

Your New Water Well



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Michigan Department of Environmental Quality
Water Bureau

Your new private water well is your personal source for cold, clear, and healthful drinking water. It provides water for all of your other household needs, including cooking, bathing, laundry, and gardening. In many ways, your well water is the life-blood of your home. Today's water wells are designed and constructed to provide decades of reliable service. They are installed by state registered water well industry professionals in accordance with stringent standards in the state well code.

- An average of 22,000 water wells are drilled each year in Michigan.

- Michigan has 1.25 million private household wells-more than any other state (based on US Census and adjustment for wells drilled since 1990).

- 2.6 million Michigan citizens are served by private household wells (Source:USGS).

Having a private well gives you a degree of independence. You will not have treatment chemicals (such as chlorine or fluoride) automatically added to your drinking water unless you choose to install a water treatment device. You will never be without water because of a water main break. Monthly or quarterly water bills will not arrive in the mail. The minimal electrical cost to run the water pump and any water treatment devices that you choose will hardly be noticed in your electric bill.

But along with that independence comes responsibility. Since your water does not come from a city, village, or township public water supply, no one automatically checks your water quality. Local power outages can leave you without water. And **you** are responsible for maintenance and operation of your water system and monitoring of water quality.

You have invested several thousand dollars in your new private water supply. Protect your investment and your family's well being by taking an active role to ensure the safety of your drinking water source. This brochure gives some suggestions on operation and maintenance that will help keep your water system in a sanitary

condition. By following these suggestions, you will also be doing your part to protect Michigan's valuable natural resource.....*ground water.*

Recordkeeping

Your water well drilling contractor should have given you a Water Well Record. This record (required by state law) shows the construction details of the well and pumping equipment. The well depth, pumping rate, geologic formations penetrated, static water level, and drilling method are among the items featured on the well record. If your builder or developer hired the well driller, be sure you get a copy of the record from them. Copies can also be obtained from the local health department. File a copy of the well record with your property deed. Keep all records pertaining to your well (well record, billing invoice, equipment warranties, water sample results, and maintenance records) in a secure location.

Water Sampling

Having safe drinking water is a basic human need. Every well owner wants the peace-of-mind that comes from knowing that their drinking water is safe. Individual property owners are responsible for sampling the water from private wells.

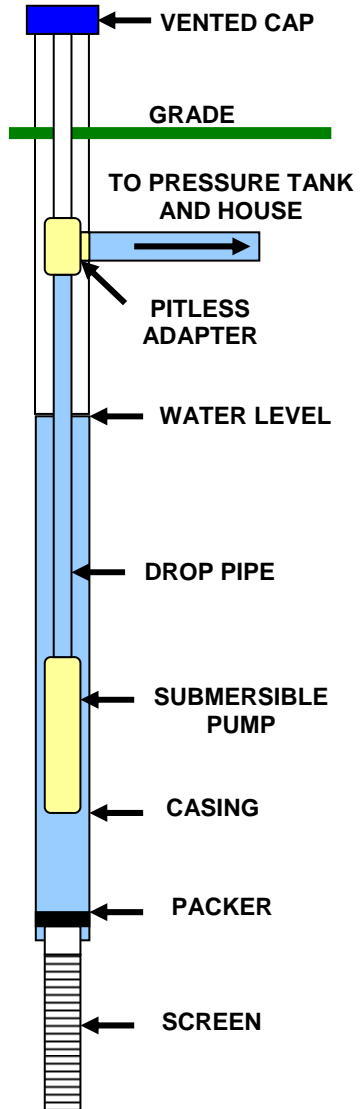
An initial sample to detect coliform bacteria (a type of bacteria associated with feces, sewage, and surface water) must be collected before a new or repaired well is placed into service.



The well driller was required to disinfect your new water system upon completion. If a chlorine bleach taste or odor is present in the water, flush the system (not into your septic tank) until the taste/odor disappears. Sometimes the system must be re-disinfected and reflushed to rid the well of bacteria introduced during the installation process.

Coliform bacteria testing and additional testing for some chemicals may have been done after the well was completed. Elevated nitrate in drinking water can cause serious illness in infants under six months of age, and high levels of chloride can corrode water pipes and fixtures.

TYPICAL SCREENED WATER WELL CROSS SECTION



Therefore, it is important to obtain a partial chemical water test from the Department of Environmental Quality (DEQ) laboratory. In some counties, the local health department collects the samples as part of the well permitting/inspection process. Some well drillers include water sampling with their well installation package. If your new home was financed by a mortgage lender, more extensive chemical testing may have been done.

Be sure you have the water test results. Annual water testing for coliform bacteria is advised. Immediate testing is recommended if there is a sudden change in your water's taste, odor, or appearance. Obtain water sample containers and advice on which tests to run from your local health department.

Ground Water Quality

Drinking untreated groundwater is different from drinking water from a municipal pipeline. If you relocated into your present home from a city or village, you may notice that your water tastes different. Many well owners prefer well water to chlorinated city water. Naturally occurring minerals can affect the taste, odor, and appearance of well water. Hardness, iron, chloride, tannins, manganese, sulfates, and hydrogen sulfide are compounds that can affect the aesthetic quality of the water. If your water's taste, odor, or appearance is objectionable, you may want to consider purchasing a water treatment unit. A reputable water treatment specialist can diagnose and treat the problem.

Maintain the Wellhead

The wellhead is the portion of the water well extending above ground. Because of a contamination risk, state law prohibits buried wellheads. If you intend to landscape around your well, be sure the casing remains at least 12 inches above ground.

