And today, let’s talk about ....

- Pesticide and Nitrate Results from your neighborhood, collected in October 2013
Why the Pesticide Testing?

In the spring of 2012, 22 small public water supply systems participated in the USDA analysis of their drinking water. All of the participating public water suppliers (PWS) use groundwater wells as their source of drinking water and all are located in agricultural and rural areas.

Half of these small PWS did find some pesticide(s) present in their drinking water. Two of these PWS are located in the recent pesticide study areas.
Linn County – Peoria Road Area
9 Wells Scheduled – but then DC happened
Northern Benton County near Route 20
24 Wells Sampled
And now – the rest of the story

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Tested for ~120 pesticides, plus nitrate, sulfate, chloride, and hardness.
## Nitrate Results

<table>
<thead>
<tr>
<th>Nitrate/Nitrite as N (mg/L)</th>
<th># domestic wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND</td>
<td>4</td>
</tr>
<tr>
<td>0.005-3</td>
<td>9</td>
</tr>
<tr>
<td>3.1-7.0</td>
<td>8</td>
</tr>
<tr>
<td>7.1-10.0</td>
<td>7</td>
</tr>
<tr>
<td>&gt;10</td>
<td>2</td>
</tr>
</tbody>
</table>

30% of the domestic wells in this study were above the action level for nitrate.
Nitrate/Nitrite as N (mg/L)

- ND
- 0.005 - 3.000
- 3.001 - 7.000
- 7.001 - 10.000
- 10.001 - 11.100

DEQ Groundwater Sampling
October 2013

Nitrate MCL = 10 mg/L
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts per million (ppm; milligrams/liter; mg/L)</td>
<td>Equivalent to one penny in $10,000; or one 8 oz. glass of water in a 65,000 gallon Olympic sized swimming pool.</td>
</tr>
<tr>
<td>Parts per billion (ppb; micrograms/liter; ug/L)</td>
<td>Equivalent to one second in 32 years; There are 1000 parts per billion in 1 part per million.</td>
</tr>
<tr>
<td>Parts per trillion (ppt; nanograms/liter; ng/L)</td>
<td>Equivalent to one drop of ink distributed in a 12 million-gallon reservoir. There are 1000 parts per trillion in 1 part per billion.</td>
</tr>
</tbody>
</table>
## Summary of Domestic Well Pesticide Results October 2013

<table>
<thead>
<tr>
<th></th>
<th># of Domestic Wells with detections</th>
<th>Lowest detection (ng/L)</th>
<th>Highest detection (ng/L)</th>
<th>MCL or Screening Level (ng/L)</th>
<th>Test method reporting limit (ng/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrazine</td>
<td>18</td>
<td>11.1</td>
<td>99.6</td>
<td><strong>3,000 (3-15%)</strong></td>
<td>~4.3</td>
</tr>
<tr>
<td>Deisopropylatrazine</td>
<td>15</td>
<td>6.86</td>
<td>120</td>
<td>~4.4</td>
<td></td>
</tr>
<tr>
<td>Desethylatrazine</td>
<td>22</td>
<td>4.65</td>
<td>321</td>
<td>~4.3</td>
<td></td>
</tr>
<tr>
<td>2,6-Dichlorobenzamide</td>
<td>13</td>
<td>23.3</td>
<td>661</td>
<td><strong>32,000 (2%)</strong></td>
<td>~21.5</td>
</tr>
<tr>
<td>Diuron</td>
<td>11</td>
<td>5.11</td>
<td>42.2</td>
<td><strong>2,000 (2%)</strong></td>
<td>~4.4</td>
</tr>
<tr>
<td>Alachlor</td>
<td>1</td>
<td>15.7</td>
<td>15.7</td>
<td><strong>2,000 (0.7%)</strong></td>
<td>10.8</td>
</tr>
</tbody>
</table>

No individual screening levels exist for the degradates of Atrazine, instead we consider Total Atrazines, which is the sum of atrazine and its degradates.
Atrazine, desethylatrazine, & deisopropylatrazine come from same source

