

# Recommended Oil and Gas Pre-Drill Parameters

The Pennsylvania Department of Environmental Protection (DEP) has developed the following list of parameters for homeowners who wish to have their private water supply well tested independently. This list is not exhaustive, and homeowners may want to consider more extensive testing of their water supply. Additionally, while it is not recommended, if a homeowner chooses to test for fewer than the full set of recommended parameters, the minimum parameters are indicated in bold in the following lists.

It is recommended that homeowners test their water before any well site drilling or earth disturbance activities. To obtain valid results, samples must be collected by a qualified third party. Homeowners may also wish to discuss the option of having the headspace of their private well tested for the presence of methane gas at the time of sampling. Finally, homeowners should use an independent, Mississippi-accredited laboratory to ensure valid results.

## Analyte (Inorganic)

**Alkalinity**<sup>1</sup>  
**Chloride**<sup>1</sup>  
 Conductivity  
 Hardness  
 Bromide  
**pH**<sup>1</sup>  
 Sulfate<sup>2</sup>  
**Total Dissolved Solids**<sup>1</sup>  
**Turbidity**<sup>1</sup>  
 Total Suspended Solids

## Analyte (Trace Metal)

**Barium**<sup>1</sup>  
**Calcium**<sup>1</sup>  
**Iron**<sup>1</sup>  
 Magnesium  
**Manganese**<sup>1</sup>  
 Potassium  
**Sodium**<sup>1</sup>  
 Strontium  
 Arsenic  
 Zinc  
 Aluminum  
 Lithium  
 Copper  
 Vanadium  
 Boron  
 Chromium  
 Selenium

## Analyte (Organic)

**Methane**<sup>1</sup>  
**Ethane**<sup>1</sup>  
**Propane**<sup>1</sup>  
 Ethylene Glycol  
 Total Petroleum Hydrocarbons<sup>3</sup>  
 VOCs/(BTEX)<sup>4</sup>

## Additional Suggested Testing

Total Coliform Bacteria<sup>5</sup>

<sup>1</sup>At a minimum, homeowners should have their private water supply well tested for these parameters.

<sup>2</sup>Consider the presence of coal formations and oil-producing regions.

<sup>3</sup>Recommended as a preliminary screening test. If test shows a detection for total petroleum hydrocarbons, an environmental professional should be consulted and additional tests considered to identify the specific hydrocarbon source responsible for the water supply impacts. Please note there are many sources of hydrocarbons not related to oil and gas production.

<sup>4</sup>Due to the lower detection limit associated with the test method, volatile organic compounds (VOC)/benzene, toluene, ethylbenzene, and xylene (BTEX) testing may provide a more sensitive method for detecting hydrocarbon impacts.

<sup>5</sup>While not related to drilling activities, total coliform bacteria testing is suggested due to health concerns and as a way to assess overall drinking water quality.

## Laboratory Testing of Drinking Water in Proximity to Oil and Gas Development

There are recommended practices, testing, and maintenance for private drinking water wells that can be performed by homeowners. For more information on regulations, applications, and forms, visit the Mississippi Department of Environmental Quality (MDEQ) online at <https://www.mdeq.ms.gov/water/water-availability-and-use/regulations-applications-and-forms/> and the Mississippi State Department of Health–Division of Onsite Waste Water for Private Water Wells at [https://msdh.ms.gov/msdhsite/\\_static/30,0,76,762.html](https://msdh.ms.gov/msdhsite/_static/30,0,76,762.html).

### Finding a Laboratory

1. Go to [https://msdh.ms.gov/msdhsite/\\_static/14,1112,188.html](https://msdh.ms.gov/msdhsite/_static/14,1112,188.html) to find a laboratory accredited to perform these tests.
2. Contact a local laboratory and ask if it is accredited to perform the above testing or if it can refer you to a laboratory that is accredited.
3. Contact the MSDH Laboratory Accreditation Program via telephone at (601) 576-7582.

### Before Sending Samples

1. Inform the chosen laboratory that you want to have well water tested for oil and gas pre-drill parameters.
2. Ask the laboratory if it is accredited to perform the requested testing. If the laboratory is not, ask if it will subcontract to an accredited laboratory.
3. Ask if the laboratory provides sample-collection services. MDEQ recommends that a qualified third party (a consultant or the laboratory) collect and transport the sample for testing.
4. Instruct the laboratory to perform the testing and reporting of the samples in accordance with all accreditation requirements related to Environmental Laboratory Accreditation Regulations.

Please contact MDEQ for information about well permits or to report complaints about wells.

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