

NRD UPDATES

Real-time Water Info

The NRD recently received a \$300,000 grant from the U.S. Bureau of Reclamation's WaterSMART program. Over the next two years, the money will aid efforts to install telemetry units on some flow meters in the district that will provide at least once-daily water usage information viewable on computers and smart phones. The funds will also be used to provide the NRD with real-time groundwater levels at 15 sites across the district and to install three weather stations, one each in Perkins, Chase and Dundy Counties. The weather stations will calculate evapotranspiration rates of corn and other crops so farmers and the NRD can see how irrigation usage matches up with water needs of crops.

Related, the NRD is seeking grant funds from the State of Nebraska to equip all flow meters in the district with telemetry units. The NRD should learn by the beginning of 2017 whether the grant proposal was successful. We are now testing some telemetry units and investigating options to find the most cost effective and workable telemetry system.

Irrigation Retirement

The NRD is also seeking grant funds from the State of Nebraska to establish an irrigation retirement program. Under the voluntary program, landowners would be paid to permanently de-certify their irrigated acres. The program would target cropland where irrigation has significant impacts on stream flow and/or there are significant groundwater declines.

We'll keep you updated on the potential program and the telemetry project as more information becomes available.

AGREEMENT OFFERS COMPACT FLEXIBILITY

Two years of cooperation and negotiations among the three states party to the Republican River Compact have resulted in a landmark agreement that provides Nebraska more flexibility in meeting Compact obligations while assuring water users of supplies they are entitled to under the 74-year old interstate water agreement.

One of the resolutions approved by Nebraska, Kansas and Colorado at the beginning of September during meetings in Burlington, Colo. include measures that will limit the amount of water Nebraska provides to Kansas via stream flow augmentation projects and other measures to what Kansans actually need and can use. Previously, volumes of water stored in Harlan County Lake for use by Nebraska's downstream neighbor were based solely on complicated formulas that produced estimates of how much water the Upper, Middle and Lower Republican NRDs needed to assist the State in maintaining full compliance with the Compact and related settlement agreement.

Under the new agreement, those estimates will still be made – but any amounts that exceed what the states agree is actually needed by Kansas in a Compact Call Year will not be delivered in that year. Instead, those volumes may be delivered by Nebraska to Kansas in future years, if indeed it is determined that the water is needed by Kansas water users.

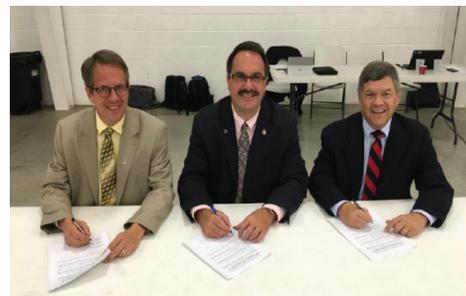
While the agreements benefit Nebraska by potentially reducing management actions through water administration or streamflow augmentation projects, they also aid Kansas water users. Water that otherwise would be provided by Nebraska at times Kansas didn't need it so wouldn't use it will instead be provided only when it is determined that the water will be beneficially used by Kansas.

"For years, Nebraskans have asked that Nebraska and Kansas come to the table and negotiate sensible agreements based on the actual needs of water users and the desire to make the most efficient use of limited water supplies in the Basin," said Jasper Fanning, general manager of the Upper Republican NRD in Imperial, Neb. "Representatives from Nebraska, Kansas and Colorado should be lauded for doing exactly that in reaching these agreements. Combined with streamflow augmentation projects the NRDs have implemented, this agreement creates a new era of interstate water management in the Basin where Compact compliance is assured and achieved in a common-sense manner."

Compliance water not needed and therefore not sent to Harlan County Lake for use in Kansas will not increase the occurrence of Water Short Year accounting when Nebraska needs to augment stream flow and take other actions to maintain compliance. The so-called Water Short Years are triggered when the amount of deliverable water from the lake is limited. Under the new agreement, compliance water not delivered to Kansas but that is available for future use will not reduce the estimated, available water supply used to determine whether Water Short Year accounting is in place.

