

INTEGRATED MANAGEMENT PLAN REVIEW

November 6, 2025

Lower Niobrara
Natural Resources District

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1. REASON

The Lower Niobrara Natural Resources District (LNNRD or District) and the Nebraska Department of Natural Resources (NDNR), meet annually to review the activities conducted by each agency, to accomplish the goals and objectives of our Integrated Management Plan (IMP) for the District.

2. AUTHORITY

This Integrated Management Plan (IMP) was prepared voluntarily by the Board of Directors of the Lower Niobrara Natural Resources District (District) and the Nebraska Department of Natural Resources (Department) in consultation with the Lower Niobrara Stakeholders Committee and in accordance with the Nebraska Ground Water Management and Protection Act. The act assigns the responsibilities and the authority to the Department and the District for management of groundwater and hydrologically connected waters in accordance with Neb. Rev. Stat. §§46-702, 46-703, 46-707, 46-712, 46-715, 46-716, 46-717, 46-718, 46-720, and 46-739.

3. PURPOSE

The Lower Niobrara Natural Resources District, in collaboration with the Nebraska Department of Natural Resources, will implement this voluntary IMP to attain and/or maintain a desired balance between water uses and water supplies of both surface water and groundwater sources so economic viability, as well as social and environmental health, safety, and welfare, can be achieved and maintained in the District for both the near-term and long-term, while also considering effects on existing surface water appropriators and groundwater users. Should the Department subsequently determine an affected river basin, subbasin, or reach within the District to be fully appropriated, the Department and the District may amend this IMP.

Groundwater is owned by the public and the only right held by an overlying landowner is in the reasonable and beneficial use of the groundwater underlying his or her land subject to the provisions of the Act per Neb. Rev. Stat. § 46-702, and the correlative rights of other landowners when the groundwater is insufficient to meet the reasonable needs of all users. Furthermore, the District is responsible for the management of the groundwater within the District per Neb. Rev. Stat. § 46-703(4).

Preference in the use of groundwater shall be given to those using the water for domestic purposes. They shall have preference over those claiming it for any other purpose. Those using the water for agricultural purposes shall have preference over those using the same for manufacturing or industrial purposes. As used in this rule, (a) domestic use of groundwater shall mean all uses of groundwater for human needs as it relates to health, fire control, and sanitation and shall include the use of groundwater for domestic livestock as related to normal farm and ranch operations, and (b) agricultural purposes Lower Niobrara Natural Resources District Integrated Management Plan Date Effective: May 1, 2014 Page 4 of 21 shall include, but not be limited to, aquaculture purposes in accordance with Neb. Rev. Stat. § 46-613.

The District has significant legal authority to regulate activities within its boundaries in a way that ensures agriculture remains an important industry to the State of Nebraska in accordance with Neb. Rev. Stat. §§ 46-703 and 704(3).

6. GOALS & OBJECTIVES

For the District, the ultimate goal of the integrated management process is to protect existing investments and interests while facilitating economic growth and well-being across the District. For the first phase/increment of the integrated planning process for the District's voluntary IMP, the goals and objectives will focus on developing the utilization of hydrologic models to determine the interconnectivity of surface and groundwater within the boundaries of the District, and an understanding of: (1) water supplies and uses; (2) water availability and shortages; and (3) hydrologic characteristics of the District's groundwater basins, subbasins, and reaches. These fundamental elements of water management planning will allow for refinement of the goals and objectives in the following phases of the IMP process and provide the framework for water management decisions going forward. The District, its stakeholders, and the Department identified many more long-term goals and objectives that will be reviewed annually and added in subsequent phases of the IMP process if the data and analysis support them.

A goal is a desired outcome of actions taken in support of achieving the overall purpose of the IMP. An objective is an achievable and measurable action taken to attain the desired end result stated in the goal it supports. Goals provide a broad picture of intentions, whereas objectives define more specific ways to achieve these goals. The objectives are then supported by detailed action items that will get the necessary work accomplished. The action items may be regulatory or non-regulatory in nature. Regulatory action items (controls) are legal mandates, whereas non-regulatory action items are voluntary actions on the part of the groundwater user or surface water appropriator. In order to implement the regulatory action items (controls), they must be written as explicit procedures for implementing the control(s), approved by the Board, and then recorded in the District's Rules and Regulations. Rules and Regulations can be changed with only Board approval and a public hearing. In order to make changes in the IMP, the Department and the Board are required to hold a joint public hearing.

The IMP goals and their supporting objectives and action items will be accomplished sequentially, in that Goal 2 requires input of data and analyses from the completion of Goal 1. Goal 3 will begin upon completion of Goal 2. Goal 4, related to education and outreach, will necessarily be ongoing from beginning to completion of this phase of the IMP. However, it may also be helpful at times to work on all four goals together as their respective objectives and action items support each other, and considered together, may improve data collection, analyses, and decision-making going forward.

The District and the Department agree on and adopt the following goals, objectives, action items, and controls for the first generation of this IMP.

Goal 1

1. To develop and implement processes for the adequate collection of hydrologic and other related data to assess water resources within the District.

LNNRD has collected static water level data since 1975 and water quality data since 1996. Since these starting dates, LNNRD has added numerous data points, technology, and analysis methods. All LNNRD dedicated monitoring well sites have real-time data loggers installed, and results can be viewed from our website. LNNRD continues to look for opportunities to increase the amount and quality of its data. The expansion of staff with the hiring of a Water Resources Technician will allow us to increase our static water level measuring points across the district. LNNRD also works with other NRDs and NDNR to obtain data and technologies beyond our skill level and budget point.

Goal 1 Objectives

- 1.1. To conduct data collection and analyses of water supplies and demands, utilizing the best available information, data, and science.

LNNRD continues to collect water samples across the District to monitor nitrate nitrogen in the groundwater. Currently LNNRD samples close to 500 irrigation wells on a bi-annual basis (250/year). 35 dedicated monitoring wells are purged and sampled annually. LNNRD also continues to annually measure spring static water levels in 85 irrigation wells and 35 dedicated monitoring wells. Pressure transducers and telemetry have been added to all 18 monitoring well sites to record and transmit daily static water levels. A link is available on our website so anyone can see and compare current and historic static water levels at all locations on either a dashboard or hydrograph format.

Since access to some of our flowmeter data has contractually lapsed, and because the Board is interested in a drought plan, LNNRD staff and committees have developed a plan and were awarded a WSF grant to conduct a cost-share program for flowmeters, telemetry, soil moisture probes, and other irrigation technologies.

- 1.2. To conduct studies to identify hydrologically distinct sub-areas within the District for the purposes of integrated management.

Currently LNNRD, in conjunction with the BGMA, is participating in a vadose zone study being conducted by Dr. Snow at The Nebraska Water Center.

LNNRD is also offering cost-share opportunities for producers willing to participate in UNL on-farm research or trials of new irrigation and nitrogen application practices.

The LNNRD Groundwater Management Committee is currently evaluating information in an effort to create sub-areas within the District for better water management, update rules and regulations, and explore beneficial technologies.

LNNRD has teamed with Adaptive Resources to build a Groundwater Index for assessment of new irrigated acres. Collected data in each of our hydrologic units has shown different trends and characteristics that need to be managed as such.

- 1.3. To monitor changes in water use within the District.

LNNRD uses the data collected in 1.1 to monitor and manage groundwater levels.

Goal 2

2. To develop systematic approaches for the development and sustainability of water resources within the District.

LNNRD currently has a groundwater quantity plan but would like to improve the plan to be more responsive and better developed through data. LNNRD was awarded a \$360,000 Water Sustainability Fund grant as part of a \$600,000 cost-share program for flowmeters, telemetry, soil moisture probes, and other irrigation technologies.

Accurate and dependable data is the foundation on which to build such programs. The LNNRD Board is also discussing mandating flowmeters for water quality due to over-irrigation in the district and the rate of nitrate leaching in saturated sandy soils.

Planned updates to our rules and regulations target groundwater management by sub-areas delineated by the 4 major hydrologic units in our district.

Producer interest in the District has increased for the development of groundwater irrigated acres in the Ponca Basin using deep wells (1,300' deep) in the Dakota Aquifer. LNNRD is seeking help in developing an approach for managing groundwater in this scenario.

Goal 2 Objectives

- 2.1. To assess the potential impact of new surface water and groundwater uses on existing surface water and groundwater users within the District.

LNNRD continues to utilize our acre ranking criteria and well ranking criteria in awarding new irrigated acres. LNNRD also prioritized practices in the 2025 acre ranking and well ranking criteria that benefitted the practice of sub-surface irrigation. The LNNRD Groundwater Management Committee is in the final processes of developing a Groundwater Index map with Adaptive Resources.

