

## Republican River Accounting: How It's Done

### Recent Revisions to the Republican River Compact Accounting Procedures

*This is part two of a four-part series exploring how Nebraska, Kansas, and Colorado work together to administer the Republican River Compact (Compact) and how Nebraska uses Compact accounting data to help manage water and forecast future water availability in the Republican River Basin.*

By Kari Burgert

Accounting Procedures and Reporting Requirements (Accounting Procedures) were created and adopted by the Republican River Compact Administration (RRCA) as a consistent means of calculating whether each state is using only the portion of supply that it was entitled to (a quantity referred to as an "allocation").

Nebraska, Kansas, and Colorado agreed to the original Republican River Compact accounting procedures through the Final Settlement Stipulation dated December 15, 2002. The accounting procedures have been updated over time as technology and information have improved and as clarifications have been needed.

The latest update to the accounting procedures, approved at the May 25, 2017, Special Meeting of the RRCA, included revisions based on the August 26, 2016, RRCA resolutions regarding the operations of Harlan County Lake in Nebraska, the Colorado Compact Compliance Pipeline and Colorado Compact Compliance efforts in the South Fork subbasin, and accounting for non-irrigation season canal diversions for groundwater recharge projects.

The RRCA "Resolution Approving Long-Term Agreements Related to the Operation of Harlan County Lake for Compact Call Years" shifts the timing of Nebraska's compliance efforts. In the October preceding a compact call year, Kansas may request a portion of the projected shortfall for delivery to Harlan County Lake by June 1. Nebraska can begin supplying water necessary for annual compliance following Kansas' request or hold portions of the water necessary for annual compliance in Nebraska for delivery in later years, as requested by Kansas.

Accounting procedures edits were also made to ensure that all evaporation from water supplies in Harlan County Lake that are intended for use in Kansas other than by Kansas Bostwick Irrigation District are charged solely to Kansas. The remaining evaporation from Harlan County Lake is split between Nebraska and Kansas based on proportional diversions of Nebraska Bostwick Irrigation District and Kansas Bostwick Irrigation District.

The Nebraska Resolution also contains a change that helps Nebraska by allowing more



Republican River photo by  
Kathy Benson



## Republican River Continued

opportunities for our compact compliance calculation to be averaged over a five-year period with the accounting point downstream to the streamflow gage near Hardy, Nebraska, rather than on a two-year period with the accounting point at Guide Rock, Nebraska.

The accounting procedures were also modified based on approval of the RRCA “Resolution Approving Operation and Accounting for the Colorado Compact Compliance Pipeline and Colorado’s Compliance Efforts in the South Fork of the Republican River Basin” and resulting discussions. The accounting procedures adopted in May 2017, include the outflow of the Colorado Compact Compliance Pipeline as the Colorado Resolution Water Supply Credit. The accounting procedures also more clearly define how the unused Beaver Creek subbasin allocation is calculated during water-short years as mandated in the Final Settlement Stipulation.

Another RRCA resolution adopted in August 2016, allows for an increase in calculated canal return flow during non-irrigation-season diversion projects for groundwater recharge. As outlined in the revised accounting procedures, this will reduce the consumptive use charged to Nebraska by approximately 10% of the canal headgate diversion for these recharge projects.

Outside of the edits necessary to implement the August resolutions, the accounting procedures now include the methodology to add Nebraska’s share of the unused Colorado allocation to Nebraska’s allocation during two-year compliance averaging above Guide Rock.

Several benefits to Nebraska have been realized in 2017 as a result of latest resolutions and accounting procedures. The less-stringent trigger to use five-year averaging for accounting above Hardy, Nebraska, rather than two-year averaging for accounting above Guide Rock, Nebraska, has been met in 2017. Nebraska will receive 100% credit for the water supply increases in 2017 provided by the NCORPE and Rock Creek Augmentation projects and the Enders Reservoir release initiated by the Republican Basin NRDs, rather than splitting these supply increases with Colorado and Kansas.



Harlan Dam Outlet  
photo by Lori Arthur

## Process Improvement Initiative

By Madeline Hoffer



Curt Inbody, Cheryl Byler  
and Madeline Hoffer

The Department continues to make progress with our ongoing Process Improvement initiative. Nine more of our staff members have successfully completed Lean Six Sigma Yellow Belt Certification, bringing our total to 18. We plan to train at least 27 total staff members this year. We are also in the process of launching QDIP Boards in some divisions. QDIP Boards are visual management tools that allow our staff to track metrics relating to Quality, Delivery, Inventory, and Production. Four QDIP boards are currently in use, and three more are in development. Several process improvement projects are also ongoing, and staff members from throughout the Department are participating enthusiastically. I would like to thank Cheryl Byler, Curt Inbody, and Mark Noble in particular for their participation in a project that will save the department nearly \$300 per year in postage costs alone.

