



**LOWER PLATTE RIVER BASIN MANAGEMENT
PLAN – ANNUAL DATA COLLECTION AND
ACTIVITIES REPORT – JULY 2016 THROUGH
DECEMBER 2017**

FINAL DRAFT – MARCH 2018

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1.0 INTRODUCTION

The Lower Elkhorn Board of Directors approved the interlocal agreement; which effectively adopted the Lower Platte River Basin Water Management Plan (Dated October 2017) on November 21, 2017. This action, along with the six other Natural Resource Districts and the Nebraska Department of Natural Resources, sets forth a collective effort to work cooperatively towards the management and development of the water resources of the Lower Platte Basin.

The Lower Elkhorn Natural Resource District (LENRD) has utilized a managed-growth philosophy when considering the approval of new uses of groundwater for agricultural irrigation purposes since early 2009. Prior to that date, no restrictions were in place that limited property owners for developing their land for irrigation purposes, so this was a major change in policy and practice for the District. Current policy requires an approved variance from the District, in order to allow for the expansion of irrigated acres in the District. No limitations have been enacted to limit the approval of permits for high-capacity groundwater wells for other uses such as commercial/industrial, livestock or for municipal wells.

The Lower Platte River Basin Water Management Plan provides guidance to the partners in respect to the amounts of (excess) available water that can be allotted for new uses (new depletions) and the partners have agreed to adhere to the suggested limits for the first 5-year increment of the plan. Table 4.1 of the Plan inventories the available amounts for the first 5-year increment by Basin, and Table 4.2 breaks those available amounts down by Natural Resource District. As listed in table 4.2, the amount of water available during the first 5-year increment, to be shared between the Lower Elkhorn Natural Resource District and the Nebraska Department of Natural Resources is 4,514 Acre Feet of allowable new depletions.

This report will serve to fulfill the annual data collection and reporting requirement of the Lower Platte River Basin Management Plan as indicated in *Section 5.0 – Plan Review and Monitoring*, of the Plan.

2.0 CERTIFIED IRRIGATED ACRES

The Lower Elkhorn Natural Resource District (LENRD) did not formally begin the process of certifying irrigated acres until January of 2013. Since that date, the District has formally certified 7,969 individual tracts of private property that have irrigated acres that meet the pre-determined criteria for certification purposes.

Rule 14 of the Lower Elkhorn Natural Resource District’s Rules and Regulations for the Enforcement of the Nebraska Groundwater Management and Protection Act indicates that the District will certify as irrigated any tract of land greater than two acres that (1) has been actually irrigated any one out of ten years from 1999 to 2008, (2) is currently enrolled in a federal, state, or local conservation program and was classified as irrigated land by the local County Assessor within one year prior to being enrolled in such program, (3) has otherwise been allowed to develop under an approval granted by the Board since 2007, (4) has otherwise been allowed to develop under an approval granted by the Nebraska Department of Natural Resources since 2007, or (5) is irrigated from a lagoon constructed in compliance with a Clean Water Act permit.

(Table 1.) LENRD CERTIFIED IRRIGATED ACRES BY SOURCE				
	GROUNDWATER	SURFACE WATER	WASTEWATER	TOTAL ACRES BY COUNTY
ANTELOPE	337.79	0.00	0.00	337.79
BURT	15,394.49	1,077.36	1,505.06	17,976.91
CEDAR	47,787.80	529.8	432.94	48,750.54
COLFAX	24,291.40	407.87	2,042.15	26,741.42
CUMING	55,904.41	2,040.74	14,110.18	72,055.33
DAKOTA	0.00	0.00	0.00	0.00
DIXON	14,957.89	422.12	191.79	15,571.80
DODGE	63,230.55	3,786.60	2,082.57	69,099.72
KNOX	11,122.15	70	0.00	11,192.15
MADISON	117,959.57	2,216.48	3,261.20	123,437.25
PIERCE	154,342.54	1,478.37	336.46	156,157.37
PLATTE	23,787.40	0.00	2,190.44	25,977.84
STANTON	37,819.17	2,490.03	1,307.27	41,616.47
THURSTON	11,545.79	373.87	503.76	12,423.42
WAYNE	47,702.24	913.42	1,679.12	50,294.78
TOTAL IRRIGATED ACRES BY SOURCE	626,183.19	15,806.66	29,642.94	
TOTAL IRRIGATED ACRES	671,632.79			

Listed in Table 1 (LENRD CERTIFIED IRRIGATED ACRES BY SOURCE) is the current breakdown, for each county, of the certified irrigated acres (by source) within the Lower Elkhorn Natural Resource District.

As indicated by the data in Table 1, groundwater is the primary water source for agricultural irrigation in the Lower Elkhorn NRD. However, the District is also home to large numbers of livestock, comprised of beef cattle (both feedlot and cow/calf), swine, dairy and some poultry, with future expansion expected associated especially with broiler production.