The LNNRD Board voted NOT to offer a new irrigated acre program in 2023 or 2024. In 2022, LNNRD approved 500 new irrigated acres that met our acre ranking and well ranking criteria. 300 of these approved acres utilize sub-surface drip irrigation. The 2025 program prioritized acres added to an existing infrastructure and projects utilizing sub-surface drip irrigation. As a result, LNNRD approved 141 acres added to existing irrigation infrastructure without the construction of new irrigation wells and 500 acres of new groundwater irrigated acres. 400 of the total

641 new and added groundwater irrigated acres will be irrigated with sub-surface drip irrigation.

- 2.2. To determine allowable levels of water development for the District, and by subbasin when designated.

Every year, prior to the board's discussion on new irrigated acres, they are presented with the current data regarding static water levels and groundwater usage. If the board approves a new irrigated acre program, they will also set the criteria and priorities for the program. Over the last few years, it has become evident that gradual development could be allowed in some areas of the District, while other areas should be maintained at current levels of groundwater use. The Groundwater Management Committee has done a very good job in recent years prioritizing more efficient irrigation practices when awarding new groundwater irrigated acres. Flowmeters are still required on all new and replacement high-capacity irrigation wells.

The LNNRD has two very different and distinct basins in the District and would like to transition into separating these basins and creating sub-areas when we look at and rank new groundwater irrigated acres. Similar to how NDWEE looks at surface water in our district with control areas 1 and 2. To accomplish this task, LNNRD needs some technical support from NDWEE. LNNRD would like updated stream depletion factors for areas in the District connected to the Ponca Creek Basin (Missouri River Tributaries), updated stream depletion factors for areas in the District connected to the Lower Niobrara River, and updated stream depletion factors for areas in the District connected to the Lower Platte River. Any technical support that NDWEE could provide with the new Niobrara Model would also be greatly appreciated.

Due to Increased producer interest for the development of groundwater irrigated acres in the Ponca Basin using deep wells (1,300' deep) in the Dakota Aquifer. LNNRD is seeking help in developing an approach for managing groundwater in this scenario.

Goal 3

3. To prevent, resolve, and minimize water related conflicts among and between surface water and groundwater users.

LNNRD, through West Knox Rural Water (WKRW), is currently trying to rehabilitate a public water supply well to mitigate nitrate issues in the well. WKRW has also adopted a Well Head Protection Plan. Data is being collected using test hole log data and tTEM data to help identify a new public water supply well site.

LNNRD, as a member of the Niobrara River Basin Coalition (NRBA), has acquired the NPPD water rights at the Spencer hydro facility for fish, wildlife, recreation, and other

beneficial uses yet to be determined. The NRBA has completed its first year of managing the subordination agreements with junior users on the Niobrara River. Invoices and 2026 agreements have been sent out.

Most of the current conflicts that LNNRD is experiencing are irrigation well vs domestic well, damages due to flooding, and damages due to feedlot runoff. LNNRD has always utilized well distances and setbacks that equal or exceed those of the State to help minimize groundwater well conflicts.

Goal 3 Objectives

- 3.1. To establish procedures for securing water for sustained future growth of domestic, municipal, agricultural, commercial, and industrial water users within the District.

Rules and regulations have existed since 2014 to address the issues of 3.1.

Consideration is being given to rules changes that would help manage the Districts groundwater and mandate offsets for commercial water use. LNNRD is in the final stages of developing a Groundwater Index and has its Water Use Reduction Cost-Share Program available to producers through 2027. Rules changes are proposed for 2026 that will manage our groundwater by sub-area, may mandate flowmeters for water quality mitigation, and reevaluate farming practices for nitrate mitigation.

- 3.2. To establish rules and regulations regarding transfers, variances, water banking, water leasing, or other actions of water management within the District, if necessary, to enhance equitable water use management, mitigate new uses, or to avoid conflicts.

Rules and regulations have existed since 2014 to address the issues of 3.2.

Goal 4

4. To develop and provide educational opportunities and outreach materials about hydrologically connected surface water and groundwater, water conservation, and to keep the constituents of the District informed about the IMP as it is implemented.

Goal 4 Objectives

- 4.1. To develop and disseminate water conservation guidelines for individuals to achieve sustainable water use.

LNNRD offers information and education on many levels. I&E staff present to ALL grade schools in the District and connect with middle school kids during our 8th Grade Conservation Day. Our Phase II report information is presented at Nitrogen Certification Training and has been presented on the state level to conservation, educational, and agricultural audiences. Staff also participate in BGMA producer information meetings and field days, Sandhills Ranch Expo, Husker Harvest Days, NE State Fair, and many other events such as helping host and participation in the Northeast Nebraska Ag Conference. LNNRD has a very good social media

presence and informative website that offers a multitude of educational and informational links.

- 4.2. To identify cost-share opportunities that may include collaborating with other agencies and other NRDs to implement plan objectives.

LNNRD currently offers cost-share to constituents for soil sampling, well decommissioning, reverse osmosis systems, nitrogen management, water testing, livestock manure analysis, automatic rain gauge shut offs, and automatic drip oilers.

LNNRD promotes all cost-share opportunities to our constituents both in-person and on our website.

LNNRD has secured a WSF grant to help with a \$600,000 Water Use Reduction Cost-Share Program that funds flowmeters, telemetry, soil moisture probes, and other irrigation technologies. Other irrigation technologies may include next generation technologies such as sensor-based fertigation, real-time ET, or other practices presented to the board for approval.

- 4.3. To encourage participation in information sharing with other organizations and agencies to conserve resources and prevent duplication of work.

LNNRD regularly shares data and information with producers, landowners, homeowners, other NRDs, State agencies, and UNL.

Closing Remarks

LNNRD Board of Directors and staff have worked diligently this past year to grow programs and staff by offering more cost-share opportunities, engaging in more I&E opportunities, addressing rules and management issues, and the hiring of a full-time Water Resources Technician. We are striving to meet the goals of our long-range plan and better manage our responsibilities. LNNRD is looking to increase its visibility on local, regional, and state platforms to be a future leader in the water conservation industry. LNNRD will always strive to be a professional and proficient partner to our stakeholders.

Supplemental information attached.

- Cost-share pamphlet
- Water Use Reduction Program Guidance
- Spring 2025 Static Water Level Report



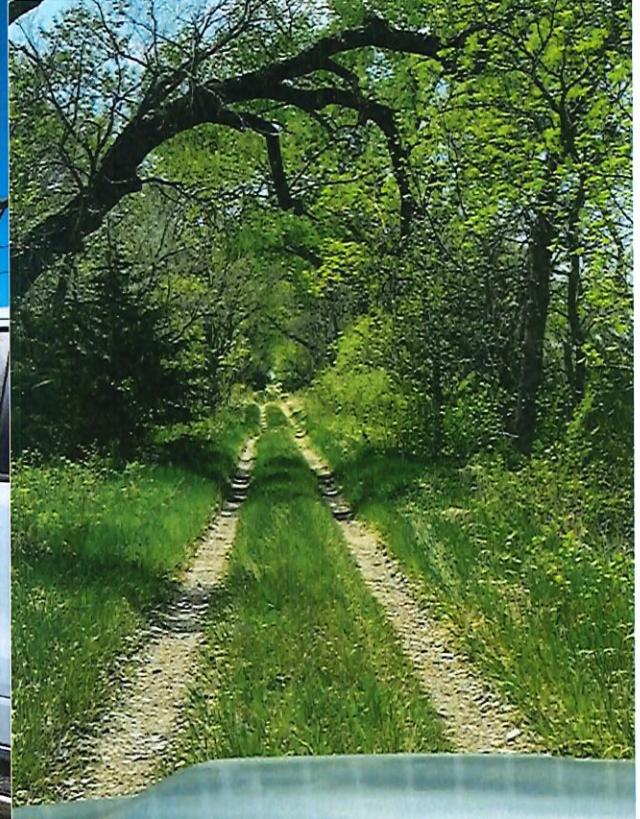
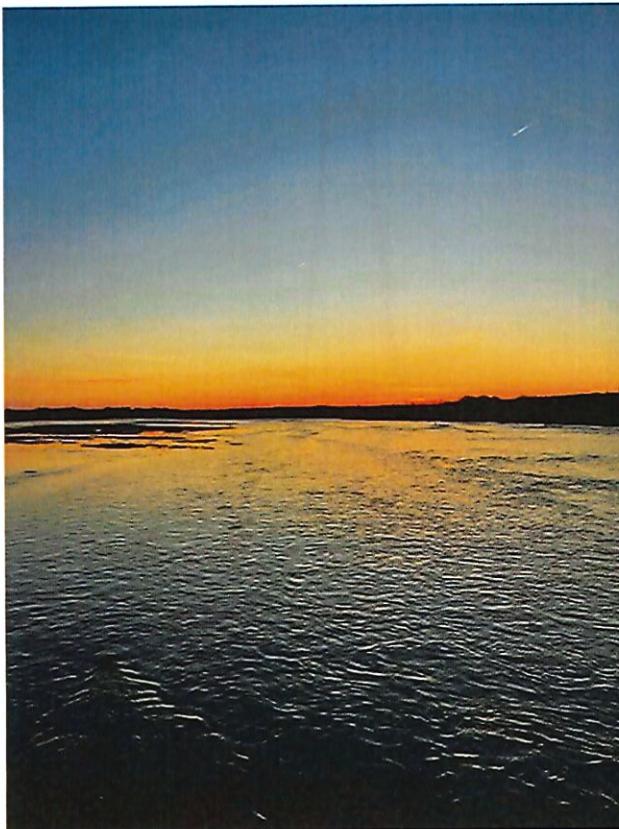
Lower Niobrara Natural Resources District

