Groundwater & Drinking Water Education Program Overview

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Through the University of Wisconsin-Extension, all Wisconsin people can access University resources and engage in lifelong learning, wherever they live and work.
What we know about groundwater quality in Northwestern Wisconsin

- Nitrate
- Total Hardness
- Arsenic
Community Drinking Water Programs

- **Definition of Community**
  - County, Town, Watershed, Lake Assoc.

- **Objectives**
  - Offer homeowners a convenient opportunity to test their private well water
  - Educate community about groundwater:
    - Where does your drinking water come from
    - Connection between water quality, geology and land-use
  - Help well owners understand their drinking water quality results and options for improving water quality
  - Learn about condition of local groundwater quality
Community Drinking Water Programs

1. Advertising and bottle distribution

2. Sample collection and drop off.

3. Samples are analyzed at WEAL

4. Hold educational program for community.
How do I know which test(s) to perform?

There are 3 packages. You can choose to do any or all. The following information can be used to help you decide which to perform.

<table>
<thead>
<tr>
<th>Package</th>
<th>What each package includes</th>
<th>Which wells should be tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeowners</td>
<td>Coliform Bacteria, Nitrate, Chloride, Hardness, Alkalinity, pH,</td>
<td>All Wells:</td>
</tr>
<tr>
<td>$49</td>
<td>Saturation Index</td>
<td>• This is the basic package, perform this set of tests if you are unsure which package to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>perform.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Includes the two most important tests to perform regularly on a well (bacteria and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>nitrate).</td>
</tr>
<tr>
<td>Metals</td>
<td>Arsenic, Lead, Copper, Iron, Zinc, Calcium, Magnesium, Manganese,</td>
<td>Consider this test package if:</td>
</tr>
<tr>
<td>$45</td>
<td>Sodium, Potassium, Sulfate</td>
<td>• you’ve never had your well tested for arsenic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• previous tests indicated the presence of arsenic.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Your plumbing system has components that contain copper and/or lead</td>
</tr>
<tr>
<td>DACT Screen</td>
<td>Tests for a breakdown component of atrazine type pesticides.</td>
<td>Consider this package if:</td>
</tr>
<tr>
<td>$27</td>
<td></td>
<td>• your well is within ¼ mile of agricultural fields where corn has been grown.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• previous tests indicated elevated nitrate levels that could be caused by fertilizer usage.</td>
</tr>
</tbody>
</table>

If you choose to perform all three the total is $113, a discount of $8 if performed individually.
Well Construction

Photos courtesy of: Matt Zoschke
Nitrate Nitrogen

- **Greater than 10 mg/L**
  Exceeds State and Federal Limits for Drinking Water
- **Between 2 and 10 mg/L**
  Some Human Impact
- **Less than 2.0 mg/L**
  “Transitional”
- **Less than 0.2 mg/L**
  “Natural”

Test Important to Health

**UNSAFE** - for infants and pregnant women; everyone should avoid long term consumption.

“NATURAL”
Ashland - Iron Counties
February 2014

NITRATE-NITRITE (ppm N)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>Count</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>None Detected</td>
<td>96</td>
<td>80%</td>
</tr>
<tr>
<td>B</td>
<td>2.0</td>
<td>15</td>
<td>12%</td>
</tr>
<tr>
<td>C</td>
<td>2.1 - 5.0</td>
<td>6</td>
<td>5%</td>
</tr>
<tr>
<td>D</td>
<td>5.1 - 10.0</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>E</td>
<td>10.1 - 20.0</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>F</td>
<td>20.1 ...</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

Mapped value is the average unless otherwise indicated. Treated samples not mapped.
CHLORIDE (ppm)

- A: None Detected 0 0%
- B: 10 70 58%
- C: 11-50 31 26%
- D: 51-100 12 10%
- E: 101-200 3 2%
- F: 201... 4 3%

Mapped value is the average unless otherwise indicated. Treated samples not mapped.