# Wet Spring. Dry Summer.

By Jeremy Gehle

As late as June 6<sup>th</sup> this year, the U.S. Drought Monitor indicated that there was not one acre in Nebraska that was affected by drought or otherwise abnormally dry conditions. Fast forward two months, and now 86% of the state is listed as abnormally dry, with 40% of the state affected by moderate drought.

The management of surface water (water pumped from a stream or river) is inherently different from the management of groundwater (water pumped from an aquifer). In Nebraska groundwater is managed by the Natural Resources Districts (NRDs) through the Correlative Rights Doctrine.

The Correlative Rights Doctrine provides groundwater irrigators the reasonable use of the aquifer. If groundwater supplies are determined to be insufficient for all users, the NRDs have the authority to impose restrictions across all users in their respective districts. Even with some manner of groundwater pumping allocations throughout many of the NRD's across the state, the farmers who have groundwater wells still have a fairly reliable source of water.

Surface water irrigators, on the other hand, are once again at the mercy of Mother Nature, for when it doesn't rain and farmers need to irrigate the most, the rivers carry the least amount of water.

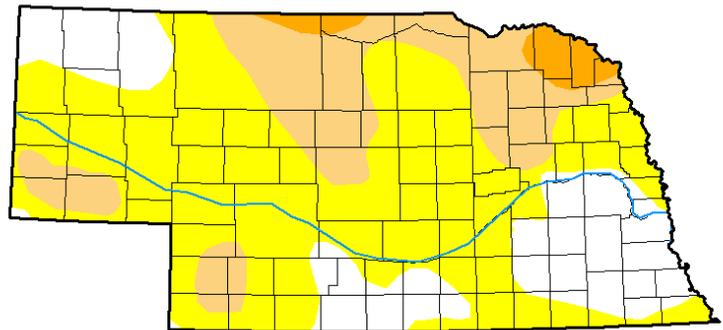
With the exception of the Platte River basin which receives the bulk of its spring flows from mountain snow pack in Colorado and Wyoming, the remainder of the river basins in Nebraska rely on groundwater base-flow and precipitation runoff.

When there is not enough water in the river to satisfy all of the demands, the Nebraska Department of Natural Resources (NeDNR) administers surface water according to the "First-in-Time, First-in-Right" Prior Appropriation Doctrine. The Prior Appropriation Doctrine provides that the oldest appropriations have the first right to available supply; those who have the youngest permits are the first ones who are issued closing notices.

Prior to the issuing of any notices, NeDNR staff are out measuring streamflow at gaging stations and monitoring surface water appropriations across the State. All of the work leading up to a water shortage allows the Department to anticipate the shortages to efficiently and effectively administer surface water when called upon.

By mid-July this year, each of NeDNR's five Field Offices had issued closing notices to protect senior appropriators due to insufficient streamflow. Timely rains have allowed some of the appropriations who were closed to be opened again. With several weeks left in the irrigation season, it's anyone's guess as to how it will go.

One thing is certain, if there is anyone who is hoping for rain more than the irrigators, it's the Water Administration Division staff at the Nebraska Department of Natural Resources.



Nebraska Drought Map as of August 8, 2017. National Integrated Drought Information System

# New NeRAIN Website Improved After Feedback

By Jim Williams

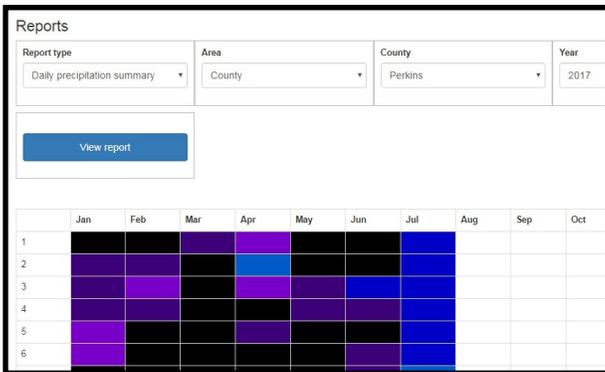


During May 2017 a new website was rolled out for the Nebraska Rainfall Assessment and Information Network (NeRAIN). The major changes to the website include an updated look and feel, maps that can be zoomed to any level allowed by the background Google maps, and database changes that allow volunteers to enter data for more than one gauge without having to use separate logins for each gauge. The new website was needed in part because the older NeRAIN website would only run on an older server using an older operating system, and it needed to move to a newer server. The new website is located at: <https://nednr.nebraska.gov/NeRain/>

