.
- Take care in working or mowing around your well. A damaged casing could jeopardize the sanitary protection of your well. Don't pile snow, leaves or other materials around your well.
- Keep your well records in a safe place. These include the construction report, as well as annual water well system maintenance and water testing results.
- Be aware of changes in your well, the area around your well, or the water it provides.
- When your well has come to the end of its serviceable life (usually more than 20 years), have your qualified water well contractor properly seal your well after constructing your new system.

5

Use qualified professionals.

When your well needs service, make the effort to find a qualified water well systems contractor. Here are some considerations:

- If you live in a state that licenses water well system contractors, make sure you select a licensed contractor to perform the work.
- Is the contractor certified through the National Ground Water Association (NGWA)? NGWA operates the only national certification program for water well drillers and pump installers, who must pass exams and take continuing education courses. Is the contractor a member of NGWA, the nation's leading association of ground water professionals?
- Does the contractor submit well logs? A well log is a document filed at completion of a new well that contains vital information on the history of the well and the ground surrounding it.

- Does the contractor have adequate equipment in good condition to do the job?
- Does the contractor have adequate liability and worker's compensation insurance to protect you?
- Is the contractor familiar with applicable health and safety codes?
- What is the contractor's reputation with previous customers? Don't be afraid to ask for references.
- Will the contractor furnish a written contract specifying the terms and conditions of the job?

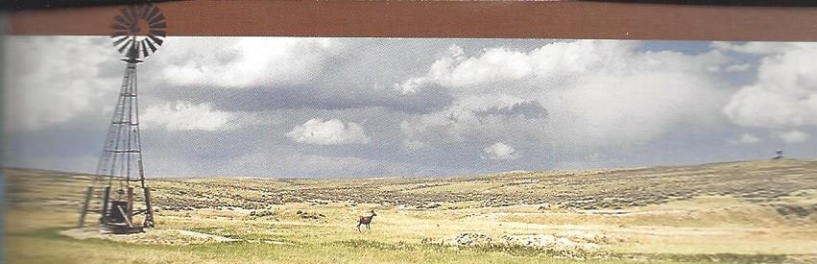
This last point is very important. Unless you know what a contractor will do for his specified price, you cannot compare offers and decide which one to hire. Also, a written contract provides protection for you and the contractor should a disagreement arise over the scope or cost of the work.

For a drilled well, the contract may include:

- The liability insurance coverage held by both the owner and the contractor,
- A statement that all work will comply with applicable regulations and codes,
- The diameter and thickness of the casing used,
- The type of well development and yield evaluation procedures used,
- The type of screen installed, where needed,
- The type of well cap or seal used,
- The disinfection procedure,
- Clean-up procedures, including all material abandoned at the drill site,
- An anticipated start date for drilling,
- A guarantee of materials and workmanship, and
- A statement that the contractor will do the work and correct the initial work, if necessary.

Also, the contract should itemize charges. Itemization may include the cost of drilling per foot, casing per foot, other materials (i.e., the drive shoe, grout and well cap), other operations (i.e., grouting, development, test pumping and disinfection), drilling deeper and/or a second well to ensure an adequate water supply, abandonment and sealing should it prove necessary, and anything not included in the specification.

Continued on page 35.



Continued from page 17.

6

Understand the problem.

When your well needs maintenance, have the contractor explain the problem so that you understand it, then explore options for correcting the problem.

Sometimes well owners get frustrated because they don't understand their water well system and, therefore, don't understand what's wrong with it when service is required. Sometimes the well owner doesn't ask questions or the contractor doesn't adequately explain the problem and/or solutions.

Don't be afraid to ask questions until you're satisfied. Once you grasp the problem, explore options for fixing it with the contractor. This kind of dialogue is important because sometimes there can be different reasons for a water well system problem and, consequently, different solutions.

For example, over time the amount of water a well yields can decrease. Sometimes that is because the water table is dropping. Other times it can be caused by the plugging of holes in the well casing, mineral encrustation of the well screen or the filling of openings in the geologic formation around the well from which water flows. No one solution addresses all of these problems.

Working with your contractor to understand the correct cause or causes of problems can increase your confidence and comfort level in moving forward with solutions.

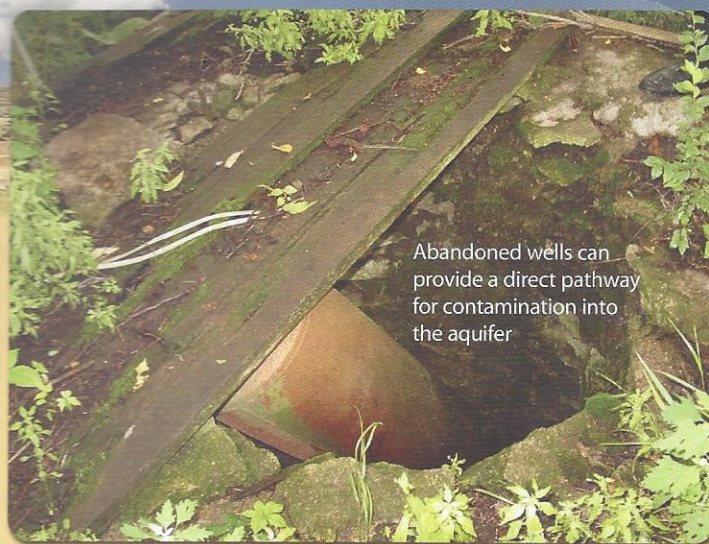
7

Find old wells.

