



## SUGGESTED WATER QUALITY TESTING FOR PRIVATE WELLS

### INTRODUCTION

This factsheet provides basic information for private water well owners who are concerned about their water well quality. Water quality testing should be an important concern for people on water wells as it can affect you and your family's health. This information is intended to assist well owners with making an informed decision in when and how to collect water samples, what to analyze for, and laboratories that can assist in conducting water quality analysis.

### WHO REGULATES MY WATER QUALITY IN WYOMING?

There is no state requirement for you to test your water. In addition, there is no state or federal agency that regulates private well water quality. Knowing your water quality is your responsibility.

### WHAT INFORMATION SHOULD I OBTAIN PRIOR TO COLLECTING A WATER SAMPLE FROM MY WELL?

Homeowners should have on hand a copy of their water well permit and construction log. Your well log includes important information such as the depth of the well and how it was constructed. Copies of logs, if properly filed and permitted, can be obtained from the Wyoming State Engineer's Office [e-Permit database](#).

Additional information helpful to have on hand is information about your septic system, including construction information, the location in relation to your well, and any maintenance records. In addition, information on land uses

surrounding your property can be useful to assist with understanding potential impacts to water quality.

### WHERE CAN I FIND A LABORATORY TO ANALYZE MY WATER?

The Wyoming Department of Environmental Quality Water Quality Division (DEQ/WQD) maintains a list of analytical laboratories on our Know Your Well – [Find a Laboratory](#) website. Contact a laboratory to obtain pricing information and verify that they can analyze your sample using the proper analytical methods, and within the proper holding time. The laboratory should be certified for each parameter analyzed, or the analytical results may be of little value. Some laboratories will come and collect the sample for you; others may only provide the sample containers.

### WHERE SHOULD I COLLECT MY WATER SAMPLE?

Your water sample should be collected prior to any water treatment system you may have installed, such as a water softener, or reverse-osmosis unit. A likely location is a spigot or drain near the pressure tank, or an outside hose-bib. Any water sample should be representative of the water in the well, it is important to allow the water to run for about 5 to 10 minutes prior to collecting a sample to flush standing water from the piping. Information on the sample location, who collected the sample, and the date and time of sample collection should be recorded as part of the sampling procedures.

### WHAT SHOULD I TEST MY WATER FOR?

Water can be tested for hundreds of water quality parameters and can be expensive depending on how extensive the sampling list is. At a minimum, the WDEQ suggests that private water well owners get their well tested annually for nitrates and bacteria, the two most common impacts to private water wells.

The WDEQ suggests that all domestic water wells be tested for Tier 1 (except for disinfectants and disinfection byproducts) and Tier 2 constituents in order to establish a 'baseline' water quality. Tier 3 constituents will vary based on the specific water quality concern. WDEQ suggests that Tier 1 and Tier 2 sampling be conducted on a regular basis in order to evaluate if water quality has changed over time, or more frequently if there is a change in water taste, color or odor, or if there is an illness in the family.

Tier 1 constituents include contaminants for which the US Environmental Protection Agency (US EPA) has established safe drinking water levels and levels that ensure aesthetic water quality (taste, color, and odor). Tier 2 and Tier 3 constituents are 'indicator' constituents that can be used to indicate changes to water well quality and possibly water well contamination. Tables of the suggested sampling Tiers and sampling frequency are on the next page.

### WHERE DO THESE CONTAMINANTS IN MY WELL COME FROM?

Groundwater quality can change over time, and may vary with the seasons depending on the geologic material the water is drawn from, seasonal recharge patterns (rainfall, snowmelt, irrigation practices), and local land uses. Therefore, the WDEQ/WQD suggests sampling your water well more than once during different calendar seasons in order to assist you in

establishing a natural variability in your water quality.

There are many potential sources of contaminants in water wells, from improper well construction and well maintenance, on-site chemical and waste handling, off-site land uses, and naturally occurring constituents from the soil and rock your water flows through. Some areas in Wyoming have naturally high levels of certain water quality constituents (arsenic, fluoride, radium, uranium, etc.) that may even exceed the safe drinking water levels. Potential sources will vary depending on what was detected in your well water.

### WHAT DO MY RESULTS MEAN?

Once you receive your lab results, the first question people usually ask is whether a detected chemical poses a health threat. Detections of constituents may or may not imply that there is a problem with your water quality. To determine if water is generally safe to drink, water test results are compared to the US EPA [Primary Drinking Water Regulations](#) table of contaminants and the [Secondary Drinking Water Standards](#). Keep your analytical results and your sampling documentation with your well information for future reference if there is a question about change in water quality.

If detected levels exceed safe drinking water standards, the WDEQ suggests discontinuing use of your well. The WDEQ suggests getting your well retested to confirm the result prior to installing any home water treatment system. Several methods are available to the homeowner for treatment of water quality issues, the WDEQ Know Your Well – [Understanding Your Results](#) has a table of commonly detected constituents, potential health impacts, and treatment options.

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RECOMMENDED WATER QUALITY SAMPLING PARAMETERS	
PARAMETER	FREQUENCY
Nitrates (Nitrate and Nitrite)	Initially, as part of Tier 1 sampling or Tier 2 sampling, then annually, or when there is an unexplained illness
Bacteria	
<b>TIER 1 SAMPLING</b> ( <a href="#">see full EPA Safe Drinking Water Act List</a> )	
Turbidity	Initially, then every 5 years
Total Dissolved Solids (TDS)	
Antimony	
Arsenic	
Barium	
Beryllium	
Cadmium	
Total Chromium	
Copper	
Free Cyanide	
Fluoride	
Lead	
Mercury	
Selenium	
Thallium	
EPA Safe Drinking Water Act <a href="#">Organic Chemical List</a>	
EPA Safe Drinking Water Act- <a href="#">Radionuclides List</a>	
<b>TIER 2 INDICATOR LIST</b>	
pH	Initially, then every 3 to 5 years
Specific Conductivity	
Total Dissolved Solids (TDS)	
Alkalinity	
Barium	
Calcium	
Iron	
Magnesium	
Sodium	
Chloride	
Sulfate	
Fluoride	
Lead	
Arsenic	
Total Organic Carbon	
<b>TIER 3 INDICATOR LIST</b>	
Tier 3 constituents are typically associated with a specific potential source of contamination and will vary on a well-by-well basis	