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2025 Spring Static Water Level Report

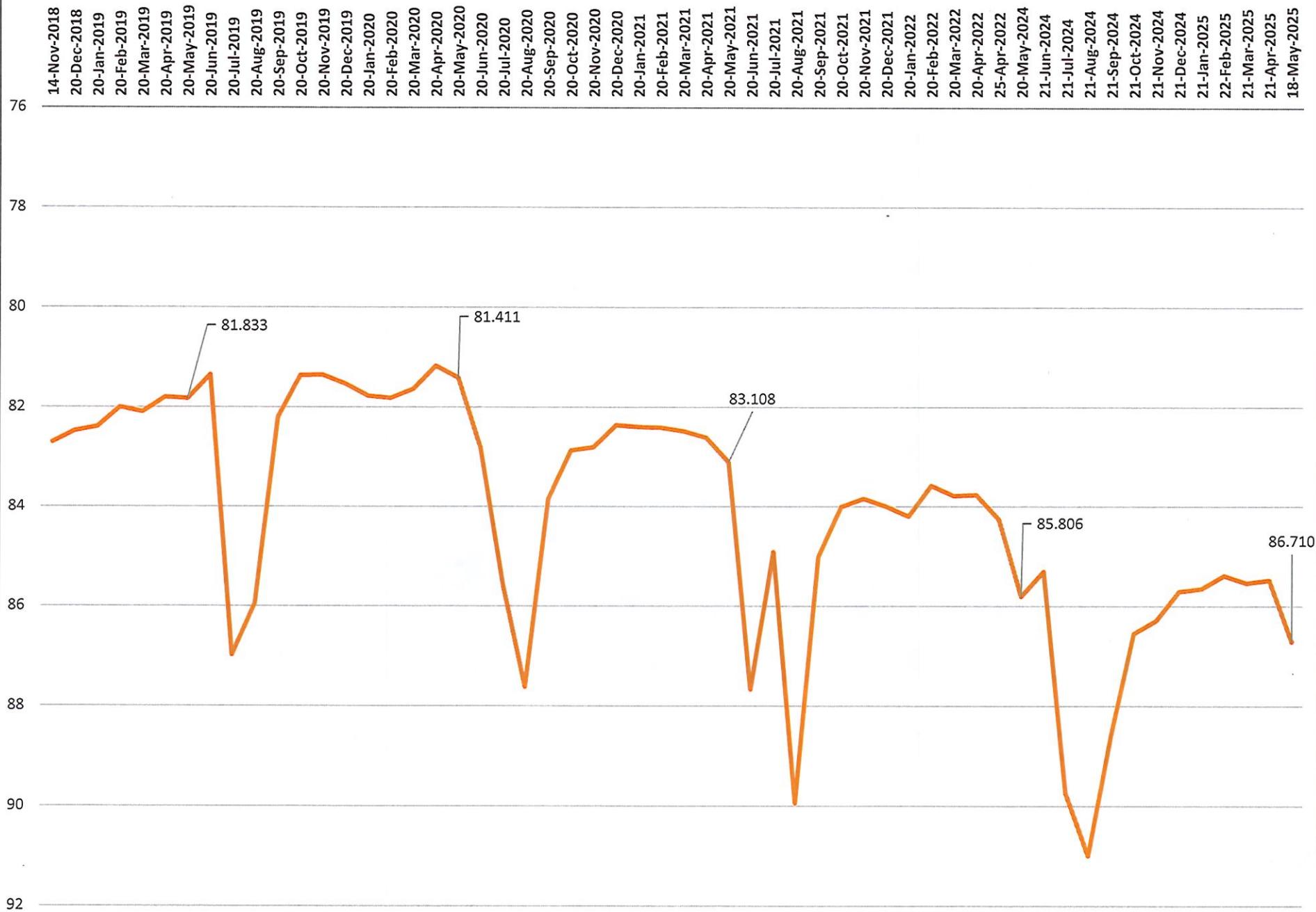


Brandon Fischer

Natural Resources Technician

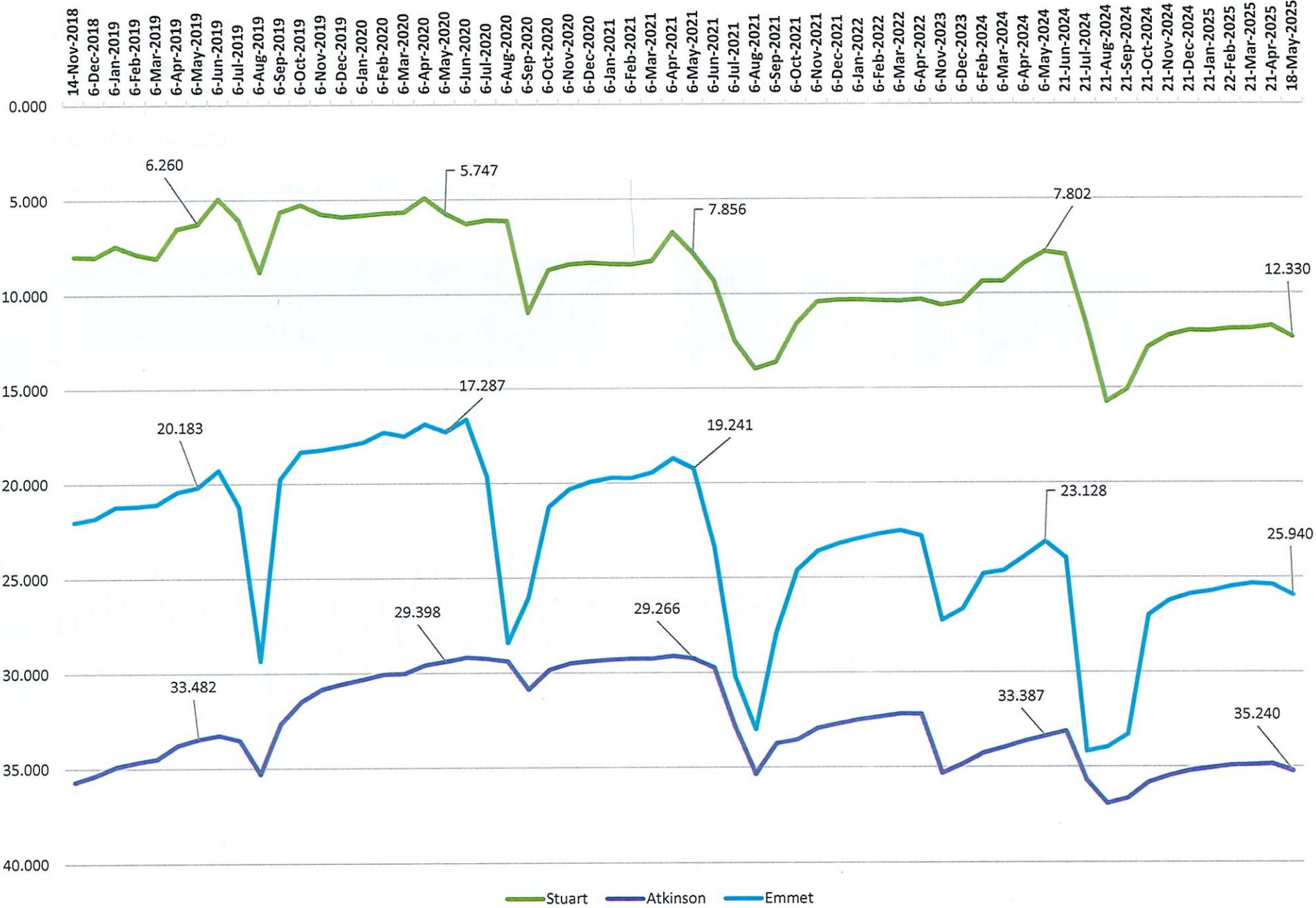
LNNRD Transducer Data

Glazer

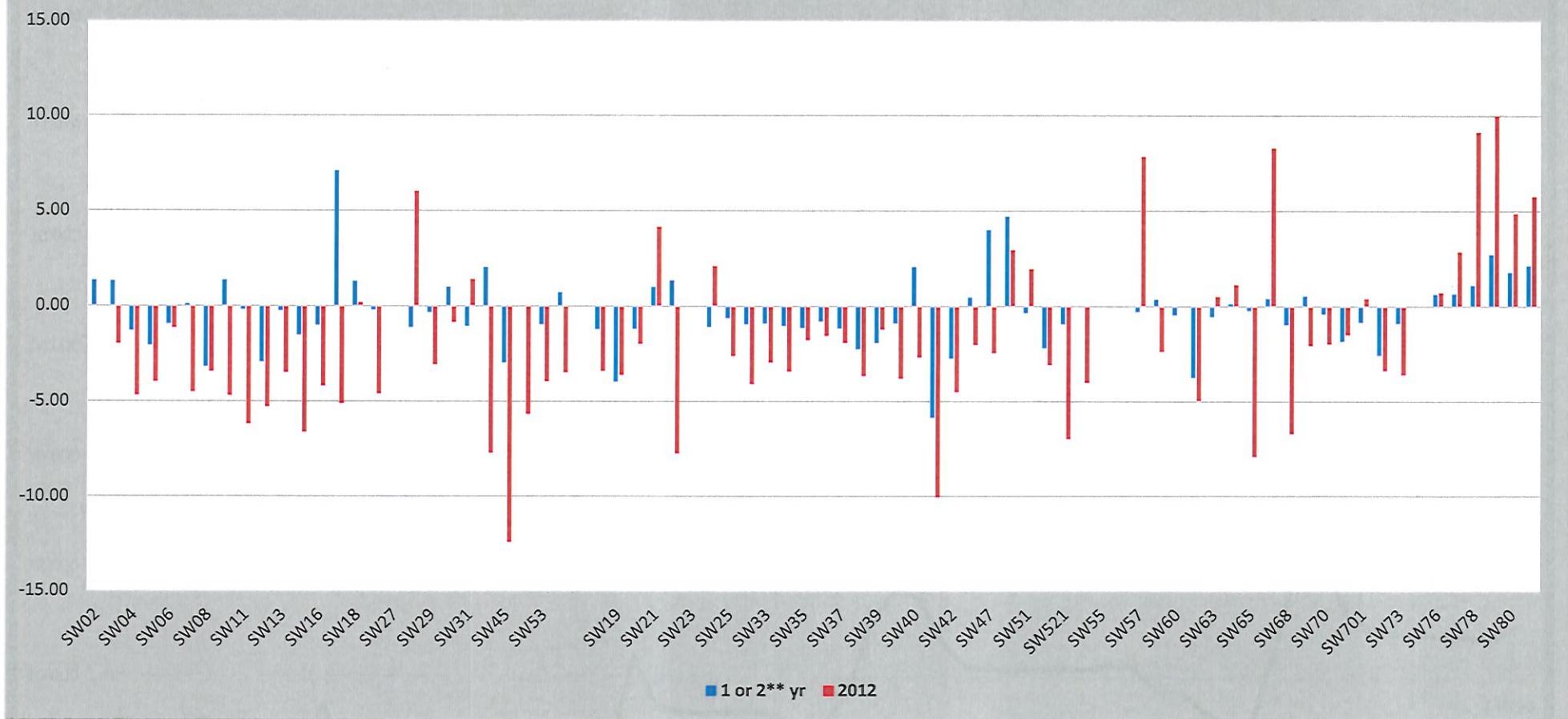


LNNRD Transducer Data

LNNRD Transducer/Telemetry Data



Individual SWL Changes



The blue line for each well indicates the change from 2024

The red line for each well indicates the change from 2012