The resolutions also establish a commitment by the three states to coordinate with the U.S. Bureau of Reclamation and irrigation districts within each state to establish water-use accounts for both Kansas and Nebraska in Harlan County Lake. Clear procedures for annually forecasting and identifying water management needs well in advance of upcoming irrigation seasons are also established by the resolutions. And there is a commitment among the three states to transparency, data-sharing and continued dialogue through the implementation of the resolutions.

"These resolutions represent a long-term strategy for representing each state and ultimately improving water management for water users in all three states," said Nebraska Governor Pete Ricketts.



FEATURED FARMER: SCOTT LUTZ

USING GROUNDWATER RESOURCES WITH THE FUTURE IN MIND

In an effort to keep farmers up-to-date on water management techniques, the Natural Resources Report will occasionally profile farmers in the URNRD who are using practices to conserve water and become more efficient.

Over time, Scott Lutz has worked to come up with the most efficient and effective ways to manage the water used on his farm. “We have had to adapt and evolve,” Lutz said. The years-long progression has produced a mixture of technology and human evaluation that Lutz believes is the best solution to water and crop management.

One water-management tool Lutz relies on to make irrigation decisions is soil moisture probes equipped with telemetry. The moisture content of soil at varying depths is relayed to Lutz’s computer via cell signals and a software program interprets and displays the information in an easy-to-read format that lets him know whether watering is necessary. Lutz got an early start using soil moisture probes and began his search for the probe that works best for him and the farm. He finds that one of the greatest parts of having the probes is being able to check the data being collected from almost anywhere through his phone or computer.

“One of the first things we do in the morning is check the readings on the probes,” said Lutz. From there he decides whether to run the pivots on those fields or not. Having the data readily available allows for real-time information that helps Lutz have a more efficient farm when it comes to water usage.

The soil moisture probes let Lutz know where in the soil profile crops are pulling water. Having that information as well as the moisture of the soil allows Lutz to see whether more water is needed to reach those roots. Putting the probe in a spot that is “representative of the whole field,” according to Lutz, gives more accurate information on the water demands of a particular field.

Having this technology saves time as well. Lutz said if the farm had to manually check every field, they wouldn’t get done until about noon or so. Checking a computer or smart phone to see the moisture levels of fields miles away takes minutes instead of hours. Lutz has taught others who help manage the farm how to read and use the information from the soil moisture probes which saves time, money and water.

The NRD has been promoting the use of soil moisture probes since 2012 with help from grants provided by the Nebraska Environmental Trust and federal government. To date, cost share has been provided for 350 probes on approximately 45,000 acres within the District. Typically, cost share covers 2/3 of the cost of a probe for one year. The average cost to purchase a probe and use it for one year is about \$2,200. After the probe is purchased, the annual cost drops to several hundred dollars for the telemetry and related services. The NRD will know late this year how much

cost share will be available for the 2017 crop season; the USDA’s Natural Resources Conservation Service also has a program that contributes significant cost share for probes.

Crop scouts, Lutz finds, are also very beneficial to have because they look at fields across the region all day while Lutz only looks at his own. Because of this, scouts are able to compare conditions at his field to other fields in the area. The crop scouts provide Lutz with a “snap shot of what is happening in the fields,” and he then uses that information to decide what steps are necessary to take.

Combining the three tactics of soil moisture probes, knowledgeable management and crop scouts allows Lutz to know when to irrigate, how much water is needed and where the water is needed.

On the Lutz family farm, they have begun to use the process of side dressing as a way to save water as well. Side dressing with nitrogen is when the nitrogen is applied between rows of crops so that it reaches down in the soil without using water. Lutz explained that sometimes crops need nitrogen but not water so he uses side dressing to apply the nitrogen instead of running the pivot; he finds there is no reason to run the pivot when the

crops are not in need of water. At the Lutz farm, they find that this process is efficient as well as smart when it comes to water conservation.

Over the years, Lutz has watched water allocations decrease and he has changed the ways he manages water on the farm in order to stay in compliance with those allocations. Lutz has discontinued the use of all high volume end guns on pivots. “We feel that end guns are a very inefficient method of irrigating and we save valuable water because [we do not use them],” Lutz said.

Lutz has found that on his farm it works best to focus the water input on the high-production fields. “It is more feasible to focus on reducing water on one field instead of them all,” said Lutz. With decreased allocations, instead of cutting water on all of the fields, he reduces water usage on those that have lower yields and plants crops that use less water, like sorghum. The limited irrigation that is used on those fields saves allocations for the high-production fields.

