



Wellhead Protection Network Meeting Notes
Lincoln Water System Offices
Ashland, NE, September 4, 2014

Meeting Notes:

Present: Dick Ehrman—Lower Platte South NRD, Jim Weir—State of Nebraska, Ryan Chapman—Nebraska Department of Environmental Quality, Lindsey Phillips—Nebraska Department of Environmental Quality, Russ Iwan—Metropolitan Utilities District, Cindy Kreifels—The Groundwater Foundation, Jane Griffin—The Groundwater Foundation, Heather Voorman—The Groundwater Foundation, Craig Romary—Nebraska Department of Agriculture, Howard Isaacs—Nebraska Department of Health and Human Services, Colleen Cassada—Nebraska Department of Health and Human Services, Jennifer Swanson—Nebraska Association of Resource Districts, Jason Garber—Nebraska Department of Environmental Quality, Jeff Stuehmer—University of Nebraska, Jason Moudry—Lower Loup NRD, Brian Kolar—Lower Loup NRD, Kyle Charron—Lower Loup NRD, Wayne Woldt—University of Nebraska, Kyle Yrkoski—Upper Loup NRD

Concentrated Animal Feeding Operations and Groundwater

Groundwater monitoring at livestock facilities

- NDEQ actively monitoring 280 facilities
- Most of these are large facilities (over 1,000 animals)
- Less than 10 medium facilities (Less than 1,000)
- Monitor biannually (2 times a year)
- Monitor for ammonia, chloride, nitrates, water level, conductivity, pH and temp
- Only monitor the waste control facility
 - Designed to catch any water that comes into contact with waste
 - Also designed for a 25 year/24 hour event.
 - Currently seepage is less than .13 inches a day (that amount of waste can treat itself)

Typical monitoring system

- Monitor where everything is running down to

Problem monitoring results

- Chlorides go through clay and other organic liners so there is an expected increase in the down gradient. If there is no increase, you are monitoring in the wrong spot.
- Really rely on chlorides and other factors to make sure it is being monitored in the right place.

Problems identifying source and extent

- Ag land surrounding-land applying fertilizer.

What has been done?

- More wells
- Deeper wells
- Shallower wells
- Wells in different locations
- Soil sampling
- More geologic information
- Camera wells
- More frequent sampling
- Historic and engineering review
- Record review
- Well inventory
- Site visits
- Nested wells
- Reconstruction of wells
- Reconstruction of lagoons
- Sample neighboring wells
- Re-route surface drain

Who pays for this?

- In 2006 Nebraska cattlemen wanted to know how they could help identify issues.
- Drilled wells, phyto remediation, nested wells, planted trees

Problems? Still a few.

Long term goals

- Protect all water wells
- Identify source
- Work with producers to eliminate the source

Questions:

Would modeling help understand more?

Maybe.

Are any of the sites in a WHPA?

- If your facility is in a WHPA Groundwater monitoring is required.

What is the best thing to tell people that call with CAFO questions?

- NDEQ is the best source for CAFO questions, so send them to Dave.

What is happening in other states?

- In some states you can go out and investigate
- Iowa and Kansas dealing with some issues
- Nebraska has a lot of sites over groundwater, so it's hard to compare.

Tour of Lincoln Water System Horizontal Wells

John Keith and Eric Lee led the group through a tour of the Lincoln Water System Horizontal wells. There are 40 vertical wells and 3 horizontal ones. They provide iron and manganese removal and add fluoride and chloramine.

The well cost \$2.2 million and then another \$6.2 million for site work.

WHPN Program Updates

Cindy Kreifels, The Groundwater Foundation—The Groundwater Foundation is the facilitator for the WHPN, so they help keep members connected and distribute information about the WHPN. The Groundwater Foundation also facilitates the Education Sub-Committee. This committee is currently working on an educational insert about wellhead protection and other projects that help get information to non-members and the average citizen.

Dick Ehrman, Lower Platte South NRD—LPSNRD is currently working with 30 WHPA with nitrate management in 8 of those areas. Their goal is to have 50-70 vadose zone sampling sites.

Final report on the Airborne Electromagnetic resistivity survey. Quantity concern areas were identified and 3 dimensional Aquifer maps were made of the sand and gravel units.