Well changes from 2024

26 wells increased SWL

46 wells decreased SWL

0 wells had no change in SWL

Range of SWL change = **-5.85'** to **+7.08'**

Average change in SWL = **-0.34'**

Well changes from 2012

18 wells increased SWL

54 wells decreased SWL

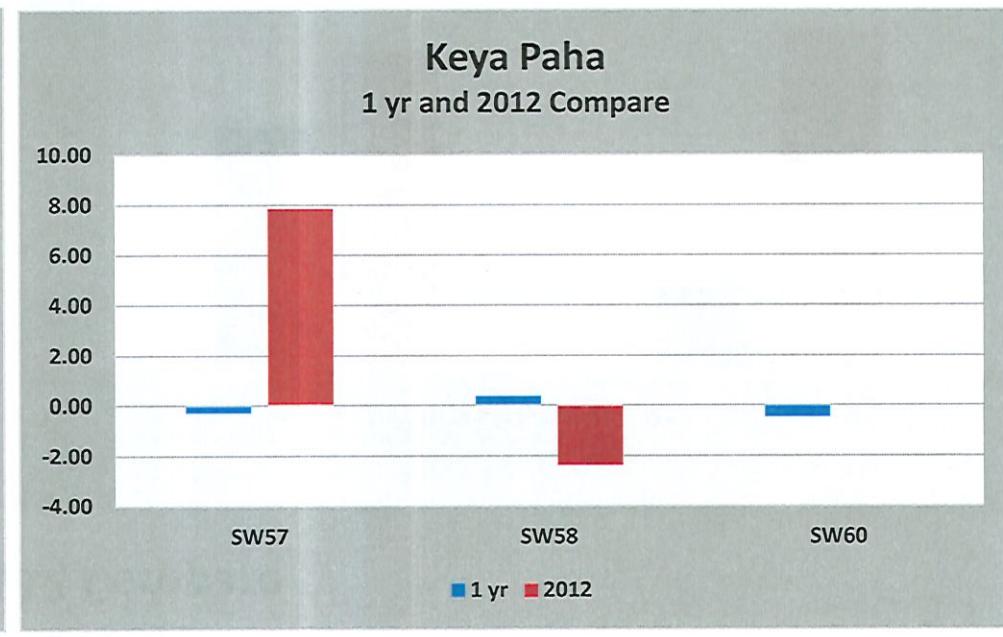
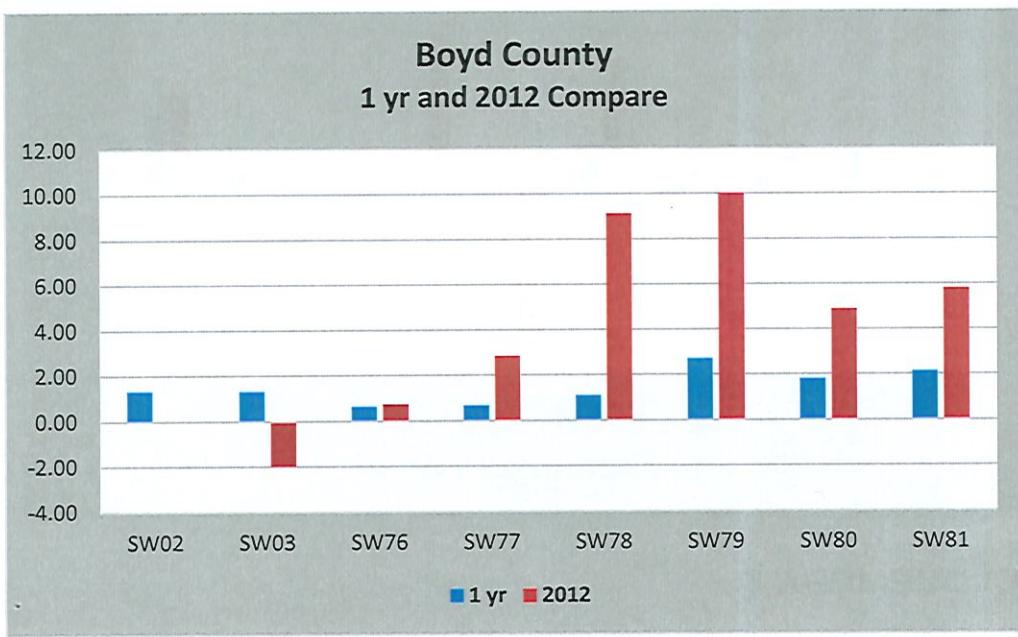
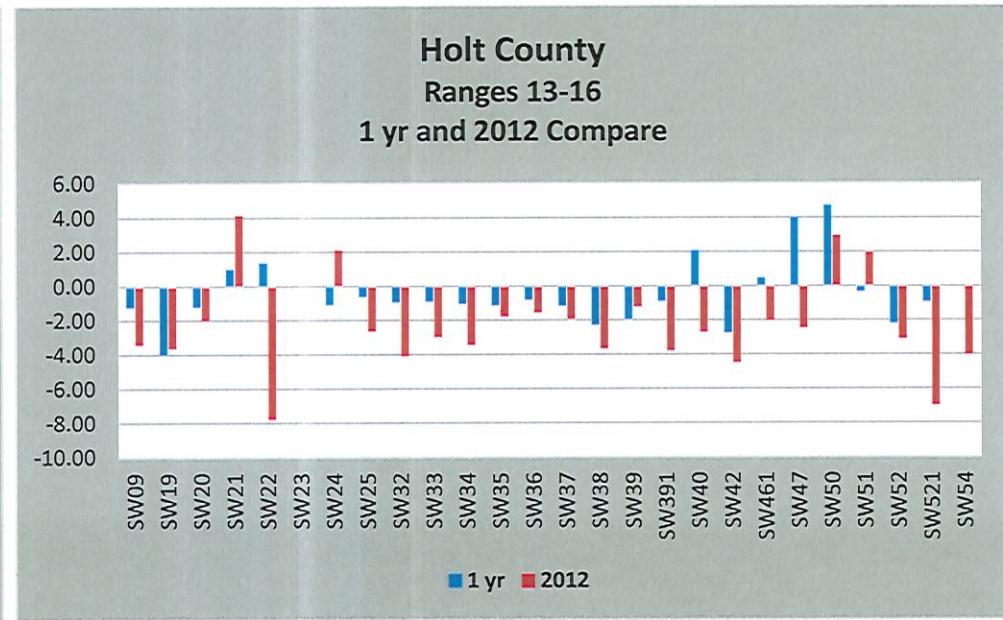
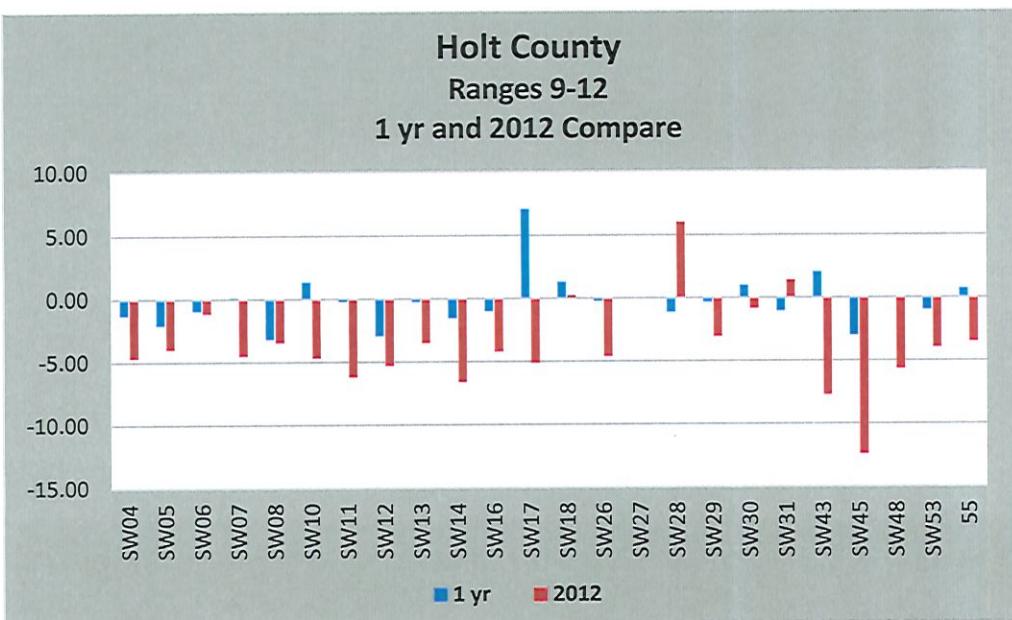
0 wells had no change in SWL