Lutz is also a rancher. On the cattle-production side, water management also comes into play. He drills rye right after cane for pasture because it does not require much watering, especially in the spring. The amount of water Lutz applies depends on the stage of growth of the crop—fully grown crops tend to need more water than a new crop—and the amount of precipitation during a growing season. “Mother nature helps,” Lutz smiled.

At the Lutz farm, they continue to evolve their water management strategies and do the best that they can to conserve water. “My wife, Brenda, and our family very much support the wise use of our groundwater resources with future generations in mind.”



URNRD PROGRAM UPDATES

NRCS Partnership

A new partnership between the NRDs in the Republican Basin including the URNRD and the USDA's Natural Resources Conservation Service (NRCS) will funnel more than \$2.1 million in additional federal funds into the Basin for water-conservation practices. The funding will be available due to a successful application from the Upper, Middle and Lower Republican NRDs to participate in NRCS' new Regional Conservation Partnership Program (RCPP). Area NRCS officials including Andy Keep, NRCS District Conservationist based in Imperial, were instrumental in creating the local/federal partnership and will help oversee the program.

Within the URNRD, the RCPP will primarily mean more federal funds will be available for cost share on soil-moisture probes under NRCS' EQIP program. A sign-up period for the program is expected soon, with a mid-November deadline. Keep an eye on local media outlets and the URNRD's website, www.urnrd.org, for updates. The URNRD will match the additional federal dollars for probes by continuing to have its own cost-share program for probes. The URNRD has applied for a grant from the

State of Nebraska to help cover the costs of the program over the next two years. We will learn whether we will receive the grant late this year. A sign up for the URNRD soil moisture probe cost share program is expected late this winter or in the early spring of 2017.

CREP

Landowners with land enrolled in the USDA/State of Nebraska Conservation Reserve Enhancement Program (CREP) began having to make decisions this year about whether to re-enroll ground in the program that offers yearly payments not to irrigate. There are almost 12,000 CREP acres in the URNRD and 445 acres were set to expire this year; 185 of the acres were re-enrolled in the program. Payment rates for land re-enrolled this year were based on average rental rates and for 10-15 year contracts were roughly \$200 per acre annually.

For those of you with CREP contracts expiring next year, stay tuned for whether you will have the ability to re-enroll. Notification is expected in mid-2017. Most of the CREP acres in the district – almost 9,000 – are set to expire in 2020.



KEEPING UP WITH COMPLIANCE

One of the most common questions people have about Compact compliance is when and how much the augmentation projects (Rock Creek and NCRPE) will have to be operated. There isn't a simple answer to the question because compliance activities such as augmentation are tied to water availability and use that can fluctuate greatly from year-to-year. The new agreements between the Compact states described in the first page of this newsletter are a significant new factor in determinations of when and how much the augmentation projects will be operated. They will likely lessen the occurrence and volume of augmentation operations.

Let's use this year and 2017 as illustrations of how decisions are made on whether augmentation projects will be operated. Last fall per the normal process, the Nebraska Department of Natural Resources did a projection of whether action such as augmentation would have to be taken in 2016 for the State to stay in compliance for the 2015-2016 period (compliance is normally measured using a five-year average but a two-year average is used when Harlan County Lake is low). The State projected Nebraska's shortfall would be approximately 46,000 acre feet.

The relationship between this projection and how much water Nebraska needed to generate represents the big change in Compact compliance management. Before Nebraska and Kansas began working together cooperatively on common-sense agreements such as those approved in August, all 46,000 acre feet would have had to have been provided by the augmentation projects by the end of 2016, even if Kansas couldn't have used all the water. Instead, Kansas and Nebraska had a temporary agreement whereby Nebraska would have to have 40,000 acre feet

in Harlan County Lake for Kansas' use by June 1 of this year. The fact that there was already several thousand acre feet in the lake for Kansas meant that Nebraska had to provide about 35,000 acre feet to reach the 40,000 acre feet threshold by June 1, instead of providing 46,000 acre feet – a significant savings in both water, and expenses to pump it. By fall of this year, Kansas was to decide whether it needed the remaining difference between what it had provided and the projected 46,000 acre foot deficit.

