## Elk City Aquifer

### Baseline Sample Period
July-August 2013

### Sampling Sites
13

### Water Level Sites
25

### General
- **Location**: Western Oklahoma
- **Area (km²)**: 782
- **Storage (acre-feet)**: 2,200,000
- **Primary Uses**: Municipal & Domestic Supply; Irrigation
- **Category**: Bedrock - Sandstone

### Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean</th>
<th>SEM</th>
<th>Minimum</th>
<th>25%</th>
<th>Median</th>
<th>75%</th>
<th>Maximum</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Field</strong></td>
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</tr>
<tr>
<td>Well Depth (ft)</td>
<td>119</td>
<td>6.05</td>
<td>42</td>
<td>99</td>
<td>122</td>
<td>141</td>
<td>175</td>
<td>N=27</td>
</tr>
<tr>
<td>Depth to Water (ft)</td>
<td>28.98</td>
<td>4.85</td>
<td>10.95</td>
<td>15.20</td>
<td>22.80</td>
<td>27.44</td>
<td>107.80</td>
<td>Below ground surface</td>
</tr>
<tr>
<td>Temperature (°C)</td>
<td>21.50</td>
<td>0.565</td>
<td>18.36</td>
<td>19.86</td>
<td>21.25</td>
<td>23.56</td>
<td>24.27</td>
<td></td>
</tr>
<tr>
<td>Specific Conductance (µS/cm)</td>
<td>624</td>
<td>27.0</td>
<td>475</td>
<td>576</td>
<td>599</td>
<td>672</td>
<td>822</td>
<td></td>
</tr>
<tr>
<td>Dissolved Oxygen (mg/L)</td>
<td>5.98</td>
<td>0.639</td>
<td>0.65</td>
<td>5.06</td>
<td>6.39</td>
<td>7.92</td>
<td>8.53</td>
<td></td>
</tr>
<tr>
<td>pH (units)</td>
<td>7.29</td>
<td>0.036</td>
<td>7.14</td>
<td>7.21</td>
<td>7.26</td>
<td>7.41</td>
<td>7.53</td>
<td></td>
</tr>
<tr>
<td>Alkalinity (mg/L)</td>
<td>276</td>
<td>16.3</td>
<td>215</td>
<td>238</td>
<td>276</td>
<td>288</td>
<td>437</td>
<td></td>
</tr>
<tr>
<td>Hardness (mg/L)</td>
<td>272</td>
<td>7.73</td>
<td>232</td>
<td>253</td>
<td>272</td>
<td>289</td>
<td>329</td>
<td></td>
</tr>
<tr>
<td>Calculated Bicarbonate (mg/L)</td>
<td>340</td>
<td>20.0</td>
<td>265</td>
<td>293</td>
<td>340</td>
<td>354</td>
<td>537</td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids (mg/L)</td>
<td>360</td>
<td>15.7</td>
<td>254</td>
<td>335</td>
<td>349</td>
<td>399</td>
<td>436</td>
<td>SMCL: 500; 0 over</td>
</tr>
<tr>
<td><strong>Nutrient Constituents</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Nitrate &amp; Nitrite (mg/L)</td>
<td>5.44</td>
<td>0.808</td>
<td>0.09</td>
<td>3.92</td>
<td>6.37</td>
<td>7.52</td>
<td>8.58</td>
<td>MCL: 10; 0 over</td>
</tr>
<tr>
<td>Total Dissolved Phosphorus (mg/L)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>All Values &lt;0.005, except 3 (0.006,0.1,0.011)</td>
</tr>
<tr>
<td><strong>Mineral Constituents</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bromide (µg/L)</td>
<td>375</td>
<td>59.7</td>
<td>232</td>
<td>281</td>
<td>298</td>
<td>336</td>
<td>1090</td>
<td>SMCL: 250; 0 over</td>
</tr>
<tr>
<td>dissolved Calcium (mg/L)</td>
<td>65.4</td>
<td>2.90</td>
<td>45.4</td>
<td>59.3</td>
<td>67.2</td>
<td>70.7</td>
<td>81.8</td>
<td></td>
</tr>
<tr>
<td>Chloride (mg/L)</td>
<td>13.1</td>
<td>3.84</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>10.6</td>
<td>13.6</td>
<td>58.4</td>
<td></td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>0.345</td>
<td>0.021</td>
<td>0.20</td>
<td>0.30</td>
<td>0.33</td>
<td>0.40</td>
<td>0.48</td>
<td>MCL: 4; 0 over</td>
</tr>
<tr>
<td>dissolved Magnesium (mg/L)</td>
<td>25.2</td>
<td>1.19</td>
<td>18.6</td>
<td>21.9</td>
<td>25.8</td>
<td>27.3</td>
<td>32.3</td>
<td></td>
</tr>
<tr>
<td>dissolved Potassium (mg/L)</td>
<td>1.49</td>
<td>0.276</td>
<td>0.5</td>
<td>0.9</td>
<td>1.3</td>
<td>1.6</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>dissolved Silica (mg/L)</td>
<td>25.1</td>
<td>0.372</td>
<td>22.8</td>
<td>24.4</td>
<td>25.1</td>
<td>26.0</td>
<td>27.2</td>
<td></td>
</tr>
<tr>
<td>dissolved Sodium (mg/L)</td>
<td>35.1</td>
<td>4.16</td>
<td>13.3</td>
<td>24.1</td>
<td>36.5</td>
<td>44.3</td>
<td>68.2</td>
<td></td>
</tr>
<tr>
<td>Sulfate (mg/L)</td>
<td>15.0</td>
<td>2.44</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>16.5</td>
<td>19.4</td>
<td>30.1</td>
<td>SMCL: 250; 0 over</td>
</tr>
</tbody>
</table>
### Metal & Trace Element Constituents