Range of SWL change = **-12.43'** to **+10'**

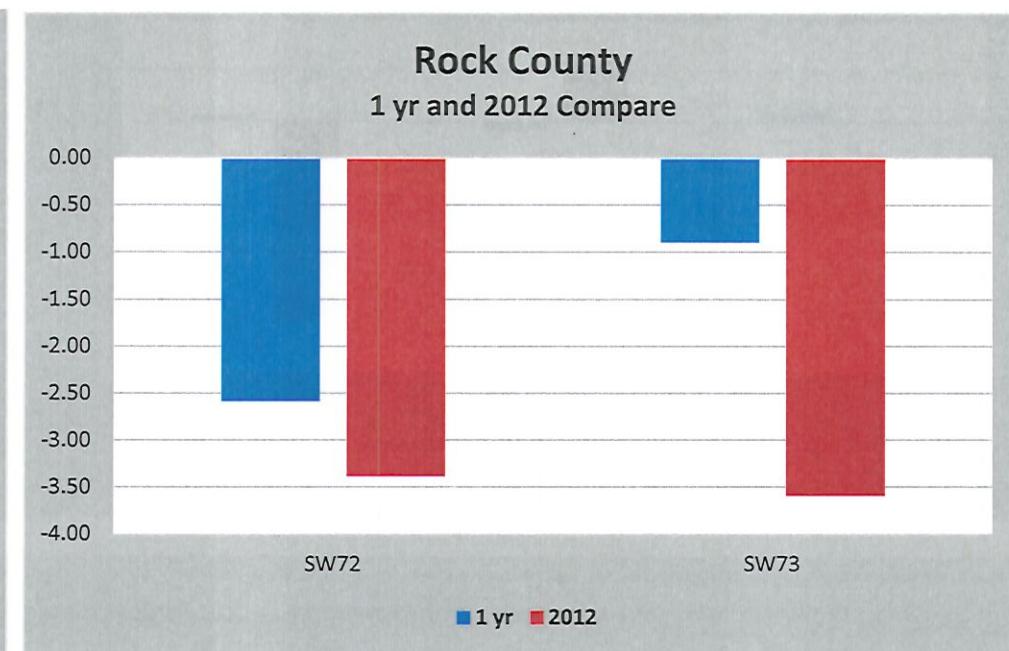
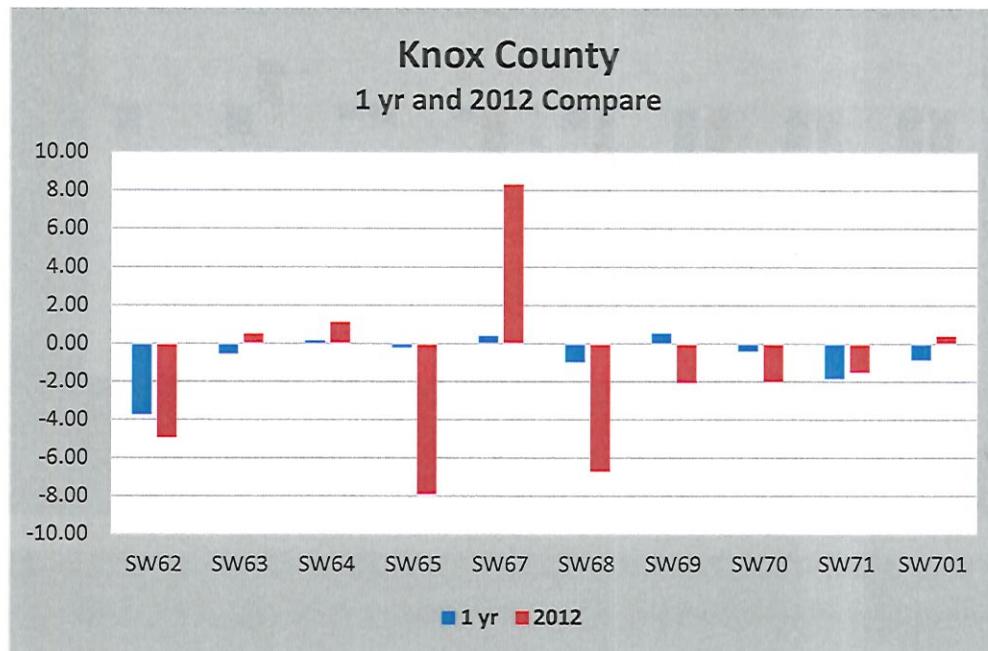
Average change in SWL = **-1.96'**