<table>
<thead>
<tr>
<th># Pesticides affecting well</th>
<th># Domestic Wells</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>
Atrazine total (ng/L)
- ND
- 5 - 100
- 101 - 200
- 201 - 300
- 301 - 440
- Schools

DEQ Groundwater Sampling
October 2013

Atrazine MCL = 3,000 ng/L
Chronic Human Health Benchmark from EPA = 32,000 ng/L

DEQ Groundwater Sampling
October 2013

2,6-Dichlorobenzamide (ng/L)

- ND
- 22 - 30
- 31 - 75
- 76 - 155
- 156 - 661

Schools

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
USGS Health Based Screening
Level Low = 2,000 ng/L
Alachlor ng/L
- ND
- 15.7
- Schools

DEQ Groundwater Sampling
October 2013

Alachlor MCL = 2,000 ng/L
Comparison Between Studies

Not detected in 2013 study

- Alachlor
- Atrazine
- Desethyl atrazine
- Desethyl-desisopropyl atrazine
- Desisopropyl atrazine
- Hydroxy atrazine
- Bromacil
- Diuron
- Imidacloprid
- Metolachlor ethanesulfonic acid (ESA)
- Norflurazon
- Norflurazon desmethyl
- Prometon
- Propazine
- Simazine
So what does this all mean?

Based on the results of this study, nitrate contamination of your drinking water poses the greatest potential health risk. Experts recommend that domestic well owners should test their well water for nitrate and bacteria once a year! If high (greater than 7 mg/L), consider a Reverse Osmosis treatment system.

Your well water may contain trace amounts of several pesticides. The levels measured in this study were far below any MCL or health-based screening level. If you are concerned about the health effects of this contamination, consider a filter system certified by NSF (www.nsf.org).

Do your part to protect your drinking water source! Adhere to your onsite septic system maintenance schedule. Save water and you can reduce the nitrate loading to the groundwater. Reduce the use of household fertilizers and pesticides.
Additional Resources
Well Water Program, OSU Extension Service

"Protecting the groundwater that provides our drinking water through education."

The goal of the Well Water Program is to help Oregonians protect the groundwater that supplies their drinking water through education. Information available at Well Water events is now available for your use on this web page.

If you have a well or septic system, look over the many publications available to help you maintain these facilities in good working order—it could save you costly repairs, protect your family’s health and insure the continued safety of your groundwater supply.

If you have questions and don’t know where to turn, try contacting your local county Extension Service office.

If you want more information about the OSU Well Water Program or can’t find the answers to your questions—contact the program coordinator.

What does water mean to people?

Degrees of Thirst by Onlineassociatedegrees.com
Domestic Well Safety

Approximately 23% of Oregonians rely on domestic wells, or private wells, as their primary source of potable water. This makes groundwater protection and well stewardship of high public health importance. To protect both the lifelong health of Oregonians and the state's groundwater resources, the Oregon Domestic Well Safety Program (DWSP) focuses on improving local and state capacity to assess and manage risks associated with private wells. DWSP partners with local health departments and water information providers to further promote domestic well safety.

News

- The DWSP's Request for Grant Applications (RFGA) period has CLOSED. Applications for 2015 will be announced in Fall 2014.
- The National Groundwater Association (NGWA) is hosting three free webinars in January and February 2014 to help household water well owners keep their water safe. The next webinar, "Treating Well Water: Where do you begin?", is scheduled for February 4th, 2014 at 1pm (ET). Click to register and see other archived webinars!
- Although the rain has been mild this Winter in Oregon, the Public Health Division now has a 'NEW resource' available to help you stay safe in case of flood: What to do when your well is flooded.
- Want to learn more about DWSP and the newly released RFGA? A Kick-Off Webinar was held January 16th, 2014 at 10:30 am (PT). The slides are now available.

What would you like to know?

- Basic Information about Private Wells
  Find general information about domestic wells.
- Human Health & Well Water
  Find information on domestic well contaminants and their effects on human health.
www.nsf.org

Search for “Residential Water Treatment”
“Far and away the best prize that life has to offer is the chance to work hard at work worth doing”

- Theodore Roosevelt