The new agreement is very similar, but removed the 40,000 acre foot target for Harlan County Lake. Now, in October of each year a projection of Nebraska's deficit will be made as it always has.

Then Kansas and Nebraska will meet to determine how much of the water that comprises that projected deficit Kansas actually needs. Nebraska and the NRDs will then have until June 1 of the following year to provide the agreed-upon amount to Kansas. By Oct. 1 of the same year, Kansas

will decide what, if any, portion it needs of the projected deficit that wasn't provided by June 1. If Kansas decides it doesn't need all or a portion of the remaining amount, it can call for the water in future years – but there is a limit on how far into the future Kansas can call for the water. And the amount Nebraska has to deliver is limited to the capacity of the augmentation projects.

The NRD will keep you posted on what, if any, augmentation will occur late this year or in 2017.



LAWSUIT FROM SURFACE WATER USERS DISMISSED

A lawsuit filed by irrigators in the McCook area that claimed they were wronged by the state's administration of surface water for Republican River Compact compliance was recently dismissed.

In the lawsuit against the state's Department of Natural Resources (DNR), the Cappel family claimed that DNR unlawfully took their water and violated their rights by making surface water users bear the entire burden of complying with the compact during the 2013, 2014, and 2015 compact call years. Hitchcock County District Judge James E. Doyle, IV, ruled that the state lawfully administered surface water when it limited Nebraska's access to surface water for Kansas' benefit so that compact compliance would be achieved.

The Cappels claimed that water administered away from them by DNR was their property.

"The water users cannot merely assert ownership of a '...vested property right' and without more, be entitled to pursue compensation for a 'taking,'" according to Judge Doyle, "The appropriator of the waters of a stream acquire a right to the use of such water for beneficial purposes, but does not acquire ownership of such water."

Judge Doyle found that the water users have a right to use the water when it is available but that right can be taken away when it's in the public's best interest. In this case the public interest was to maintain compliance with the Republican River Compact.

The Nebraska Constitution "provides that the right to divert inappropriated water shall never be denied 'except...when such denial is demanded by the public interest,'" Judge Doyle stated,

"the Nebraska Legislature has the authority to define through statutes, the public interest."

The public benefits from Nebraska staying in compliance. Another claim made by the Cappel family in the lawsuit is that DNR didn't regulate groundwater users.

The Cappels alleged the DNR is "allowing excessive groundwater pumping throughout the Basin." By allowing this supposed excessive pumping, Cappel also alleged "that as 'surface water appropriators' they were '...forced to bear the entire burden of Compact compliance.'" They claimed that while they received closing notices, groundwater users were allowed to continue pumping water.

There are two separate systems in Nebraska for administering water resources, Doyle said. The Supreme Court ruled that DNR "regulates surface water appropriators...and groundwater users are statutorily regulated by natural resource districts through the Nebraska Groundwater Management and Protection Plan."

"DNR had no independent authority to regulate groundwater users or administer groundwater rights for the benefit of surface water appropriators," according to Judge Doyle. "If DNR does not have the power or the duty to regulate groundwater, then an alleged failure to exercise such nonexistent power or duty does not give rise to...a violation of due process rights."

"The right held by the water users are subject to the duties of the State of Nebraska under the Compact," Judge Doyle ruled. Doyle recently dismissed another, similar lawsuit from water users within Frenchman Cambridge Irrigation District. Yet another lawsuit from water users within Nebraska Bostwick Irrigation District has not been ruled upon.

IN THE FIELD



The URNRD Conservation Technicians are in a race against weather to try and get the roughly 3,200 meters in the district read before the snow arrives. The time consuming, but very important task, started at the beginning of

September and could go until late October.

In order to read the meters, the technicians must go into every field, read the meter to see how much water was pumped, make sure that the seal on the meter is still in place, compare the new reading to the old and then move on to the next meter.

The meter readings allow the NRD to calculate 2016 water usage on each field so irrigators and the NRD know the remaining allocation on all certified irrigated acres within the district. The 2016 water usage reports are expected to be sent to landowners late this year or very early in 2017. As a reminder, 2017 is the last year of the current allocation period and the URNRD Board of Directors in coming months will be discussing allocations for the 2018-2022 allocation period.

Previous to reading meters, the technicians were out measuring the depths of the 410 wells throughout the district; this process took about a week since each technician measures the wells in their county.

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