



## SUGGESTED WATER QUALITY TESTING FOR PRIVATE WELLS IN AREAS OF OIL AND GAS DEVELOPMENT

### INTRODUCTION

This factsheet provides basic information for private water well owners who are concerned about their water well quality prior to oil and gas development near their property. Testing prior to development is important to monitor for potential changes in water quality over time, and to assist in answering the question whether a well has been impacted by development activities. Water quality samples may be collected by the water well owner, or an independent third party; however, water samples collected by the water well owner, may not be recognized in legal proceedings.

### WHO REGULATES OIL AND GAS WELL DRILLING IN WYOMING?

The Wyoming Oil and Gas Conservation Commission is responsible for the regulation, permitting, and oversight of the production of Wyoming's oil and gas resources. To learn more, please visit: [wogcc.state.wy.us](http://wogcc.state.wy.us).

### 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.

### 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 in an oil and gas water contamination legal proceeding. Some laboratories will come and collect the sample for you; others may only provide the sample containers. For reliable and defensible data, use a qualified professional to collect your water sample.

### 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

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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. Ideally, water should be tested for the same parameter list as the WOGCC's Appendix K sampling list, this is the list oil and gas companies are required to test for as part of Wyoming's baseline sampling requirements. For those not wanting to go to that extent or expense, the WDEQ/WQD has developed an abbreviated list of Appendix K parameters that may assist a homeowner with establishing background water quality prior to oil and gas development.

RECOMMENDED WATER QUALITY SAMPLING PARAMETERS	
PARAMETER	ANALYTICAL METHOD
pH	EPA 150.1
Specific Conductivity	EPA 120.1
Total Dissolved Solids (TDS)	SM 2540 C
Arsenic	Filtered in field using a 0.45 µm filter
Barium	
Calcium	
Iron	
Magnesium	
Potassium	
Sodium	SW846 6010 or SW846 6020
Chloride	
Sulfate	
Fluoride	EPA 300.0 or 9056 or SM4500 F-C
Dissolved Methane	RSK 175

### WHAT DO MY RESULTS MEAN?

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. Once you receive your lab results, the first question people usually ask is whether a detected chemical poses a health threat. 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.