Groundwater Quality in Kendall County

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Groundwater Quality Data Sources

- Groundwater quality database housed at the Water Survey
  - Public water supplies (IEPA)
  - Private wells (ISWS)
- 19 wells sampled in 2007
  - Confined to shallow wells (< 250 ft)
  - Northern half of the county
Shallow Aquifers (Sand & Gravel and shallow bedrock) most vulnerable to surface contamination
Overview of Groundwater Quality in Kendall County

- In general, groundwater quality is good in all aquifers
  - Common natural contaminants (arsenic, radium) generally not a problem
  - “Nuisance” contaminants elevated in some wells (hardness, iron, boron)
- Fluoride high in a few wells that have naturally soft water
- Nitrate elevated in a few wells, but always below drinking water standard (10 mg/L as N)
- Chloride elevated in a couple of wells, probably due to road salt runoff
Shallow Wells
Sampled in 2007

- Sand & Gravel
- Shallow Bedrock

Depth in feet
TDS: Shallow Wells

TDS (mg/L)
- < 200
- 200 - 300
- 300 - 400
- 400 - 500
- > 500

Map showing distribution and concentration of TDS in shallow wells.
Chloride: Shallow Wells
Chloride highest in shallow wells
Chloride Trends in Shallow Groundwater

Majority of shallow public supply wells (< 250 ft) in Chicago region have positive trends in chloride
Increasing Chloride Levels in Fox R. Montgomery
Nitrate: Shallow Wells
Hardness: Shallow Wells

- Soft
- Fairly Soft
- Moderately Hard
- Hard
- Very Hard
Fluoride: Shallow Wells
Fluoride and Sodium

Indicating upward flow from deep bedrock?
TDS: Deep Wells

<table>
<thead>
<tr>
<th>TDS (mg/L)</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 200</td>
<td>Light yellow</td>
</tr>
<tr>
<td>200 - 300</td>
<td>Yellow</td>
</tr>
<tr>
<td>300 - 400</td>
<td>Light orange</td>
</tr>
<tr>
<td>400 - 500</td>
<td>Orange</td>
</tr>
<tr>
<td>&gt; 500</td>
<td>Dark orange</td>
</tr>
</tbody>
</table>

Map showing the distribution of TDS values across different wells, with symbols indicating varying concentrations.
Radium (Ra) in Water from the Deep Bedrock Aquifer System

Area Where Combined Ra\textsuperscript{226} and Ra\textsuperscript{228} Concentration Exceeding 5 pCi/L has been Detected in Deep Bedrock System

The USEPA drinking water standard for combined Ra is 5 pCi/L

Map Modified from Kay (1999)
Radium: Deep Wells

Drinking water standard = 5 pCi/L