LNNRD by County

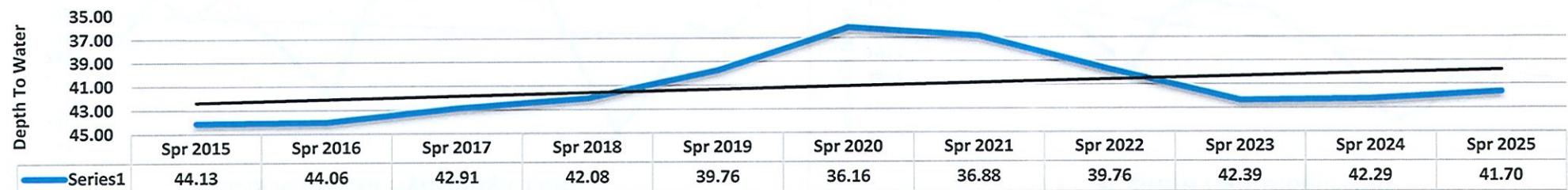
1 year and 2012 Compare



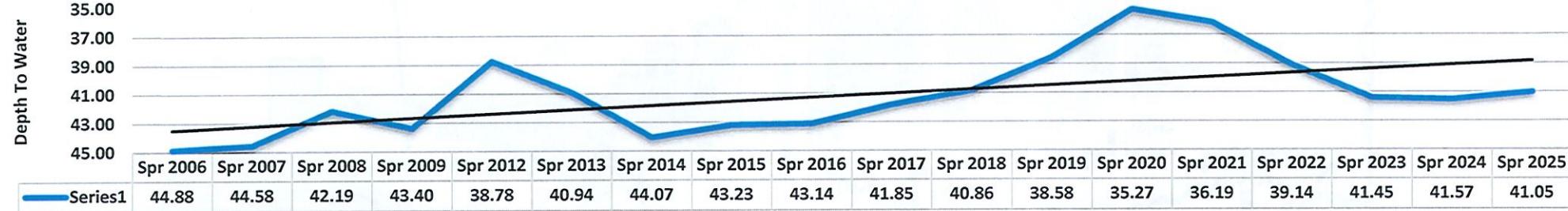
LNNRD by County 1 year and 2012 Compare



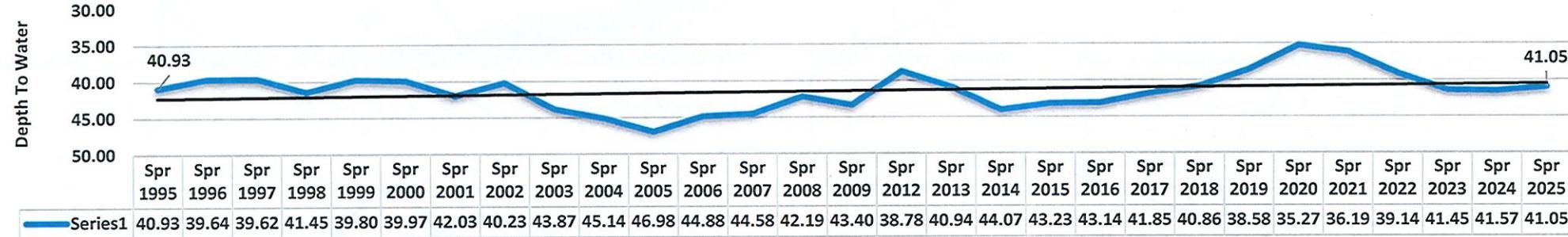
LNNRD Spring SWL Averages Since 2015 Adjusted For Added Wells



