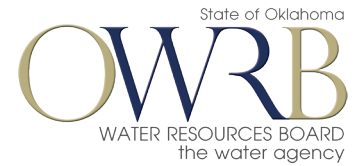


# OKLAHOMA WATER RESOURCES BOARD WELL DRILLER'S LOG

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## NEWSLETTER OF THE OKLAHOMA WELL DRILLER'S PROGRAM

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### Coordinator's Corner

We would like to thank the many firms who completed this year's renewal process flawlessly. The most common renewal issue we saw was failure to ensure each operator had properly completed the eight required CEU credits (or sixteen if under penalty from the previous renewal), one of which must be Oklahoma Rules and Regulations. Also, please remember to attach copies of each of workshop certificate to the renewal application, along with the appropriate fees, to avoid delayed or past due application processing. Failure to follow these rules as detailed in Chapter 35 rules could result in cancellation of your license and certification.

I would like to take this opportunity to say goodbye. For those of you who may not have heard, my 30-plus-year career is drawing to a close as I am retiring at the end of July. I cannot tell you how much I have enjoyed meeting and working with a great number of you. This program is very important to me and whether or not you realize it, each of you plays a vital role in protecting our fresh groundwater reserves across the state by following the minimum construction or plugging standards. But remember, nothing limits you from going above and beyond those minimum standards whenever and wherever you have the opportunity. I am leaving you in the very capable and competent hands of Mr. Charlie O'Malley and our new hire, Mr. John Bowen.

### Chapter 35 Rules Update

Chapter 35, which covers the rules for well driller and pump installer licensing as well as minimum construction standards for licensed activities, will be opened for changes, updates, and additions this fiscal year.

Included in the update are the rules for heat exchange wells, which have been drafted to include recommendations from the new international standard known as ANSI C448. We plan to have a meeting in August to solicit stakeholder input regarding the proposed rules.

The state legislature recently passed the Marginal Quality Water



*The Well Drillers Advisory Council meets to discuss the Chapter 35 rules update.*

Act, which will allow use of "marginal water", defined as water which has at least 5,000 and less than 10,000 parts per million total dissolved solids. Rules are currently being drafted for construction standards for wells completed into marginal water. We will hold a meeting in September for stakeholders to provide input and comments on proposed rules.

You are welcome to be a part of the Chapter 35 rules update. Please submit your ideas and comments to [Charlie O'Malley](#) at the Well Driller and Pump Installer Program.

### Wellhead Protection

*Adapted from the Missouri Department of Natural Resources*

#### EARLY WELLS AND CISTERNS

Oklahomans have always had a need for a dependable supply of water, and early settlers often constructed wells and cisterns to access and store water in areas far from rivers and streams.

Before drilling machines were invented, wells and cisterns were dug by hand with a pick and shovel. This accounts for their size, because the hole had to be large enough for a person to work in. Most hand-dug wells and cisterns were three to six feet wide, 10 to 30 feet deep, and lined with brick or stone to hold earth materials in place while still allowing water to enter. Holes that did not produce groundwater were often finished and used as cisterns. Bored wells, constructed with an auger, scoop, or dragline, are typically two to four feet wide, 20 to 80 feet deep, and lined with sections of clay or concrete pipe.

Originally, these early wells and cisterns were a valuable asset to any landowner; a farm with wells was more valuable than one without any water supply. Today, because most rural communities have public water supplies, many of these wells and cisterns are now unused or abandoned. What was an asset decades ago may now be a serious liability.

#### DEADLY TRAPS AND A THREAT TO GROUNDWATER QUALITY

If properly constructed and covered, wells and cisterns provide a satisfactory water supply and present no special hazard. If abandoned, they can lead to a fatal accident or contamination of groundwater supplies.

Abandoned, large-diameter wells and cisterns are potential traps for people and livestock. Many well and cistern covers were constructed from wood that can be weakened or destroyed by the elements. Even concrete covers are subject to deterioration. For these reasons, the OWRB recommends bored, hand dug, and cistern wells still in service be outfitted with a sturdy cover, preferably made of reinforced concrete. The covers should be securely fastened, or be heavy enough to keep curious children from removing them.

Abandoned small-diameter drilled wells may be less of a safety hazard than bored, hand dug, or cistern wells; however, they are a conduit for contaminants to enter the groundwater system. Drilled wells may be located in unconsolidated material, such as glacial drift or sand and gravel (alluvial terrace) deposits along major streams, or consolidated bedrock, such as limestone, sandstone, granite, or dolomite.

