



**WYOMING**

## Wyoming Department of Environmental Quality Water Quality Division

### Sampling and Testing Water Wells in Areas of Oil and Gas Development

The Wyoming Department of Environmental Quality (WDEQ) has developed this guideline in response to public concern about potential impacts to water wells due to industrial activity, such as oil and gas exploration and development. Water well owners are concerned with maintaining the quality of their water. Periodic sampling and testing of well water is important to initially determine that well water is suitable and safe for drinking water purposes, and to monitor for potential changes in water quality or presence of contaminants over time. Testing can help answer the question of whether a well has been impacted by industrial activity. Water samples may be collected by the well owner or by an independent third party, however, test results from water samples collected by a well owner may not be recognized in legal proceedings.

It is important to collect water well samples prior to drilling or other industrial activity to establish 'baseline' water quality conditions. Mineral and surface owners may be able to negotiate water well testing, both pre-and post-drilling, as part of their mineral lease or surface use agreement.

Water can be tested for hundreds of water quality analytes and parameters. Ideally, well water should be tested as described in WDEQ's ***Guideline for Sampling and Testing Well Water Quality*** (see link below). However, for those who do not wish to go to this extent and expense, the following relatively inexpensive 'indicator' analytes, parameters, and chemical compounds may provide a level of comfort for monitoring potential effects from oil and gas development:

Mineral and metal indicators: conductivity, pH, Total Dissolved Solids (TDS), alkalinity, barium, calcium, magnesium, sodium, chloride, sulfate, fluoride, nitrate, lead, arsenic, iron, and total organic carbon.

Chemical indicators: TPH-DRO and TPH-GRO (Total Petroleum Hydrocarbons – Diesel Range Organics and Gasoline Range Organics); and BTEX (Benzene, toluene, ethylbenzene, and xylenes).

Laboratories can provide information on how to collect a water sample, or provide for sample collection. Laboratories can also help with the selection of additional, or alternative water quality analytes and 'indicators' for other types of potential contaminants.

Laboratory analyses for mineral and metal water quality 'indicators' can be obtained for as little as \$150 from the Wyoming Department of Agriculture lab at (307) 742-2984. Lab analyses for chemical indicators is more expensive and may cost a few hundred dollars, or more, but are more likely to detect contamination associated with a variety of different oil and gas related activities.

For more information regarding potential sources of contamination, establishing baseline quality of well water, sampling frequency, evaluation of sample results, and laboratories available to the public please refer to WDEQ's ***Guideline for Sampling and Testing Well Water Quality*** available on WDEQ's website at <http://deq.state.wy.us/wqd/groundwater/index.asp>.

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