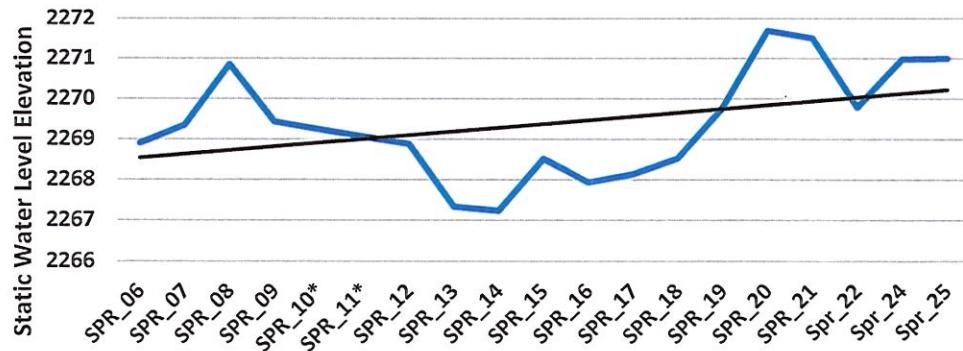
LNNRD Spring SWL Averages Since 2006



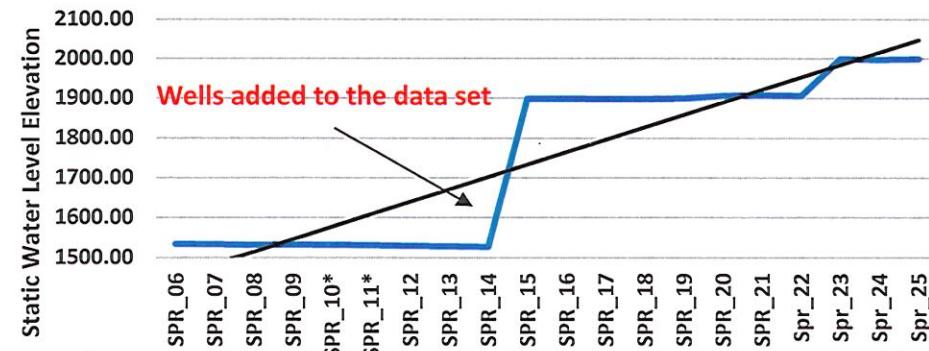
LNNRD Spring SWL Averages Since 1995



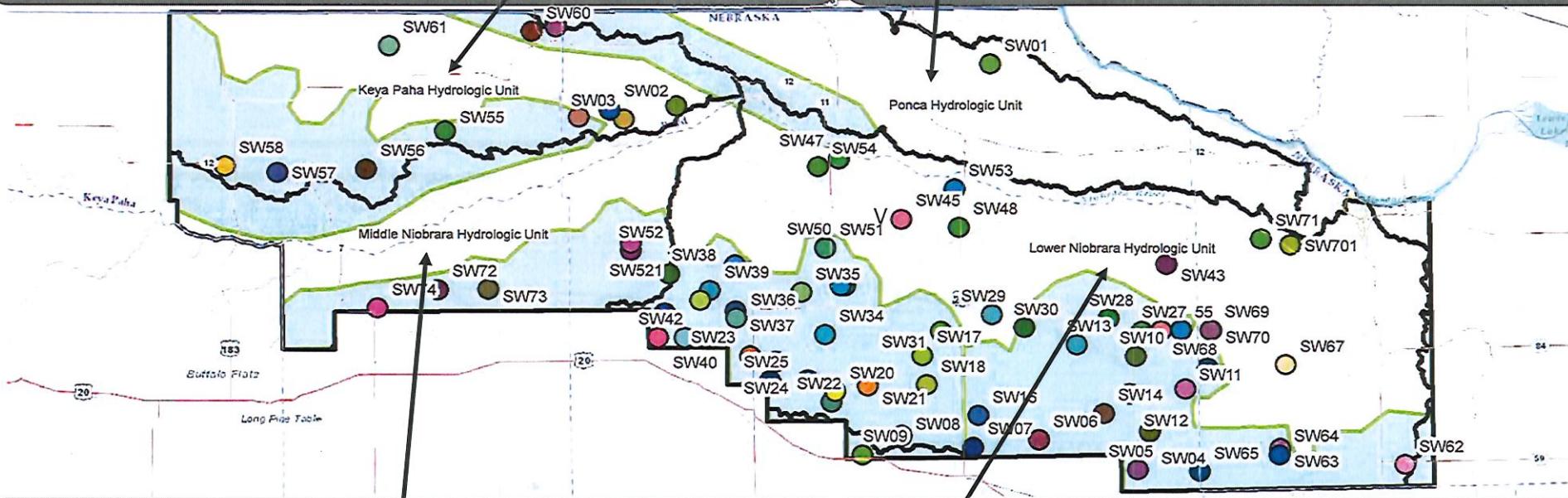
Keya Paha Hydrologic Unit



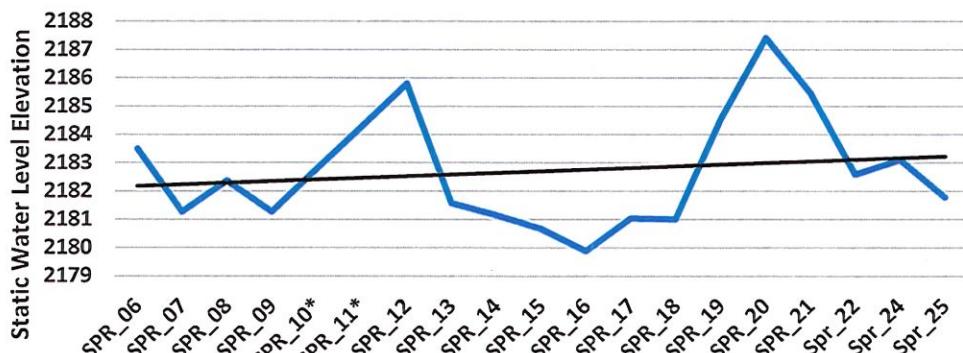
Ponca Hydrologic Unit



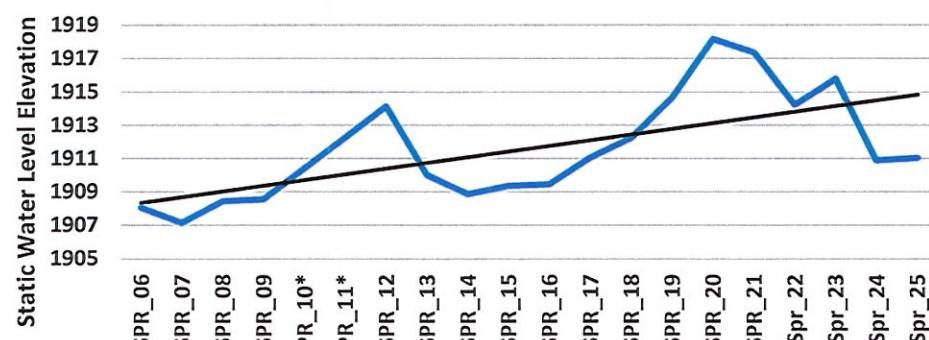
Wells added to the data set



Middle Niobrara Hydrologic Unit

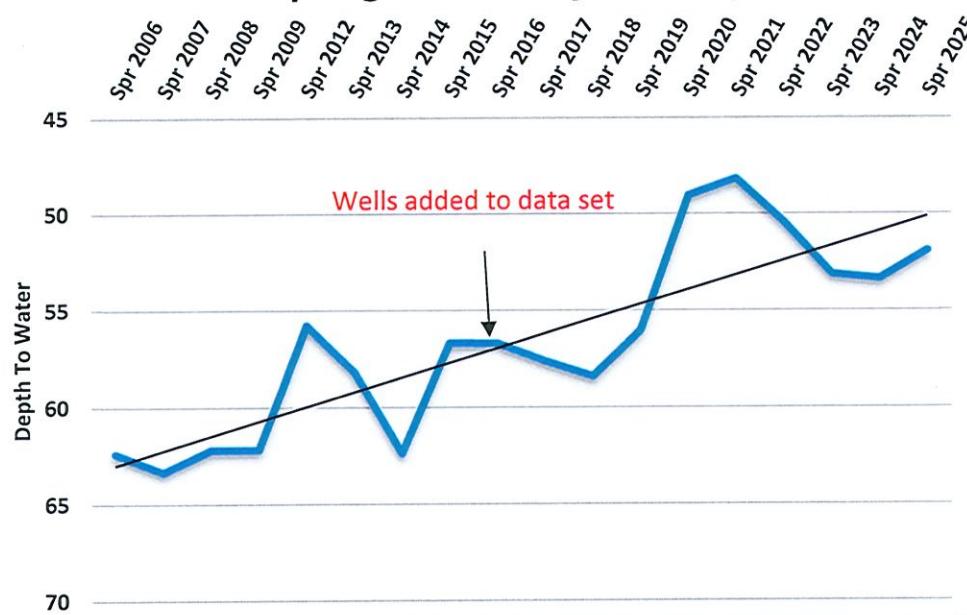


Lower Niobrara Hydrologic Unit

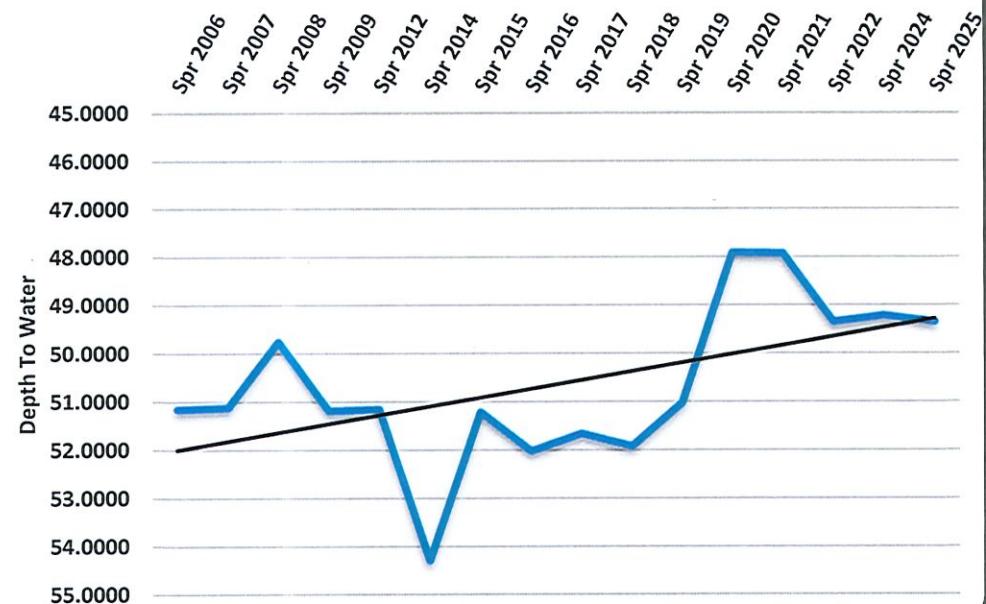


LNNRD Spring Static Water Levels by County

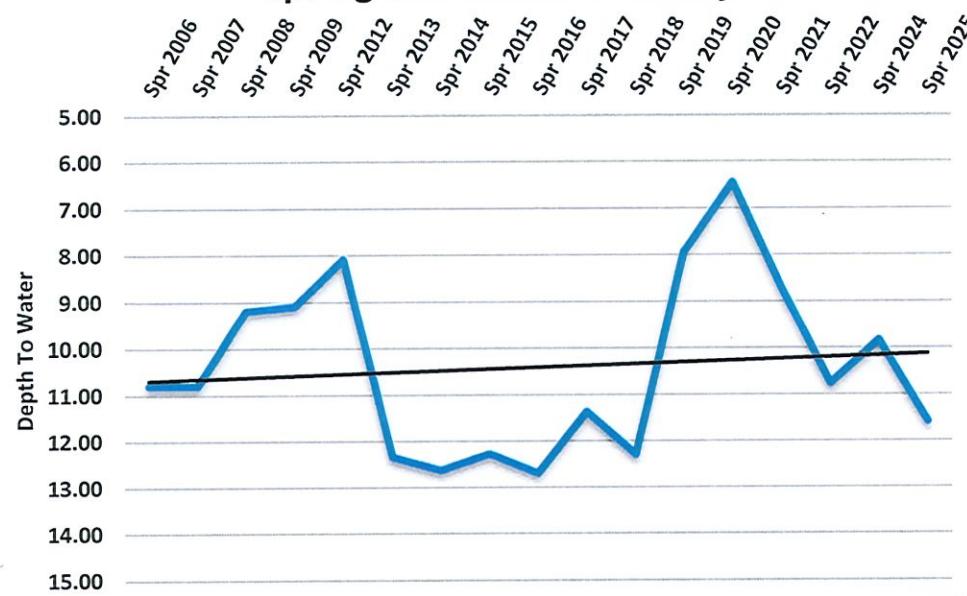
Spring SWL in Boyd County



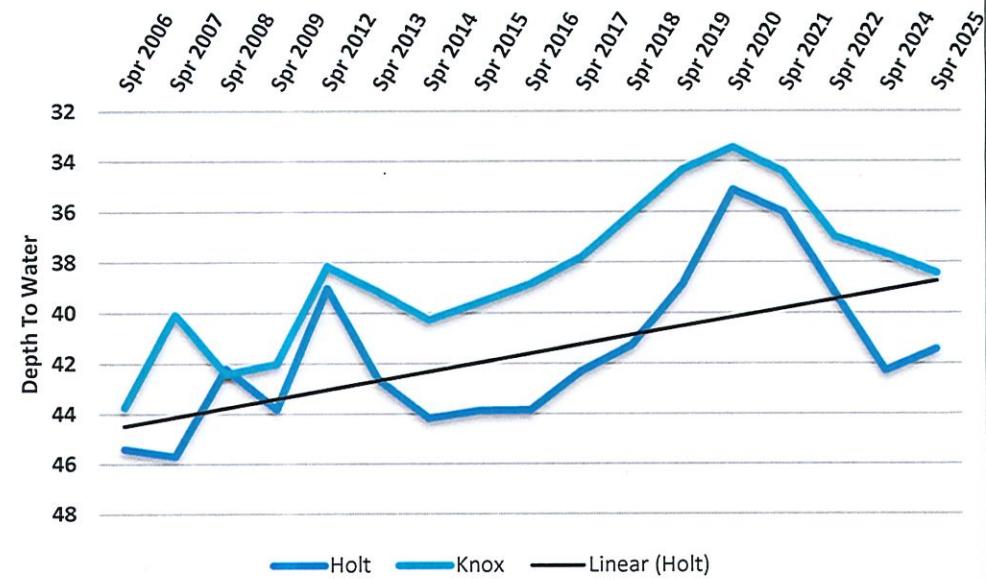
Spring SWL in Keya Paha County



Spring SWL in Rock County



Spring SWL in Holt and Knox Counties





Lower Niobrara

Natural Resources District

Water Use Reduction Cost-Share Program

**60% of Funding Provided by
The Water Sustainability Fund**



LNNRD Water Use Reduction Cost-Share Guidance

The Lower Niobrara Water Use Reduction Cost-Share Program was developed to provide assistance to LNNRD producers in attaining the equipment needed to help manage irrigation water use more effectively and efficiently. Funds in the amount of \$360,000 have been awarded to LNNRD from the Water Sustainability Fund and matched with \$240,000 from LNNRD and participating partners, to make this \$600,000 opportunity possible. Available irrigation water management devices are flow meters, telemetry, soil moisture probes, and other irrigation management technologies. Individual device guidance is given in the following pages.