Craig Romary, Nebraska Department of Agriculture—The Nebraska Dept. of Ag has been working on rolling out a state management plan for pesticide management. Right now they are getting feedback from environmental groups and stakeholders on the plan.

They have also formed a committee to advise the department on potential quality issues. They want to develop a plan for the state before regulations are needed. They will open up the plan for public comment sometime in the future.

Howard Isaacs, Nebraska Department of Health and Human Services—DHHS monitors public systems and then lets them know when they're over the limit.

They are currently working on a well construction project. There are new well construction regulations with different grouting and dye testing, resulting in the standards being changed.

They are also working on decommissioned wells. The construction standards with these have issues so they are penetrating existing cases and forcing grout into cuttings to seal off the aquifer. This method doesn't work with sandy soil. This may end up salvaging wells with nitrate problems currently. They've been experimenting with old wells and have found improved water quality. This is going to bring back old wells and expand the life of new wells.

Colleen Cassada, Nebraska Department of Health and Human Services—DHHS is also working on the nitrate rule and synthetic rule. There are 20 water systems previously with high nitrate levels and that has gone down quite a bit. Now they're at 12-14 water systems with high nitrate levels.

John Keith, Lincoln Water System—LWS has increased the capacity to make sure there is enough water for Lincoln. There has also been an expansion of the ozone system and filter backwash for effluent. They've also continued to monitor for pesticides to make sure they don't get in the wells.

Jason Moudry, Lower Platte South NRD—they're in phase III with the area 28 management and in the first year of mandatory flow meters. They are focused on quality, not quantity. In the split reporting, they are three years out. Incirca and Pioneer, looking at soil data, sand v. clay in the fields.

They are also doing irrigation scheduling and management. They are wrapping up with six communities on a grant with NDEQ.

Kyle Yrkoski, Upper Loup NRD—The ULNRD is not dealing with any quality or quantity issues at the moment. They are working on getting their first Wellhead Protection Area started.

Russ Iwan, Metropolitan Utilities District—Wellhead Protection in the Platte South and Platte West treatment plant. Cass, Douglas, Sarpy, and Saunders Counties working on the overlay zones process. NPDES permits at the Florence plant to discharge solids into the Missouri River.

Jennifer Swanson, Nebraska Association of Resource Districts—Four NRDs with grants through NARD in the Bazile groundwater management area. They are getting BMPs implemented in this area. Helping with LB272 which is a chemigation rule update. The University of Nebraska-Lincoln and the NRDs are working together on nitrogen certifications which is an online training program.

NARD applied for a grant that is an interactive map on quality and quantity of groundwater. They also applied for an Ag BMP grant that will assess the effectiveness with pollutant loads, estimated load reduction, and where to place BMPs.

Jason Garber, Nebraska Department of Environmental Quality—Currently working on 404 permits with Corps of Engineers. There have been more 404 permits with the economy boost.

Wayne Woldt, University of Nebraska-Lincoln—Working on research and extension with long-term groundwater research. Using a VHOM to explore surface/groundwater interactions. Working on the unmanned aircraft NU-AIRE. This aircraft will look at more precision application in agriculture. Also working on Wellhead Protection Areas for communities and the dilution of nitrates.

Jim Weir, State of Nebraska—Working on a RGIS map and use it to register wells to map surface. This will help predict how water will get to the wellhead.

Dave Miesbach, Nebraska Department of Environmental Quality—has a grout study going with the recent regulation change. Working on the abandonment process of wells by writing up a scientific work plan. They were initially testing on irrigation wells. One well did collapse.

Samantha Capps, Nebraska Department of Environmental Quality—New to the Wellhead Protection section of NDEQ. Previously worked on outreach in communities for NDEQ.

Ryan Chapman, Nebraska Department of Environmental Quality—Working on wellhead protection in Polk and Crete, soon to work with Bushnell. Also working on the Wellhead Protection Network Education Committee on the Wellhead Protection 101 insert; Why is Wellhead Protection Important. The Education committee is also going to work on a guide that will be a shorter, readable guide to wellhead protection management practices.

Lindsay Phillips, Nebraska Department of Environmental Quality—Working on the Source Water Protection Grant program. They have \$100,000 to help with quantity and quality issues. The grant applications just came in. An increased priority is given to communities with Wellhead Protection Plans already in place. Mainly focusing on source water quality and quantity.