

Water quality affects our health and well being. Proper well construction plays a major role in determining water quality. Although the Health Department does not regulate the construction of individual wells, the information contained here will allow you to select a qualified driller and monitor the construction of your individual well.

Water Wells

The typical individual water well (see diagram at right) consists of a drilled borehole, 8-10" in diameter at the top and narrowing to 6", which extends to the water source below. The hole is lined with a steel casing for the first 20' or to solid bedrock and PVC or other plastic pipe, which extends to the pump at the bottom of the bore. A mixture known as grout is placed between the upper casing and sides of the borehole to prevent groundwater from entering the well. In order to remain below the frost line, the water pipe makes a 90-degree turn and exits from the steel casing via a Pitless Adapter. Typically, the only portion of the well that is visible is the top of the steel casing and the sanitary seal.

Since the quality of the water produced is related to well location and construction, we recommend the following:

Location

The location of the well must meet all Jefferson County Department of Health and Environment setback requirements from Onsite Sewage Treatment System components and other potential contamination sources. The well should not be located inside areas of natural drainage or animal enclosures. The well should also be placed in an area accessible to vehicles

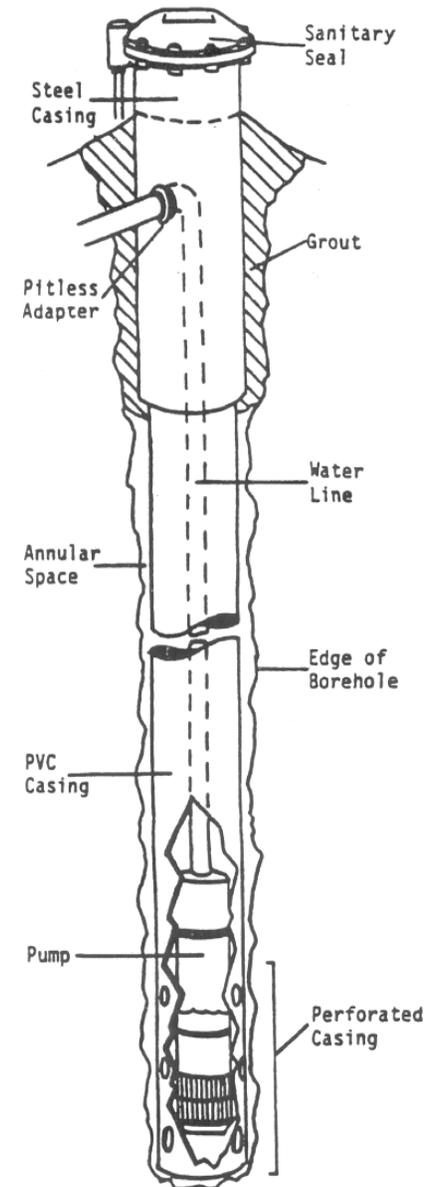
should future servicing of the pump or other components be necessary. If the well is located near a driveway, however, it should be protected from possible impact from vehicles.

Construction

After the first 15-25' or larger diameter borehole has been drilled, a steel casing will be placed in the hole and the space between the casing and outer walls of the borehole will be sealed with grouting. **The proper placement and curing of the grouting is one of the most important aspects of well construction in terms of water quality protection.** To assure a complete seal, the casing should be grouted from the bottom up. Inserting a pipe down into the casing and forcing the grouting slurry to rise up under pressure assures a more complete seal. Pouring the slurry in from the top is not recommended. Dry cement, poured in from the top and then wetted will not form a proper seal. This method should never be used.

Once the slurry has been properly placed, it should be allowed to set, undisturbed, for at least 12 hours. Only then should drilling continue. After the well has been completely drilled and as the water line to the house is being placed, the Pitless Adapter must be installed. The adapter consists of a small hole in the steel casing, which allows the water pipe to pass through. Gaskets and brass fittings with rubber O-rings are used to seal the hole around the pipe. To assure a tight seal. It is important that the hole be drilled, rather than cut through with a torch. The Pitless Adapter should fit tightly around the water pipe to prevent the entry of ground water into the

well. During this installation, it is important not to disturb this grout seal.



Once the pump and its components have been installed, a cap or other sanitary seal will be bolted to the top of the steel casing. This seal should be kept in place at all times to help prevent contamination from above. To assist in preventing contamination, the well head should extend a minimum of one foot above the surface of the ground.

Well Drillers

Selecting a competent and professional well driller is critical to the construction of your well. In making your selection you should consider the following:

- Check their State contractor's license and a license number to see if there has been any disciplinary action taken against the driller.
- Obtain a written proposal that outlines what work is to be done, the amount that is to be charged, and the terms of the guarantee given.
- Verify proof of liability insurance, which protects you against personal injury to you others and against damage to your property or the property of others while the contractor is working on your job.
- Obtain a list of customer references and check with them before you sign a contact to verify that the contractor has performed as promised.

Be careful not to base your selection on price alone. A low bid is not necessarily the best bargain. If you have any doubts, call the State License Board (303 866-3581).

You will find out quickly if there have been a number of unresolved complaints about the contractor.

Water "Witching"

Water witching, or 'dousing' as it is sometimes called, is the ancient practice of attempting to locate subsurface water through use of a forked stick, pendulum or other device. There is no scientific evidence that this is a sound practice. Obtaining a hydrogeologic evaluation of the site is a much better approach, although there is no guarantee that water will be located in any particular location or at any particular depth. As the old saying goes, "**water is where you find it.**"

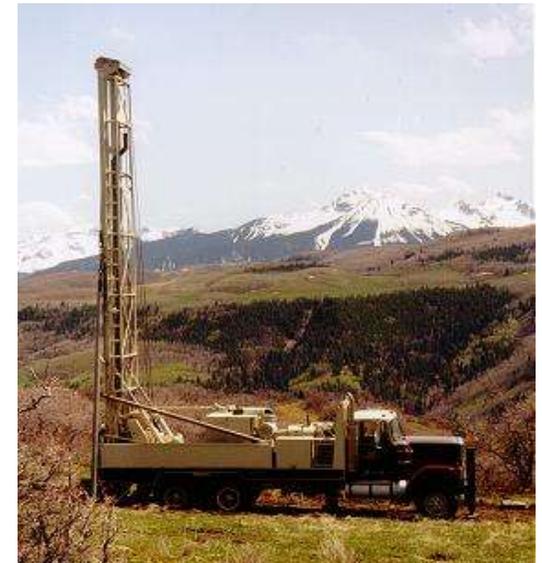
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