Do an inventory of your property to determine if there are any old, unused well systems.

If you live in an area where people use water wells, there may be an old, unused well on your property. There are millions of them nationwide. Abandoned wells should be properly sealed by a qualified water well systems contractor for several reasons.

First, abandoned wells can provide a direct pathway for contamination into the aquifer, perhaps the same one you are using for drinking water. Often an abandoned well will have no well cap or the cap will be broken, allowing bugs, rodents or objects into the well. Other times, the grouting around the well casing has



Abandoned wells can provide a direct pathway for contamination into the aquifer

Photo courtesy of www.iowawaterquality.org

deteriorated to the point that contaminated surface water can infiltrate the well. Abandoned hand-dug wells not only present a contamination concern, they also can create a physical danger to people who can fall into them.

Landowners should find the location of any old or out-of-service wells. Clues to their location include:

- Pipes sticking out of the ground,
- Small buildings that may have been a well house,
- Depressions in the ground,
- The presence of concrete vaults or pits, perhaps covered by lumber or metal plates, and
- Out-of-use windmills are likely to be located near an old well.

Other clues can come from old maps, plans or property documents; information from neighbors; additions to old homes (in the past, wells were commonly constructed in basements or under porches to keep the water pumps from freezing and to ease access in the winter); and water utility history (what was the source of water for your home before utility water was available?).

Once a well is determined to have no current or potential future use, a qualified water well system contractor can properly seal it. Do not attempt to seal an abandoned well yourself! This requires special equipment and techniques to remove anything from the well and fill it with a special grout from the bottom up. Ordinary cement will not provide a sanitary seal for an abandoned well.

Approved well sealing procedures vary from state to state. In most cases, homeowners are required to notify their local Department of Environmental Protection or Water Quality Division to document the "decommissioning" of the well. Homeowners should contact these agencies to learn what procedures are required in their area.

8 Before getting your water tested, check to see if your well system is clean.

A common mistake homeowners make is to test their well water without first being sure the water well system is clean. Testing water from a dirty well can lead to false positives—the appearance of contamination even when the ground water is clean. A dirty well also can create an environment for contaminants such as certain types of bacteria.

A qualified water well systems contractor can determine if your water well system needs cleaning by conducting an anaerobic bacteria test, a positive coliform test, or other tests showing an accumulation of debris in the well.

Other possible indicators of a dirty well may be cloudy water, low water flow, or taste and odor problems.

If test results indicate the presence of anaerobic bacteria and/or coliform bacteria—or if you are experiencing cloudy water, low water flow, or taste and odor problems—the National Ground Water Association recommends your well be cleaned by a qualified water well systems contractor prior to any servicing of your well system.

A common misconception by homeowners is that chlorine alone will clean a well—the more chlorine the better. Chlorine can serve as an effective disinfectant only after debris and other solid material are removed from the well. Well cleaning must remove debris from the well bottom, and may require cleaning other components of the well if determined necessary by a qualified water well systems contractor.

To learn more about wells, visit the National Ground Water Association's Web site, at www.wellowner.org. This easy-to-understand site contains basic information on topics, including water well basics, well maintenance, water quality, finding a contractor, groundwater and more.

To find a certified water testing laboratory in your area, contact your state certification officer by visiting the U.S. Environmental Protection Agency Web site at: www.epa.gov/safewater/labs/index.html.



Cliff Treyens is the director of public awareness with the National Ground Water Association. Learn more about the NGWA by visiting their Web site at www.ngwa.org.



Related NESC Products

Assessing Drinking Water Well Conditions

About 95 percent of this country's rural residents use groundwater for their drinking water and farmstead needs. Wells are designed to provide clean water, but must be properly constructed and maintained to avoid contamination. This worksheet, part of the Farm*A*Syst series produced by the Vermont Natural Resource Conservation Districts, will take you step by step through your drinking water well condition and management practices.

Item # WFSPE338\$0.90

Radium in Your Drinking Water (A Homeowner's Guide)

What is radium? What are the health risks for radium ingestion? This fact sheet answers these questions and more for homeowners. Written in response to a recent pilot study of water quality in Maryland, that state's Department of the Environment produced this fact sheet to answer questions about radium, possible health risks, and water testing and treatment options.

Item # DWFSPE320\$0.90

What Can You Learn From Drinking Water Right to Know Reports?

This fact sheet offers tips on understanding the right to know reports like the CCRs. Offered by the Consumer Federation of America, this helpful fact sheet includes information about protecting vulnerable people from drinking water disease and illnesses.

Item # DWFSPE238\$0.30