



## Well Water Testing Packages

### HOUSEHOLD PACKAGE

Includes common constituents that can flavor or color your water, stain fixtures, or make you ill at high enough levels.



pH  
Calcium  
Conductivity  
Chloride  
Iron  
Magnesium  
Manganese

Nitrate-Nitrogen  
Sodium  
Sulfate  
Total Coliform & E. coli (Bacteria)  
Total Hardness  
Total Dissolved Solids (TDS)

### LIVESTOCK PACKAGE

Includes common constituents that can cause livestock to drink less than they should, affecting growth, production and productivity.



pH  
Calcium  
Conductivity  
Chloride  
Iron  
Magnesium  
Manganese

Nitrate-Nitrogen  
Sodium  
Sulfate  
Total Hardness  
Total Dissolved Solids (TDS)

### IRRIGATION PACKAGE

Includes parameters to determine suitability of well water for residential and agricultural irrigation use.



pH  
Boron  
Calcium  
Conductivity  
Chloride  
Iron  
Magnesium

Manganese  
Nitrate-Nitrogen  
Sodium  
% Sodium  
Sodium Absorption Ratio (SAR)  
Sulfate  
Total Dissolved Solids (TDS)

### BASIC PACKAGE

Minimum testing required for selling a home.



Nitrate-Nitrogen

Total Coliform & E. coli (Bacteria)

*We can also test your water for common pesticides, herbicides, non-volatile & volatile petroleum hydrocarbons, and heavy metals.*

# Well Water Testing Packages, Continued...

## HEAT PUMP PACKAGE

Useful in dealing with warranty issues.



pH	Magnesium
Alkalinity	Manganese
Ammonia-Nitrogen	Nitrate-Nitrogen
Calcium	Ryzner Stability Index
Chloride	Sodium
Conductivity	Sulfate
Iron	Total Dissolved Solids (TDS)
Langelier Saturation Index	Total Hardness
	Total Suspended Solids (TSS)

## HYDRAULIC FRACTURING RELATED TESTING<sup>1</sup>

Hydraulic fracturing is a controversial oil and gas extraction technique developed in the late 1940s to gain access to fossil energy deposits previously inaccessible to drilling operations. There is growing concern that these practices may impact surface waters and water wells, affecting humans and livestock.



pH	Manganese
Alkalinity	Methanol
Arsenic	Nitrate
Barium	Nitrite
Bromide	Sodium
BTEX and Isopropanol	Specific Conductance
Chloride	Strontium
Hardness	Sulfate

## General Water Report Guidelines<sup>2</sup>

**pH:** Normal range 6.5-8.5 with Reverse Osmosis/Distilled Water having a range of 5.0-6.0

**Calcium and Magnesium:** Cause the "Hardness" of the water.

**Chloride:** Levels above 250 mg/L may cause a "salty taste". Levels above 1000 mg/L are not recommended for livestock.

**Electrical Conductivity:** A measurement of the conductivity of the water. Typically, the higher the electrical conductivity of the water, the higher the dissolved salts/solids.

**Iron:** Levels above 0.3 mg/L may cause taste, odor and staining on fixtures and laundry.

**Manganese:** Levels above 0.05 mg/L may cause taste and black/grey staining on fixtures and laundry.

**Nitrate-Nitrogen:**

Levels between 0-10 mg/L are acceptable.

Levels between 20-40 mg/L may pose a risk to some livestock. Levels above 40 mg/L are not recommended for livestock.

**Sodium:** Levels above 100 mg/L are considered to be high. Water softeners recharged with sodium chloride (salt) increase the sodium level.

**Sulfate:** Levels above 250 mg/L may cause a mild taste and levels above 500 mg/L may cause diarrhea in both humans and livestock.

**TDS-Total Dissolved Solids:** Levels above 1000 mg/L may cause taste. Shortened water heater life may be caused by levels above 400 mg/L. Levels above 7000 mg/L are not recommended for livestock.

**Total Hardness:**

"Soft Water": 0-85 mg/L (0-5 grains/gallon)

"Moderately Hard Water": 85-150 mg/L (5-9 grains/gallon)

"Hard Water": 150-300 mg/L (9-18 grains/gallon)

"Very Hard Water": 300-500 mg/L (18-30 grains/gallon)

Levels above 2000 mg/L are not recommended for livestock.

<sup>1</sup> "Guidelines for Voluntary Baseline Groundwater Quality Sampling in the Vicinity of Hydraulic Fracturing Operations", Dustin Fross and Shane Lyle, Kansas Geological Survey, Public Info Circular 34, March 2013

<sup>2</sup> Source: Michael H. Bradshaw, and G. Morgan Powell, Understanding your Water Test Report, Kansas State University, October 2004 Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992