## BACKGROUND

NeRAIN has been active since 2004. The network consists of hundreds of volunteers uploading daily weather data, including daily precipitation, snowfall, hail, and intense weather events. The acronym for the network, NeRAIN, is typically pronounced “Any rain?”

The NeRAIN website is operated by the Department; NeRAIN is supported locally through most of the Nebraska Natural Resources Districts, which provide training along with free rain gauges and parts as funding allows. The weather data is uploaded to CoCoRAHS (the Community Collaborative Rain, Hail, and Snow Network), which is a similar network with an international scope. NeRAIN data is used by many organizations and individuals, including farmers and NRDs for irrigation and water supply purposes, the National Weather Service for drought monitoring and flood forecasting, insurance adjusters investigating crop insurance or hail damage claims, researchers, and others.



## NEW LOOK AND FEEL

As part of the new look and feel for the website, a new NeRAIN logo has been introduced. This simple, clean design includes a raindrop as part of the letter “A.”

While there have been some issues with smaller screens, the NeRAIN team is working to make the website more tablet and mobile-friendly. Where possible, entry forms and graphics realign to be more readable and user-friendly on smaller screens.

## NEW MAPS

One common complaint with the old NeRAIN site was that the maps could not zoom in further.

Station name	Station address	Precip value (inches)	Date read	Time	Comments
keid15	Ogallala 0.6 N	0.570	2017-07-06	07:00:00	12:00 to 1:00 am
keid08	Ogallala 1.7 W	0.530	2017-07-06	07:00:00	
keid13	Bruke 3.4 ENE	0.210	2017-07-06	07:00:00	
keid16	Bruke 5.6 NNE	0.200	2017-07-06	07:00:00	

## NeRAIN Website Continued

Therefore, in many towns or areas where there were many gauges the precipitation values would print on each other, making the maps difficult to read. The new maps are on a Google map base, allowing users to zoom in to a very large scale if they choose. The precipitation labels appear next to station location when the map is zoomed to a county level, and users can click on any one station to get more information about the station name and location.

### DATABASE CHANGES

On the old website, there was a one-to-one relationship between gauges and accounts. This meant that in order to input information for more than one gauge, one needed to log in again for the additional gauge. On the new website, users can input data for more than one gauge, and likewise, gauges can have more than one person attending them. For example, neighbors can cover for each other if one of the families is away from home for a few days, or, a person can operate a gauge at their home and another at their office, all from one login.

### UPDATES

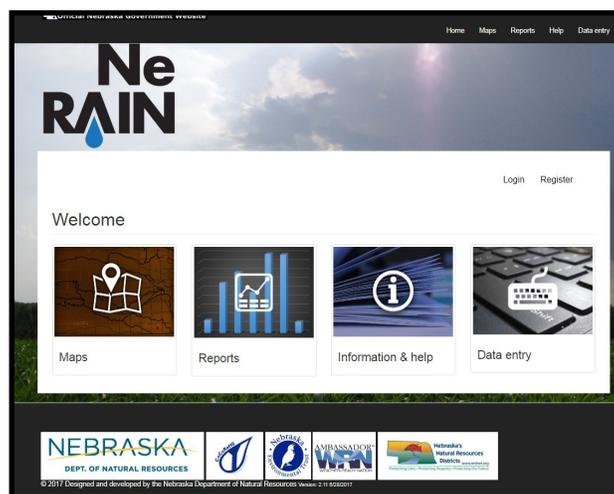
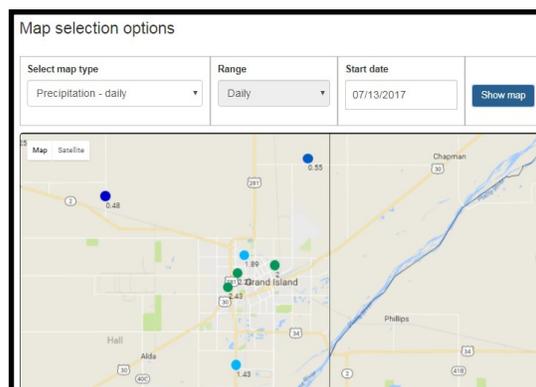
When it was first released, the new NeRAIN website had four simple report capabilities. Since that time, the website updates have allowed the capability of filtering reports by NRD or county, and these choices can be bookmarked so the user can return to the exact view they desire. With the upgrade during the week of July 17, 2017, new reports included the monthly and annual summary table for each rain gauge, as well as the ability to get a report summing precipitation over various time periods.

