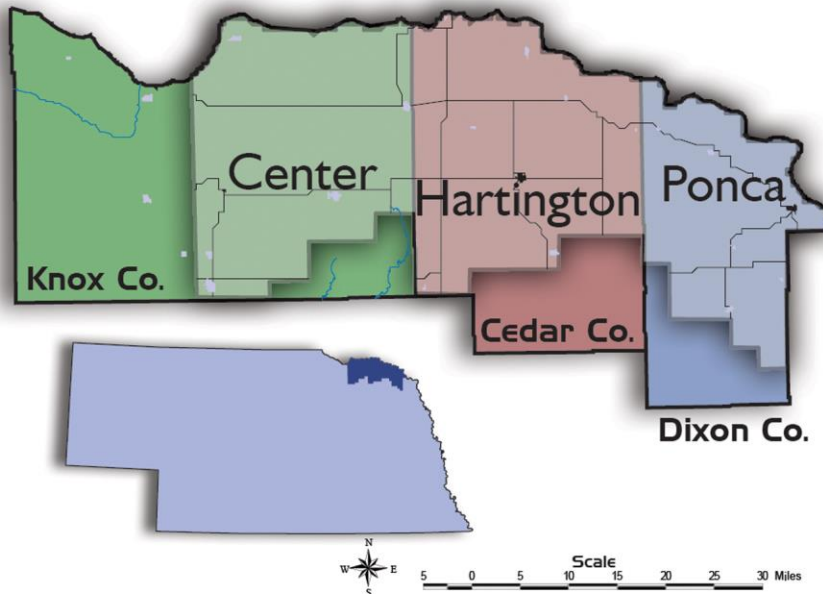


KNOW YOUR NRD



Nebraska's Natural Resources Districts
Making the Good Life Better Since 1972

2016



LEWIS & CLARK NRD

LCNRD QUICK FACTS:

The Lewis & Clark NRD manages natural resources for part of 3 counties along the Missouri River in Northeast Nebraska

Surface Water

Missouri River - 68 miles

Lewis & Clark Lake - 31,400 acres

Ground Water

Domestic/Commercial Wells - 647

Livestock Wells - 385

Irrigation Wells - 1,633

To ensure the safety and quantity of ground water more than 200 wells are monitored annually

Protecting Lives

Groundwater Protection

The Lewis and Clark Natural Resources District Board of Directors voted unanimously to enact rules and regulations to protect groundwater quantity across the District Starting August 1st, 2014. The rules have been drafted in response to increased irrigation development, increased potential for groundwater use, and drought conditions which affected the state from 2011 to 2014.

The goal of the rules and regulations is to enable the District staff, directors and public to monitor, enhance, and protect the groundwater resource. Measures for protection include the requirement of well permits for new and replacement wells pumping greater than fifty (50) gallons per minute. Flow meters and annual groundwater use reports are a requirement on all new high capacity wells. Permits are also

(continued on back)

Protecting Property

LCNRD Awarded NET Grant

The Lewis and Clark NRD has been cooperating with UNL-Conservation and Survey Division (CSD) to implement a grant awarded by the Nebraska Environmental Trust (NET). The long-term goal of the project is to define the groundwater flow system below the NRD. In order to accomplish this, test holes are being drilled, sampled and logged by CSD geologist, Susan Olafsen Lackey. The information from the test holes will be used to design 2.5-inch wells to monitor discrete intervals of the aquifer system. Beneath some of sites there are multiple aquifers and there may be up to three wells, monitoring water from different depths. *(continued on back)*



The Nebraska
Environmental Trust

Preserving NATURAL NEBRASKA™ for future generations

Protecting the Future

Secure Water Source

The Lewis & Clark NRD provides safe drinking water to customers in Northeast Nebraska through the Cedar-Knox Rural Water Project (CKRWP). There are 834 rural customers and four communities; Crofton, Fordyce, St. Helena and Obert served by CKRWP. Local agencies provided high quality water by CKRWP are Nebraska Game and Parks Commission, Army Corps of Engineers Recreation Areas and two Sanitary Improvement Districts.