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean</th>
<th>SEM</th>
<th>Minimum</th>
<th>25%</th>
<th>Median</th>
<th>75%</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>dissolved Barium (µg/L)</td>
<td>409</td>
<td>50.8</td>
<td>85.9</td>
<td>304</td>
<td>447</td>
<td>550</td>
<td>629</td>
</tr>
<tr>
<td>dissolved Boron (µg/L)</td>
<td>48.3</td>
<td>8.17</td>
<td>&lt;50</td>
<td>&lt;5</td>
<td>50</td>
<td>68.4</td>
<td>118</td>
</tr>
<tr>
<td>dissolved Copper (µg/L)</td>
<td>5.12</td>
<td>1.1</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td>&lt;5</td>
<td>6.3</td>
<td>16.2</td>
</tr>
<tr>
<td>dissolved Iron (µg/L)</td>
<td>2.05</td>
<td>0.94</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>1.4</td>
<td>2.0</td>
<td>10.6</td>
</tr>
<tr>
<td>dissolved Vanadium (µg/L)</td>
<td>18.8</td>
<td>1.53</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>19.3</td>
<td>52</td>
<td>83.9</td>
</tr>
<tr>
<td>dissolved Uranium (µg/L)</td>
<td>2.05</td>
<td>0.94</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>1.4</td>
<td>2.0</td>
<td>10.6</td>
</tr>
<tr>
<td>dissolved Vanadium (µg/L)</td>
<td>18.8</td>
<td>1.53</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>19.3</td>
<td>52</td>
<td>83.9</td>
</tr>
<tr>
<td>dissolved Zinc (µg/L)</td>
<td>30.0</td>
<td>7.77</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>19.3</td>
<td>52</td>
<td>83.9</td>
</tr>
</tbody>
</table>

**Comments**
- **MCL:** 2000; 0 over
- **SMCL:** 300; 0 over
- **HA:** 6000; 0 over
- **MCL:** 1300; 0 over
- **MCL:** 1300; 0 over
- **MCL:** 30; 0 over
- **MCL:** 5000; 0 over. **HA:** 2000; 0 over.

### Parameters Below Detectable Limits

<table>
<thead>
<tr>
<th>Parameters Below Detectable Limits</th>
<th>Aluminum</th>
<th>Ammonia</th>
<th>Antimony</th>
<th>Arsenic</th>
<th>Beryllium</th>
<th>Cadmium</th>
<th>Chromium</th>
<th>Cobalt</th>
<th>Lead</th>
<th>Manganese</th>
<th>Mercury</th>
<th>Molybdenum</th>
<th>Nickel</th>
<th>Selenium</th>
<th>Silver</th>
<th>Thallium</th>
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</thead>
<tbody>
<tr>
<td>SEM = Standard Error of the Mean</td>
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<tr>
<td>MCL = EPA’s Maximum Contaminant Level – enforced for public drinking water systems</td>
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<td>SMCL = EPA’s Secondary MCL – guidelines not enforced</td>
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<td>HA = EPA’s Health Advisory</td>
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</table>

Note: Groundwater samples collected for GMAP were filtered in the field, resulting in dissolved concentrations of constituents. The total concentration for any given constituent might be higher for an unfiltered sample from the same source.