Future updates will include comparing precipitation to normal values, defined as the 30-year average precipitation from a nearby weather station.

### SUMMARY

The NeRAIN website has been used thousands of Nebraskans for many years, and the data has been useful for many purposes. The Department continues to strongly support this program, and with this new website, looks forward to additional growth in the future.

If you have questions or comments about NeRAIN, or you are interested in volunteering as a citizen scientist by uploading your weather information, please contact the NeRAIN coordinator in your local NRD (see the listing located at <https://nednr.nebraska.gov/NeRain/Home/coordinators>) or Jim Williams with the Department at [james.williams@nebraska.gov](mailto:james.williams@nebraska.gov) or 402/471-1026.



# NeDNR Wears Many Hats

By Susan France

The Department of Natural Resources and its work is completely created by state law. The Department is a code agency, directly reporting to the Governor. There is no overseeing board. Some of the Department's duties ongoing today date back to 1895 when the first irrigation laws regarding surface water appropriations were passed. The original laws created a State Board of Irrigation which consisted of the Governor, the Attorney General, and the Commissioner of Public Lands and Buildings. The Board reviewed and acted on claims and applications for surface water rights, and had staff that administered such rights. Measurements of streams and canals also began in 1895. In 2000, the successor regulatory agency, Department of Water Resources, was merged with the state water planning agency, the Nebraska Natural Resources Commission, and became the Department of Natural Resources.

The Department has six divisions as shown by the diagram included herein that manage the workload of the agency.

The Department acts much like a district court in contested cases regarding surface water permits, or administration of those permits; regarding enforcement of the Safety of Dams Act; and certain types of groundwater permits, such as industrial transfers, transfers across state lines, and municipal transfers. Appeals from the Department's decisions in contested cases go directly to the Nebraska Court of Appeals in certain situations, or to a district court depending upon the governing statutes.



DEPT. OF NATURAL RESOURCES

Other statutorily assigned duties include being a representative on the Nebraska Environmental Trust, the Climate Assessment Response Committee, GIS Council, Nebraska Information Technology Commission, Natural Resources Conservation Services State Technical Committee, and

the Water Well Standards and Contractors' Licensing Board.

Many times one "hat" the Department wears may conflict with another "hat."

Let us say as a planning function, a project to save water or retine stream flows looks extremely useful in its original concept, and the Department's Water Planning Division works with the local promoters to explore the project and come up with a plan. Maybe the local promoters apply for money from the Water Sustainability Fund which is managed by the Funds Administration Section in the Human Resources and Finance Division. The project requires a dam which plans must be approved by the Dam Safety Section in the Engineering and Technical Services Division, and a surface water permit must be approved by the Surface Water Permits Section of the Permits and Registrations Division prior to construction of the project. Part of the supporting information for the application for a permit may be surface water supplies and diversions in the area that are taken from information supplied by the Water Administration Division. Someone could object to the granting of the surface water appropriation and a contested case would need to be held which would be managed by the Department's legal staff. If the particular project is in an area included in an interstate compact it must also be considered based upon the State's obligations under the Compact.

Each step must be reviewed and analyzed under different statutes, court cases, and rules, and each step is managed by different staff members or divisions that assist the Director. Staff may find that the project would help meet some goal of an integrated management plan that the Department signed off on, find that the project would help in the administration of the compact, could recommend it to the

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## NeDNR continued

Natural Resources Commission for funding, could approve the plan of the dam, and then, based upon information provided, either in the application process or in a contested case hearing, find that there is insufficient water available or that the project is not in the public interest and by law have to deny the surface water appropriation, thus stopping the project. This is often hard for the public to understand. Especially when a contested case is held, only that information presented as part of the record of the case can be used for making a decision. The decision must be based on the evidence presented, and not be arbitrary or capricious.

