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## Private Water Systems Course

### Lesson 3

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#### Frequently Asked Questions

***What is considered a shallow well?***

In general, a shallow well is considered any well drilled to a depth of less than 100 feet. However, this is fairly subjective and varies by region. For example, wells drilled in a sand and gravel aquifer are typically shallower than wells drilled into bedrock. For this reason, wells drilled into this formation may be considered shallow if they are less than 50 to 80 feet deep.

***What should I know before I have a new well drilled?***

It is important to understand that Pennsylvania currently has no statewide construction standards for private water wells. For this reason, each homeowner should do some research before they hire a water well driller. The following suggestions may help you to find a qualified driller that will construct your well properly: 1) hire a driller that is a current member of the Pennsylvania Ground Water Association or the National Ground Water Association, 2) only hire a driller that is willing to come out and do a site visit before they begin drilling, 3) only hire a driller that is willing to provide you with a contract upfront that details what materials they will be using and an estimate for the price, and 4) make sure that the driller is going to provide you with a copy of the well completion report before they leave the site.

***What are the most important features of a properly constructed well?***

Since Pennsylvania currently has no state-wide construction standards for private water wells, it is very important for homeowners to be knowledgeable about proper well construction practices. Each homeowner should check to see if their county or municipality has any private water well regulations. The following list of features will be found on all properly constructed wells: 1) the well should be located at least 50 feet from any

potential source of pollution (including septic systems, streams, pastures, etc.), 2) after the well is drilled, the well casing should extend above the ground at least one foot, 3) the void between the well casing and the borehole will be filled in with cement or a bentonite grouting material, 4) the ground around the wellhead will be sloped in all directions to ensure that water doesn't pond around the well, 5) the well will be disinfected using a chlorine solution, and 6) a watertight, vermin-proof well cap will be installed on the top of the casing.

### ***What should a well owner do to maintain their well after it is constructed?***

Wells usually do not require a lot of maintenance, but there are certain things that a homeowner can do to increase the life of a well, decrease the likelihood of a surprise expense, and ensure that the water is always safe for consumption. 1. Every owner of a private water system should be testing their drinking water on a regular basis. At a minimum, drinking water should be tested every year. However, testing can be done more often if there is ever a change in the appearance, odor, or color of the water. 2) Keep all activities as far away from the source of water as possible. Do not use fertilizers or pesticides anywhere near the wellhead and make sure to fence animals away from the well. 3) Take care of your septic system. If you own a private well and a septic system, be sure to do regular maintenance on the septic system to ensure that it does not contaminate your well water. Septic systems should be pumped at least every 2 – 4 years depending on the size of the family. 4) Inspect your well and water system annually. Besides testing your water on a regular basis, it is also important that you check around your wellhead for any depressions, standing water, cracks, or rusting around the casing. If you do not have a sanitary well cap, buy one from a driller and have them install it for you. 5) Have a qualified water well driller complete an inspection of your water supply at least every 10 years. This can be done more often if you have an older well or a well that has had some problems in the past.

### ***Can wells cause groundwater contamination?***

Yes. Improper construction of a private water well can allow contamination via surface water to enter the well and the surrounding groundwater. If a hazardous material is dumped or spread on or near the well, the material may leach into the aquifer and contaminate the local groundwater supply. Wells that are no longer in use and left unsealed can be especially harmful to groundwater resources. Open holes in the ground serve as a direct conduit for contaminants to enter the groundwater. All unused water wells should be sealed by a professional water well driller with a cement or grout material.

### ***What is the life expectancy of an iron well casing?***

Your private water system is a piece of equipment that needs to be properly maintained to make it last a long time, hopefully, 20 to 30 years or longer. Most of the wells in PA were drilled in the 60's and 70's and very few have outlived their usefulness yet. We recommend a professional well driller. Check the casing with a down the well camera every 10 years to look for leaks and well casing deterioration.

### ***Can an old well be grouted?***

The grouting should really be done at the time the well is drilled, because it needs to extend from the bedrock to the surface. There are cases where a casing can be put inside another casing and then grout placed between the casing walls. If you have a standard 6 inch casing then you are probably looking at a 4 inch inside casing and then we need to ask if this will create a water quantity problem. Some have also tried digging out around the casing and then grouting (not cement – that will crack) as far down as they can and this is better than no grouting at all.

### ***How is a pitless adaptor installed?***

The well casing is placed and grouted to the surface. When they are ready to do the pump installation, they dig a 4 foot excavation pit down beside the casing and remove the grout away from the side of the casing and then drill a hole through the casing and then install the pitless adaptor. This is one place where surface contamination can occur. This hole can be cut by someone who is skilled and precise or it can be not so precise. The not so precise job can lead to poor ceiling of this hole and then contamination of the well.

Pitless adapters are underground discharge units that mount into the water well casing down below the frost level. The piece that goes through the well casing secures with a rubber washer and nut on the outside of the casing. The inside of that unit is a receiver for the piece that comes up from your submersible pump. The pipe going down to your submersible water pump in the well is connected to the bottom of the pitless adapter main body. This allows the water to make an elbow move from the pipe coming up, through the adapter and into your home through the underground distribution pipe. When setting your pump in the well, you will lower the inside piece down with another short piece of pipe. It will slide into the receiver on the piece attached through the well casing wall, and make a water tight connection.

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