CKRWP is one of five surface water treatment plants in Nebraska with current production capacity of one million gallons per day. CKRWP is a special improvement project not subsidized with tax dollars. Operations are carried out by assessment to users of the rural water system. The project serves approximately 20% of the district with more than 385 miles of pipeline.

Groundwater Protection *(continued)*

required when expanding irrigation to previously unirrigated acres. Additional measures are outlined to protect and conserve groundwater resources in the District, including educational efforts, and encouraged use of Best Management Practices (BMP's). The District will use the information gained about water use and development to better understand how irrigation could impact water resources and to be better informed about water use practices should persistent groundwater declines occur.

The rules and regulations also lay out a plan to manage groundwater in the case of prolonged decline. The District has established groundwater decline triggers which when reached will initiate declaration of a Groundwater Management Area. Several actions have been defined to manage groundwater, if the triggers are met.

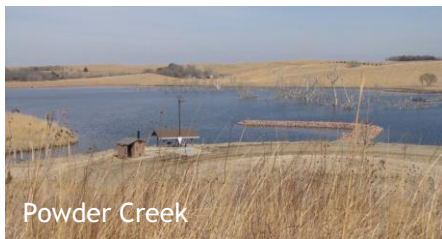
LCNRD Awarded NET Grant *(continued)*

Once the monitoring wells are installed the depth to groundwater can be measured and groundwater samples can be obtained for laboratory testing. In order to efficiently measure the depth to groundwater, pressure transducers, placed approximately sixty feet below the water level at a known depth, will sense and record the weight and temperature of the water above the transducer. Water levels will be recorded every eight hours, documenting seasonal and long-term variations in water level changes.

Groundwater samples will be collected using small diameter submersible pumps. The wells will be pumped until fresh water is flowing from the discharge hose, samples will be sent to a laboratory for analysis of nitrate, chloride, sulfate and other groundwater components. Wells will be sampled on annual or semiannual basis in order to assess long-term water quality trends.

The Nebraska Environmental Trust has awarded \$275,000 to complete three years of work. The total cost to define the hydrogeologic framework of the District and to develop a monitoring well network is \$421,500.

Operating and Maintaining Flood and Erosion Control Structures



Powder Creek

The **Aowa Creek Project** is a flood and erosion control project designed to protect the village of Ponca and 55,350 acres in Dixon County. There have been 50 dams constructed as part of the project.

Hills and Powder Creek, offer hunting, fishing and boating that can satisfy the needs of someone looking to get away for the day or the avid outdoors person looking for an excellent hunting and fishing location.

The structures control 85% of the drainage on Aowa Creek. The cost to implement the flood control project was funded by NRCS and local funding. The annual flood control benefit of the project is 1.2 times the cost of construction.



Matt Marxen and Sue Lackey, UNL-CSD drilling a test hole in the Lewis & Clark NRD.

More LCNRD Facts

- 50 Flood Control and Grade Stabilization Structures
- In 2015 alone 29,600 trees sold and 25 miles of weed barrier installed
- \$100,000 in cost-share distributed to landowners and communities in fiscal year 2014-2015

Education

The LCNRD is dedicated to protecting the future of our natural resources by providing natural resource information to adults and youth. We sponsor or partner with the following events:

- Aquafest
- Wonderful World of Water
- Land and Range Judging Contests
- Nitrogen Management Training

Nebraska's Natural Resources Districts are local government entities with broad responsibilities to protect our natural resources.

NRDs help Nebraskans respond to natural resources challenges with local control and local solutions. Major Nebraska river basins form the boundaries of the 23 NRDs which are governed by locally elected boards of directors.

Lewis & Clark NRD is governed by an 11-member board of directors who are elected by voters within the district. The board sets policy for the district and then works with the staff to carry out the District's goals.

The Lewis & Clark staff works cooperatively with other local, state and federal groups to promote stewardship of natural resources in the district.

Find out more about Nebraska's NRDs at www.nrdnet.org or www.lcnrd.org