CWA / SDWA Integration in Nebraska

Ryan Chapman  Water Quality Assessment Section Supervisor
Section 319 – 9 Element Watershed Management Plans
Common Problem - Nitrate

Median of the most recent Nitrate-N concentration by township of 19,743 wells from 1995-2015.

Gray areas indicate no data reported, not the absence of nitrate in groundwater.

Alternative 9-Element Watershed Management Plan

Bazile Groundwater Management Area (BGMA)

<table>
<thead>
<tr>
<th>Priority Areas</th>
<th>Acres</th>
<th>Average NO3-N of most recent samples</th>
<th>Reduction % needed</th>
<th>Acres Needing BMPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>31,224</td>
<td>17.6</td>
<td>45%</td>
<td>14,051</td>
</tr>
<tr>
<td>Tier 2</td>
<td>53,112</td>
<td>14.2</td>
<td>30%</td>
<td>15,934</td>
</tr>
<tr>
<td>Tier 3</td>
<td>10,167</td>
<td>14.9</td>
<td>46%</td>
<td>4,677</td>
</tr>
<tr>
<td>Tier 4</td>
<td>389,337</td>
<td>12.6</td>
<td>21%</td>
<td>81,761</td>
</tr>
<tr>
<td>Total</td>
<td>483,840</td>
<td>12.6</td>
<td></td>
<td>116,422</td>
</tr>
</tbody>
</table>
Drinking Water Protection Management Plan

- **Plans**
  - DWSRF 15% set-a-side
  - Eligible activity in NE Source Water grant

- **Implementation**
  - Section 319 non-point source
  - Alternative to a nine-element watershed management plan
  - Reviewed & approved by EPA Region 319 staff
Drinking Water Protection Management Plan

• Expectations
  – Meet EPA’s alternative to a 9-element watershed management plan (319 requirement)
  – 50-year TOT based on 3D model
  – Community based planning process
  – Strong implementable I&E program
  – Draft plan with one round of edits
Example 50 year time-of-travel

The wellhead protection boundary was deliberately drawn slightly larger than time-of-travel lines shown on the map to allow for seasonal changes and some natural variability in the aquifer. The wellhead protection boundary is also drawn to conform to property boundaries, section lines, and water bodies to allow for easier land management and identification.
Drinking Water Protection Management Plan

- Pilot on 3 communities

<table>
<thead>
<tr>
<th>Community PWS</th>
<th>Population Served</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waverly</td>
<td>3277</td>
<td>GW</td>
</tr>
<tr>
<td>Auburn</td>
<td>3460</td>
<td>GWUDI</td>
</tr>
<tr>
<td>Fairbury</td>
<td>3942</td>
<td>GWUDI</td>
</tr>
<tr>
<td><strong>NE Average</strong>*</td>
<td><strong>2683</strong></td>
<td></td>
</tr>
<tr>
<td><strong>NE Median</strong>*</td>
<td><strong>325</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Systems with their own source of water
NE Wellhead Protection Network
(Statewide – Source Water Collaborative)

• Began in 2001

• Coordinated by The Groundwater Foundation
  – $15k annually Section 319

• Quarterly meetings throughout the state
  – Legislative Breakfast – Lincoln
  – Association of Resources Districts – Kearney
  – (2) rotating field-trip style

• 225 mailing list, 20-40 attendees average
  – County Zoning, NRDs, PWS, State Agencies

http://www.groundwater.org/action/community/newhp.html
NE Wellhead Protection Network

• Education Sub Committee

Why Wellhead Protection?

GROUNDWATER IS:
- A major source of irrigation for agriculture.
- An important component of many industrial processes.
- A source of replenishment for lakes, rivers, and wetlands.

85% of Nebraskans drink groundwater.

Protecting Groundwater is EVERYONE’S Responsibility

PROTECT IT FROM WHAT?
- Urban Contaminants
- Rural Contaminants
- Commercial/Industrial Contaminants

Wellhead protection is an investment in your community’s future. It’s more than just putting together a plan - it’s a roadmap for protecting your community’s greatest asset: its drinking water.

Funding opportunities, such as Source Water Protection grants, are available to assist in developing and implementing a wellhead protection plan (and hiring a consultant if needed). If you already have a plan in place, you may be given priority for funding.

WELLHEAD PROTECTION IS PROACTIVE AND COST-EFFECTIVE

Issue: Drinking Water Contamination
Population: 500
Treatment options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Cost (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive Wellhead Protection</td>
<td>$100,000</td>
</tr>
<tr>
<td>Water Treatment Plant</td>
<td>$1.15</td>
</tr>
<tr>
<td>Establish New Well Field</td>
<td>$1.34</td>
</tr>
<tr>
<td>Wetland &amp; Extraction Well</td>
<td>$1.37</td>
</tr>
<tr>
<td>Regional Water System</td>
<td>$1.42</td>
</tr>
</tbody>
</table>

Welcome to HUSKERVILLE Population 500

WELLHEAD PROTECTION MAKES PARTNERSHIPS

COUNTY

LOCAL GOVERNMENT

NATURAL RESOURCES DISTRICTS

UTILITIES

OTHER INTERESTED PARTIES

CITIZENS

BUSINESSES

AGRICULTURE

The Wellhead Protection process helps a community set priorities on drinking water concerns. Involving stakeholders and state/local agencies develops a line of communication that benefits all citizens. Being proactive in protecting drinking water sources through wellhead protection saves money, time, and most importantly, groundwater.

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ndep.norinfo@nebraska.gov
www.deq.state.ne.us

The Nebraska Wellhead Protection Network brings together organizations and agencies in Nebraska working to support communities as they develop and adopt wellhead protection programs. The Groundwater Foundation serves as facilitator for the Network, which is funded by the Nebraska Department of Environmental Quality.
NE Wellhead Protection Network

- Two Printings
  - CWA 💰 Section 319
  - SDWA 🧦 DWSRF
  - 15% set-a-side
Other projects

• Funded with CWA section 319
  – Funded staff at local level to write WHP plans
  – Decommission PWS wells – explosion abandonment
  – Aquifer Study
  – BMPs: Chemigation, nitrogen stabilizers, split application of N, efficient irrigation
Other projects

*Statewide Vadose Zone Project*

- **Collect & share existing data**
  - online database
- **Collect and analyze cores**
  - Chemical/physical
  - Water retention properties
- **Predict transport rates**
- **Standard protocols for WHP scale**
  - Pilot with a community water system
  - SOPs, QAPPs, bidding documents, contracts
Other projects

Statewide Vadose Zone Project

• Funding
  – **SDWA** 💰 DWSRF 15% set-a-side
  – **CWA** 💰 Section 106 – supplemental monitoring
  – **CWA** 💰 Section 319 – non-point-source
  – Local: NET, NRDs, Cities, UNL
Future Endeavors

?],$ SDWA & CWA $?

• Risk Communication Workshops - Nitrate
  – Science based approach for effective communication
    • High concern, low trust situations
    • Sensitive or controversial situations
  – Improve participation in voluntary projects/BMPs

• Statewide Outreach Campaign - Nitrate
  – Plan to: educate, inform, and coordinate local contacts
  – Improve participation in voluntary projects/BMPs
Questions?