Do not plant shrubs or trees near the well if their growth will eventually cover the well.

The cap on the top of your well was designed to keep rainwater, insects, and small animals out of the well. Newer well caps have screened air vents that allow atmospheric air to enter the well as water is withdrawn from the well. This results in a more sanitary water supply. Periodically, the well cap should be checked to see that it is securely affixed to the casing.

Any debris that has accumulated on the well vent screen should be removed. Broken well caps or damaged screens should be replaced.

Grading of the ground surface to drain surface water away from the well is the owner's responsibility. Keeping rainwater, meltwater, and floodwater away from the well reduces contamination risk.



Typical wellhead for 5 inch PVC plastic well.

The area surrounding the well should be mowed, but caution is advised to prevent damage from lawn mowers or tractors. If you plow snow or ride a snowmobile near your well, make sure your well is staked before the snow flies. Not only can the well be severely damaged (resulting in contaminants entering the well) when the casing pipe is struck, but serious personal injury can occur.

Plan your driveway or parking area away from the well site. If close placement to a road or parking area cannot be avoided, it is wise to install protective vertical steel piping around the well. Costly repairs to the well and vehicle can result if precautions are not taken.

Control Contamination Sources

When the location of your new well was selected, contamination sources in the vicinity were taken into consideration by the contractor and local health department sanitarian. Minimum isolation distances

from various contamination sources (e.g., sewage systems, sewer lines, chemical or fuel storage tanks, etc.) are specified in the state well construction code. For example, a well must be located at least 50 feet from a septic tank or subsurface sewage disposal field (drainfield). After the well is installed, maintain the isolation and keep contamination sources away and downhill from the well.

Some points to remember are:

- The total ground water use in Michigan is about 700 million gallons per day.

- Ninety-seven percent of the earth's water is salt water, only three percent is freshwater.

- Ninety-six percent of all new water wells drilled in Michigan are private household wells.

- Store bulk containers of hazardous chemicals, such as motor oil, gasoline, fertilizers, pesticides, herbicides, degreasers, cleaners, paints, thinners, agricultural chemicals, and pharmaceuticals at least 150 feet from your well.
- Do not use hazardous chemicals near the well if it can be avoided.
- Do not establish an animal feedlot around the well.
- Never keep a pet tethered to a well casing.
- Do not fuel vehicles or lawnmowers near your well.
- Snow, wood chips, straw, leaves or other debris should not be piled around your well.

Always keep in mind that your drinking water is coming from the other end of that pipe!

Unused, abandoned wells can be a direct pathway for contaminants to reach the ground water. Plugging abandoned wells is a worthwhile and logical means of protecting your new well. The closer the abandoned well is to your new well, the greater the contamination hazard. State law requires abandoned wells to be plugged by

filling them from the bottom up with impermeable grout materials.

Cross-connections are another means of contaminating a water system. A cross-connection is a connection between a water system and a sewage system or between a water supply and a pipe or device that contains a contaminant. Most cross-connections are associated with older plumbing systems. Water softener discharge piping connected directly to a sewer line is an example of an unapproved cross-connection. Because of plumbing code requirements, new homes should not have cross-connections. Vacuum breakers, air gaps on outlet pipes, anti-siphon devices and backflow preventers are common means of preventing contamination from cross-connections.

Keep the Well Accessible

Today's new water wells are reliable and trouble-free. However,

occasionally a pump may need replacement due to normal wear or a lightning strike. Other maintenance is rarely needed. To service the well, a well drilling contractor may need to drive a pump hoist truck or well rig near the well. Therefore, keeping the well accessible is a must. Do not build around or over the well. If you plan to build an addition, garage, pole barn, deck, or other structure, plan to maintain access to your well.



Typical wellhead for small diameter well.

Well Performance

Usually, water quality remains fairly consistent over the life of a well. As your well ages, slight changes may occur. Naturally occurring minerals in the water can build up and reduce well yield. Biofilms due to harmless ground water microorganisms can form within the well casing, well screen, drop pipe, or well bore. These films or slimy deposits can occasionally dislodge and show up in the water. They can also plug the water intake. Mineral build-up or biofilm formation is a result of local ground water quality, which varies across the state. Over the life of your well, rehabilitation may be needed to improve your well's performance.

Sudden water quality changes (taste, odor, appearance, or sand pumping, etc.) may signal a serious problem. Water sampling and a thorough diagnosis of the problem is advised. If the volume of water or the water pressure decreases suddenly, if the area surrounding the well becomes wet, or if the pump runs when no water is being used, immediately contact a well driller (preferably the one who installed your well). Water well drilling contractors have the specialized skills and equipment needed to solve your well problem.


A common question from new well owners is "How long is my well warranted?" The state well code does not address warranty coverage. The general industry standard is one year from the date of installation.

Manufacturers generally warranty submersible pumps for at least one year and pressure tanks for at least five years. Many contractors offer extended coverage.

Further Information

There are several sources for additional information about your well. Among them are:

- National Well Owners Association: website www.wellowner.org
- National Ground Water Association: website www.h2o-ngwa.org or 1-800-551-7379
- U. S. Environmental Protection Agency: website www.epa.gov/safewater/ or the Safe Drinking Water Hotline at 1-800-426-4791
- American Ground Water Trust: website www.agwt.org or (603) 228-5444
- Michigan Ground Water Association: website www.michigangroundwater.com or (517) 327-0404
- Michigan Department of Environmental Quality: website – www.michigan.gov/deg
- Local Health Department
- DEQ Environmental Assistance Center: 1-800-662-9278

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