Well Testing

Recommend testing through Legend, you can also schedule testing with our office however trip charges may apply depending on location.

Legend Technical Services of Arizona, Inc.

602-324-6121 office
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602-324-6101 fax

17631 N. 25th Avenue
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Test Should Include:

- Arsenic Levels #3 & #5
- Nitrates
- Coliform
- Manganese
- Sulfates
- Hardness Total
- TDS (Total dissolved solids)
- pH

Optional

- VOC Scan (Volatile Organic Compounds).
The EPA establishes drinking water standards, which apply to all public water systems across the country. Private Wells are not regulated by any government agency and it is responsibility of the owner to monitor the water on a routine basis.

Below is a list of some COMMON parameters monitored by private well owners on a routine basis (every 6-12 months) in Arizona and the associated Maximum Contaminant Levels (MCL). This is the maximum level of a particular contaminant allowed by the EPA or could be considered the “safe limit”. If your result is less than (<) this limit, the sample is within the acceptable limits allowed for drinking water.

There are two types of standards: primary and secondary. Primary Maximum Contaminant Levels (MCLs) are health-based and are enforceable for public water systems. Secondary MCLs are based on the aesthetic quality of water and are non-enforceable guidelines. The following chart includes some of the more common parameters tested for by private home owners for you to compare your results to.

<table>
<thead>
<tr>
<th><strong>Primary MCLs (health-based)</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>0.01 mg/L</td>
</tr>
<tr>
<td>Copper</td>
<td>1.3 mg/L</td>
</tr>
<tr>
<td>Lead</td>
<td>0.015 mg/L</td>
</tr>
<tr>
<td>Nitrate</td>
<td>10 mg/L</td>
</tr>
<tr>
<td>Nitrite</td>
<td>1 mg/L</td>
</tr>
<tr>
<td>Total Coliform/E. coli</td>
<td>“Absent” or &lt;1 MPN/100 mL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Secondary MCLs (aesthetic-based)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.5 to 8.5</td>
</tr>
<tr>
<td>Iron</td>
<td>0.3 mg/L</td>
</tr>
<tr>
<td>Total Dissolved Solids (TDS)*</td>
<td>500 mg/L</td>
</tr>
<tr>
<td>Hardness (Ca + Mg)</td>
<td>&gt; 200 is considered hard water</td>
</tr>
</tbody>
</table>


**Health Effects:** is a known carcinogen associated with skin, lung, bladder, kidney, and liver cancer. Dermatological, developmental, neurological, respiratory, cardiovascular, immunological, and endocrine effects are also evident.

We highly recommend getting a speciation test when dealing with Arsenic, this will break down the Arsenic levels by Arsenic III and Arsenic V.

**Treatment:** process for these different types of Arsenic vary dramatically in techniques, upfront costs and long term costs. For Example:
IE#1 - One of the most common Arsenic Removal Systems includes the use of a Resin from a company called Adedge, the resin is Bayoxide E33 and this resin will treat both Arsenic III and V. Downside is the systems are very expensive upfront, and require the Resin to be replaced on average every 3 years.

IE#2 – Let’s assume based on the speciation test the Arsenic III is within EPA safe limits but the Arsenic V is too high. You can utilize a Resin from a company called Purolite, Resin A300E to just remove the Arsenic V. These systems are less costly upfront, with Resin lasting 7 to 10+ years.

IE#3 - You can also introduce Chlorine Injections to oxidize the III allowing it to be treated as V, little more equipment and costs up front but allows the Arsenic Resin to last 7+ years. Additional equipment includes pump, chlorine solution tank, water retention tank, and carbon filter to remove added chlorine prior to entering home.

Nitrates

https://en.wikipedia.org/wiki/Nitrate

**Health Effects:** The toxicity of nitrate to humans is mainly attributable to its reduction to nitrite. Most common side effect is methaemoglobinemia

**Treatment:** Standalone tank with brine solution - recommended water hardness of 3 or less, from Dow Industries recommended resin is AMBERLITE™ PWA5, will also remove sulfates.

Coliform

https://en.wikipedia.org/wiki/Coliform_bacteria

**Health Effects:** Potential health effects include assorted gastroenteric infections and diseases. Symptoms such as nausea, vomiting, diarrhea, and stomach cramps are typically noticed.

**Treatment:** Pont of Use and Point of Entry options:
POU – Reverse Osmosis with Ultraviolet, POE – Whole Home Ultraviolet, or Chlorine Injection with Carbon Filtration to remove Chlorine.

Lead

https://en.wikipedia.org/wiki/Lead

**Health Effects:** Lead is a highly poisonous metal (whether inhaled or swallowed), affecting almost every organ and system in the human body. Lead can cause severe damage to the brain and kidneys and, ultimately, death.

**Treatment:** Point of Use – Reverse Osmosis – Point of Entry Carbon Filtration designed to remove lead