By having planning, permitting, and enforcement in one agency, staff can be cross-trained in all areas so that they will know the different requirements of getting a project from its inception through the different stages under all the applicable laws and be able to better assist the public and constituents that we work with. However, the final decision can never be taken for granted at any step. Each decision must be made based upon the information provided at each step, what laws, rules, or case decisions govern, and what the basis is of any objection received.

### **Just a few of the statutes and rules NeDNR currently administers**

Chapter 2, Article 15. Natural Resources Commission Authorities and Funds. Natural Resources Commission Rules Title 256, Resources Development Fund; Title 257, Small Watersheds Flood Control Fund; Title 259, Water Well Decommissioning Fund; Title 260, Practice and Procedures; Title 261, Rules Governing the Administration of the Water Sustainability Fund; Title 262, Nebraska Soil and Water Conservation Program; Title 263, Natural Resources Water Quality Fund; Title 264, Water Sustainability Fund. Department staff supports the Commission in the administration of the funds that are under the authority of the Commission.

Chapter 2, Article 46. Erosion and Sediment Control Act.

Chapter 31, Article 10. Flood Plain. Department Rules Title 258, Rules and Regulations Concerning Minimum Standards for Floodplain Management Programs.

Chapter 46, Article 1. Irrigation Districts

Chapter 46, Article 2. Surface Water. Department Rules Title 457, Rules for Surface Water.

Chapter 46, Article 3. Generation of Electric Light and Power in Connection with Water Appropriation.

Chapter 46, Article 5. Reclamation Districts.

Chapter 46, Article 6. Ground Water. Department Rules Title 456, Rules for Groundwater.

Chapter 46, Article 7. Groundwater Management and Protection Act.

Chapter 46, Article 8. Natural Lakes.

Chapter 46, Article 14. Decommissioning Fund.

Chapter 46, Article 16. Safety of Dams and Reservoirs. Department Rules Title 458 Rules for the Safety of Dams and Reservoirs.

Chapter 61, Article 2. General Administration. Department Rules Title 454, Rules of Practice and Procedure. The statutes discuss the general authorities of the Department including some funds that the Department administers. The rules govern items such as contested cases, rulemaking, formation of irrigation districts and reclamation districts.

Chapter 66, Article 11. Geothermal Resources.

Interstate Compacts and Decrees regarding water. 1-105 South Platte River Compact, 1-106 Republican River Compact, 1-112 Wyoming-Nebraska Compact on Upper Niobrara River, 1-115 Blue River Basin Compact, and North Platte Decree.

## NRC Proposes Rules Changes

By LeRoy Sievers

On June 20 the Natural Resources Commission passed a motion authorizing a review of changes to its Water Sustainability Fund (WSF) rules, Title 261 of the Nebraska Administrative Code. Tentative changes are reflected in a redline version of the existing rules which are published on the NRC's website. The NRC is seeking comments and suggestions from the public. DNR staff Kent Zimmerman, Rex Gittins, and LeRoy Sievers have provided staff support to the NRC as its members have sought to develop changes to the existing rules based upon the experience gained from receipt and review of two rounds of applications and making grants to a variety of entities including but not limited to NRDs, irrigation districts and cities.

Improving rules that govern the fund is important because the fund allows anyone to seek a grant for the purposes specified in the laws creating fund. Also the WSF receives funding from taxpayer dollars in contrast to the Nebraska Environmental Trust, which, although it has slightly other purposes, is funded from gambling proceeds.

The NRC has a committee that is continuing to review the existing rules and will review suggestions from the public before making a final recommendation to the NRC concerning changes. Additionally the NRC has scheduled public meetings at a variety of locations across the state explaining the tentative changes and seeking comments and suggestions. Those dates and locations are also listed on the NRC website under News and Meetings .



## Second Annual Review Held

By Amy Zoller

NeDNR participated in a joint meeting with the Papio-Missouri River Natural Resources District to report progress made in 2016 towards implementing the joint NRD-DNR voluntary Integrated Management Plan (IMP). This was the second annual review for the IMP and was held as a public meeting as a part of the District's August board meeting. Paul Woodward (NRD) and Amy Zoller (DNR) presented highlights from respective NRD and DNR annual IMP reports. Highlights included progress made towards data collection for groundwater and surface water, water resources technical analyses, public outreach activities and participation in basin-wide planning groups. The joint NRD and DNR integrated management actions for the succeeding two years were also presented to the board. The board had several questions for Paul and Amy following the presentation which resulted in an insightful, interactive discussion as a part of the annual review meeting.