



Contact Us

If you have questions or concerns about your water well, please contact:

Missouri Department of Natural Resources

Missouri Geological Survey
Geological Survey Program
Well Installation Section

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Online Information

Permitted contractors and existing well records are available online at dnr.mo.gov/mowells.

Additional Resources

Missouri Department of Health and Senior Services
dhss.mo.gov
573-751-6400

Natural Resource Conservation Service
nrcs.usda.gov
573-876-0900

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Missouri Geological Survey Director:
Joe Gillman



PLUGGING YOUR ABANDONED WELL



Abandoned Wells

Most rural Missourians depend on a private (domestic) water wells for all of their daily needs. Over the years, construction methods for water wells have evolved from digging by hand, bored with augers, hammered by cable tool rigs to drilling with air rotary drill rigs. Thousands of these water wells have become abandoned and remain unplugged. A well is considered abandoned when it cannot produce water and has not been used for two years or longer.

All unplugged abandoned wells present either a physical hazard or threat to groundwater. Hand-dug wells with wide openings pose a life threatening hazard to people and animals. Drilled wells that reach deep into groundwater aquifers serve as a conduit for contaminants, if not properly plugged.

Who May Plug An Abandoned Well

State law and supporting regulations require an abandoned well to be plugged. This responsibility usually falls on the landowner. Landowners have the right to plug any abandoned well that exist on their property. There are special circumstances where the department may require the well to be plugged by a permitted contractor. If a landowner hires a person to plug a well, the hired person must have a permit to do so. The exception to the permit rule applies to hand-dug wells and bored wells (no greater than 80 feet in depth). Missouri Well Construction Rule Chapter 3, 10 CSR 23-3.110 contains plugging specification for all water well types.

Disinfection

Any water in an abandoned well must be disinfected prior to plugging. Wells are directly connected to the groundwater aquifer and must be bacteria free when plugged. To disinfect a well, pour 1 gallon unscented household bleach in the well before adding clean fill or grout material.

Approved Grout

The most commonly used grout is sodium bentonite, which is a swelling clay. The most common form of bentonite is three-eighths inch chips. Bentonite also comes in coated pellets and can be made into a slurry using powder. Wells may also be plugged using cement, which is a mix of one 96 pound bag of Portland cement with 6 gallons of clean water.

Concrete is not acceptable.

Types of Abandoned Wells and Plugging Requirements

Domestic (Private) Bedrock Wells

Bedrock water supply wells typically have steel or PVC casing that is 6 inches in diameter. The amount of casing and the total depth of these wells varies widely with geologic conditions across the state.

To plug a bedrock well, remove the pump and any debris. Dig around the casing 2 feet below the surface and cut the casing. Clean fill material (such as pea gravel) may be used from the bottom of the well to a point 50 feet below the bottom of the casing. Grout is then used from the top of the fill to within 1 foot of the surface, extending into the excavated area at least 1 foot. The remaining 1 foot should be filled with clay or clay-rich soil. If the casing depth is unknown, the well must be plugged full length with approved grout.

If the well is located in a well house with a concrete floor or in an area surrounded by asphalt, cut the casing flush with the hard surface. Follow the steps for plugging, as described above, but add a 1-foot cement cap at the top of the well.

Domestic (Private) Unconsolidated Material Wells

Water wells constructed in unconsolidated material such as sand, alluvium, silt or clay are located mostly in northern Missouri, along the major rivers and in the Bootheel area. Casing sizes for these wells range from 4 to 12 inches or greater. The casing pipe usually is PVC. The upper portion of the casing is solid. The lower portion is slotted or has a screen attached. This allows water to enter the well while keeping sand and sediment from filling the well or interfering with the operation of the pump.

To plug an unconsolidated material well, remove the pump and any debris. Dig around the casing 2 feet below the surface and cut the casing. If the well is in an agricultural area, the casing must be cut 3 feet below surface. If the well is less than 200 feet deep, use clean fill material to a depth of 20 feet below the surface. Add grout to fill the upper 20 feet extending into the excavated area at least 1 foot. Fill the remaining excavated area with clay or clay-rich soil. For wells greater than 200 in depth, a 50-foot grout plug is required above the clean fill.

If the well is located in a well house with a concrete floor or in an area surrounded by asphalt, cut the casing flush with the hard surface. Follow the steps for plugging, as described above, but add a 1-foot cement cap at the top of the well.

Hand-dug Wells

Wells that were dug by hand usually are 3 to 6 feet in diameter and 10 to 30 feet in depth. Wells that are less than 10 feet in depth are exempt from plugging rules. Hand-dug wells are usually are lined with material such as brick or fieldstone.

To plug a hand-dug well, carefully push in the upper 2 feet of the lining. Fill the well to within 2 feet of the surface with clean fill or soil. The remainder of the well should be filled with clay or clay-rich soil.

Cisterns

Cisterns are considered to be water storage structures and are exempt from plugging rules. Since cisterns pose a physical threat, the department strongly recommends landowners to completely fill a cistern with clean fill or soil.

Public Water Wells

Wells that serve public facilities (e.g., cities, water districts, motels, restaurants, schools, subdivisions, etc.) have more stringent plugging requirements. Public facilities usually require a large volume of water which requires wells to be drilled deep into groundwater aquifers. The depth of some wells are 1,000 feet or greater. In order to properly protect deep groundwater aquifers, the department will determine plugging specification on a case-by-case basis for each public well.

High Yield Bedrock and High Yield Unconsolidated Wells

A well that produces 70 gallons per minute or more is considered a high yield well. Similar to public wells, high yield bedrock wells often are very deep and require specific plugging specification to protect the groundwater aquifer. Plugging rules allow high yield bedrock wells to be plugged full length with cement slurry without prior department approval. For any other plugging method, the department will determine on a case by case basis. Plugging requirements for high yield unconsolidated wells are based on well depth. Refer to the domestic unconsolidated material wells section for plugging requirements.