General Cost-Share Guidance

75% cost-share of the suggested retail price of the device or devices, up to a maximum of \$1,500 per field practice, will be provided to applicants upon receipt of an invoice, installation inspection by LNNRD staff if needed, and Board of Directors approval. Devices must be installed according to the manufacturer's guidelines and within the boundaries of the LNNRD. Producer caps may be put in place depending on the number of applications. Installation fees and device maintenance/repairs are to be covered by the applicant.

Data from cost-shared devices may be requested and/or collected by LNNRD staff.



Flow Meter/Telemetry Guidance

The water user shall select the proper size, pressure rating, and operating range (minimum and maximum GRM) for his or her water flow meter installation and properly install the meter in accordance with the Lower Niobrara NRD's requirements and the manufacturer's instructions.

1. All meters shall be warranted to register not less than 98% nor more than 102% of the actual volume of water passing through the meter for all rates of flow within the meter size's range of flow.
2. The meter shall be equipped with a direct reading rate-of-flow indicator showing the instantaneous flow in gallons per minute. The meter registry shall have a visual, volume-recording totalizer which shall record in acre inches.
3. The meter shall be located in such a manner as to measure the entire flow, single well or combined wells, of an irrigating system at a sufficient point downstream of all sources connecting or at the pivot riser.
4. The meter must also be installed in such a manner that there shall be a full pipe flow of water at all times while water is being pumped.
5. Minimums of unobstructed, straight pipe runs, upstream and downstream of the meter installation must meet manufacturer's instructions. Turbulent or jetting flows created by valves, elbows, check valves, and other obstructions must be able to settle down and may require straightening vanes immediately upstream of the meter. The installation of straightening vanes can be used to lessen the amount of straight pipe run required at the installation location.
6. All meters must have an anti-reverse feature and an overrun bearing assembly.
7. Meters installed with telemetry must have the ability to communicate with our Producer Connect software.

The Lower Niobrara NRD maintains a list of approved flow meters that meet the District's specifications. This list is compiled on the basis of manufacturer specifications. This is not an endorsement of the individual products or manufacturers. If a producer preferred meter is not on the list, please contact LNNRD and we will conduct a review of the manufacturers specifications and may add meters to the list that meet Lower Niobrara NRD guidelines.

75% cost-share of the suggested retail price, up to a maximum of \$1,500 per flow meter and/or telemetry, will be provided to applicants upon receipt of an invoice, installation inspection by LNNRD staff, and Board of Directors approval. Producer caps may be put in place depending on the number of applications. Installation fees are to be covered by the applicant.

Currently Approved Flow Meters

McCrometer Propeller Flow Meters



Soil Moisture Probe Guidance

The participating producer shall select a reputable person or company that can provide and service their soil moisture probe of choice.

1. Soil moisture probes must be installed and calibrated according to the manufacturer's specifications including number of probes per field.
2. Probes must provide real-time data that can be viewed via cell phone, tablet, and/or computer.
3. Probes must provide moisture readings for at least 3 root zone depths.

Alternative probes and services may be considered upon request. LNNRD will not cost-share cash and carry type probes.

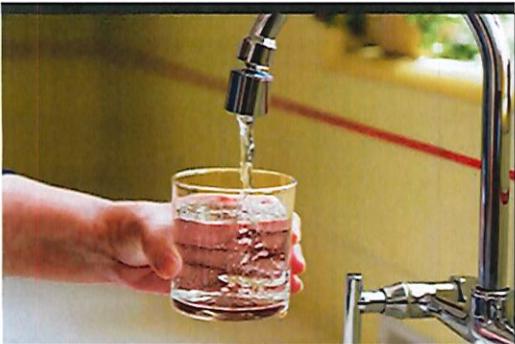
75% cost-share of the suggested retail price, up to a maximum of \$1,500 per field, will be provided to applicants upon receipt of an invoice, installation inspection by LNNRD staff, and Board of Directors approval. Producer caps may be put in place depending on the number of applications. Installation fees are to be covered by the applicant.

Other Irrigation Technologies Guidance

Other irrigation technologies vary and will be ranked from newer next generation technologies down to nozzle replacements. The technology must help the producer use less irrigation water or use irrigation water more efficiently. The ultimate irrigation goal should be that growing season precipitation plus irrigation water applied, with an efficiency factor, equals crop ET. Technology that helps producers determine real-time ET rates will be prioritized. This would include products from Crop X, Arable, Lindsey, Valley, Reinke, and others.

75% cost-share of the suggested retail price, up to a maximum of \$1,500 per field, will be provided to applicants upon receipt of an invoice, installation inspection by LNNRD staff, and Board of Directors approval. Producer caps may be put in place depending on the number of applications. Installation fees are to be covered by the applicant.

LNNRD Board approved 11/04/2024



Annual testing of private domestic wells is recommended. Get your water tested for FREE at your local NRD.

Fact: 20% of Nebraskans drink unregulated drinking water from private domestic wells that could be high in nitrates.

New Cost-Share

Now Available

Cost-share and cash incentives are available for:

- Nitrogen Reduction Incentive Act (LB1368)
- LNNRD Water Use Reduction Cost-Share
- LNNRD Reverse Osmosis Cost-Share

Contact Lower Niobrara NRD for more information

402-775-2343 or Lnnrd@lnnrd.org

Lower Niobrara NRD
410 Walnut Street
Butte, NE 68722

PRSR STD
ECRWSS
U.S.POStAGE
PAID
EDDM Retail

Local Postal Customer



Website: Lnnrd.org

Email: Lnnrd@lnnrd.org

Phone: 402-775-2343

Lower Niobrara NRD

Current Cost-Share Programs



Protecting Lives - Protecting Property - Protecting Water Resources - Protecting the Future

Nitrogen Reduction Incentive Act (LB1368)

- \$1,000,000 has been made available statewide to incentivize reduced nitrogen application.
- Producers can receive up to \$15 per acre to reduce nitrogen application by 15% or 40 lbs. per acre from baseline application rates.
- Reduction methods can include sensor-based fertigation, biologicals, inhibitors, and reduced application on potatoes and all types of corn.



Efficient use of nitrogen can have a big impact on nitrate leaching and profitability.

Fact: LNNRD Phase II data as well as UNL TAPS data shows no correlation between applied nitrogen and yield.

Efficient and timely irrigation water use is an important tool in helping to decrease nitrate leaching as well as helping to maintain groundwater levels for drought years.

Fact: Vertical transport of nitrate in saturated, sandy soils can be 6-7 feet per day. Dr. Dan Snow, UNL and Nebraska Water Center.



LNNRD Water Use Reduction Cost-Share

- \$600,000 has been made available from LNNRD, the Water Sustainability Fund, and participating partners to provide cost-share for increased irrigation water use efficiency equipment and technology.
- Producers can receive 75% cost-share, up to \$1,500 per field practice for irrigation management equipment such as flow meters, telemetry, soil moisture probes, and other irrigation technologies.

LNNRD Reverse Osmosis Cost-Share

- 65% up to \$1,200 to domestic well owners for the purchase of a reverse osmosis system.
- Well must test over the Maximum Contaminant Level of 10 ppm nitrate-nitrogen.

What Other Programs LNNRD Offers:

- Free water tests for nitrates. (up to 5)
- Free water sampling test kits.
- Ultrasonic flow meter checks.
- Well abandonment cost-share.
- Soil sampling cost-share.
- Domestic well cost-share.
- Rural Water System hookup cost-share.
- Livestock manure analysis cost-share.

Contact Lower Niobrara NRD for more information!

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