## PLUGGING ABANDONED WELLS

Abandoned bored, hand dug, or cistern wells that are uncontaminated can be plugged by filling with uncontaminated surface clay or grout to within six feet of land surface. The lining of the well or cistern should be removed from the top five feet, and a minimum of two feet of cement grout should be installed. The top four feet should be filled with compacted uncontaminated native soil, unless otherwise directed by the OWRB.

Plugging abandoned water wells is generally the responsibility of the land owner. While we do recommend that a licensed well driller be utilized to plug abandoned wells, landowners may plug their own domestic-use wells as long as they follow Chapter 35 rules, Subchapters 5 and 11, which detail requirements for multi-purpose completion report filing and well plugging. For more information, see our [fact sheet on plugging abandoned wells](#), visit [www.owrb.ok.gov/welldrilling](http://www.owrb.ok.gov/welldrilling), or call us at 405-530-8800.

## Well Cleaning

*Published by the National Ground Water Association*

### WHAT ARE SOME SIGNS YOUR WELL MIGHT NEED ATTENTION?

- The well water is turbid, which means it is cloudy or has suspended matter in it.
- There has been a decrease in the well's capacity -- that is, the gallons of water per minute that the pump can supply to the system has diminished.
- The water has developed an odor or taste problem.
- The water tests positive for total coliform and/or overall biological activity.

### GREAT, BUT HOW IS MY WELL SYSTEM CLEANED?

Some well owners view chlorination as a cure-all for water quality problems. While chlorination might temporarily prevent taste and odor problems, it leaves behind debris or accumulated organic material. Such debris or material provides a food source for future bacterial growth. Chlorination may therefore be ineffective in the long run.

There are two basic approaches to well cleaning -- mechanical and chemical, with the most effective strategy often being a combination of the two. Within both the chemical and mechanical methods is an array of options. A water well system contractor is best qualified to help the well owner decide which methods to use, depending on the condition of the well.

Mechanical processes for loosening debris and/or encrustations and removing them from the well include pressurized air or

water, wire brushes or scrapers, agitation of water in the well, or sonic waves. Chemical cleaning often involves the use of various acids to loosen or dissolve debris so that it can be pumped out of the well. Depending on the nature of the cleaning job, there are also polymers and caustic chemicals to remove debris.

The age of a well may determine which methods are used to clean it. If a well's water intake areas or the well casing have corroded significantly over time, they may be damaged or destroyed by more aggressive cleaning practices. In such cases, a well owner may opt to proceed directly to new well construction or prepare for that option if cleaning is ineffective.

Note: Well cleaning should be followed immediately by a thorough disinfection of the well system and its immediate environment. Disinfection of the well should be completed by the water well contractor to ensure that it is done properly.

### HOW MUCH CAN I EXPECT TO SPEND?

The costs of cleaning and maintaining your well can widely vary depending on location, the age of your well, and your specific needs. For example, an inspection of your well could run between \$300 and \$500. If a professional determines your well needs cleaning, that could run anywhere from \$200-\$800.

As always, proper well maintenance is the key to extended pump and water treatment system life, and reduced impacts on plumbing fixtures and appliances. The NGWA encourages well owners to periodically get a water well system checkup that considers, among other things, whether the well system needs cleaning.

### WHERE CAN I LEARN MORE?

The NGWA has a video on well cleaning that highlights the steps needed to maintain your system. Additionally, feel free to access the residential well cleaning page on [WellOwner.org](http://WellOwner.org).

# SAVE THE DATE

39<sup>th</sup> Annual Oklahoma  
Governor's Water Conference  
and Research Symposium

December 5-6, 2018

## Upcoming Events

**August 2018** Stakeholders Meeting for Heat Exchange Well Draft Rules

**September 2018** Stakeholders Meeting for Marginal Water Well Construction Rules

**Fall 2018** Hands-On Training Event at GEFCO w/ OGWA

Event details will be posted online at [www.owrb.ok.gov/welldrilling](http://www.owrb.ok.gov/welldrilling).

Julie Cunningham, Executive Director  
Oklahoma Water Resources Board

Kent Wilkins, Chief  
Planning & Management Division

Angie Taylor, Coordinator  
Driller/Pump Installer Program

*To ensure the integrity of water well construction, and thus prevent potential pollution of state groundwaters, the OWRB supervises the state licensing program of pump installers and drillers of water supply, geothermal, observation, and monitoring wells. The OWRB has published the Oklahoma Driller's Log since 2001 as a source of information for the state's licensed water well drillers and pump contractors. Please e-mail comments and article ideas to [pubinfo@owrb.ok.gov](mailto:pubinfo@owrb.ok.gov).*