Current trends in livestock and poultry production indicate that large numbers of animals are sited on an individual farm which may require large volumes of water necessary for production. Many of these operations are also required to have operating permits to comply with Clean Water Act requirements and consequently will have agricultural property upon which animal waste and/or lagoon effluent is applied through irrigation application equipment. Some of these locations will also apply groundwater, as necessary, for irrigation of growing crops.

Current certification records indicate that surface water irrigation comprises the smallest increment of the total irrigated acreage in the District, estimated to be ***15,806.66*** acres.

Commingling of water sources has also been tracked via the certification of irrigated acres process, and current data indicates that there are approximately ***14,538*** acres of land with the District that are listed as using both groundwater and surface water as a source of irrigation water.

3.0 MUNICIPAL AND INDUSTRIAL GROUNDWATER USES

To date, the Lower Elkhorn Natural Resource District has only required the reporting of annual groundwater usage reports from new Municipal and Industrial Groundwater wells that were constructed with an approved permit, dated July 29, 2007 or later. However, recent modifications to the Lower Elkhorn Natural Resource District Groundwater Management Plan and Rules and Regulations will require the installation of a flow-meter and annual reporting of water usage on all

wells classified for use as Municipal and Commercial/Industrial by January 1, 2019.

In compliance with the reporting requirement for the Plan, listed below are four wells that have been permitted and installed since July of 2016 in the Lower Elkhorn Natural Resource District. Meters have/ or will be installed on each of these wells, but as of this writing, none of these wells has been put into service and therefore no water usage has been reported. As noted earlier in this section, the District is requiring the installation of flow meters and the reporting of water use on both Municipal and Commercial/Industrial Wells by January 1, 2019 and subsequent Annual Reports will reflect accordingly by including water use information.

Table 2. - Municipal and Industrial Wells installed since July 2016

	Use	Completion Date	Owners Name	Water Usage (2016)	Water Usage (2017)
G-182762	P	11/03/16	City of Osmond	0.00	0.00
G-183645	P	7/10/2017	City of Scribner	0.00	0.00
G-183646	P	7/10/2017	City of Scribner	0.00	0.00
G-184547	C	11/9/2016	Lyman Richey Corp.	0.00	0.00

4.0 NEW GW CONSUMPTIVE USES

Previous to participation in the Lower Platte River Basin Management Plan, the only accounting for new groundwater consumptive uses by the Lower Elkhorn Natural Resource District would be the new irrigated acres authorized by an approved Variance from the District, and most importantly those acres approved under the prior requirements of LB 483 and as of this writing, the voluntary Lower Elkhorn NRD Integrated Management Plan is still under development. The District has required an approved variance to expand irrigated acres districtwide since early 2009. A variance is required for both the Hydrologically Connected and Non-Hydrologically Connected portions of the District, which under the

current boundaries (as recognized by the District and the Nebraska Department of Natural Resources) equals approximately a 1/3rd (Hydrologically Connected) and 2/3rd (Non-Hydrologically Connected) split.

During 2016, the District limited the approvals of variances to expand irrigated acres to the Expedited and Good Cause Variance categories, and for specific situations and conditions. No variances to expand irrigated acres were approved by the District after July 2016 (for the 2016 growing season), therefore there is nothing to report (for accounting purposes) for the 2016 reporting period.

During 2017, the District maintained the same limitations on the expansion of irrigated acres until October 2017, at which time the Board of Directors authorized a sign-up period to receive applications for Standard Variances, approving the following motion:

The Ad-Hoc Variance Committee report was given by Gary Loftis. Motion was made by Loftis and seconded by Barr To allow up to 2,500 acres or 451.35 Acre Feet of new depletion, whichever comes first, of new groundwater irrigation development in the Hydrologically Connected or 10/50 Area under the District's standard variance process for 2018; and to allow up to 2,500 acres of new groundwater irrigation development in the Non-Hydrologically Connected or Non 10/50 Area under the District's standard variance process for 2018. As a condition for approval, an annual limit on the amount of groundwater withdrawal from wells associated with approved variances will be determined by board policy, which is subject to future modification if conditions warrant. In addition, a minimum soil score of 90 must be met for any standard variance to be considered for approval. Standard variance requests will also only be considered for approval from areas within the District that fall within the top five Potential for Development categories, as provided by the Classification 4 Map, as provided by Flatwater 3 Group. In addition, a District sign-up for the receipt of standard variance requests shall be established between November 15 and December 15, 2017.

On January 25, 2018 the Board of Directors gave final approval of up to **2390.28** new irrigated acres in the Hydrologically Connected portion of the District, calculated to create new depletions estimated at **225.82** Acre Feet. These new acres and depletions will not be certified as irrigated acres until after substantial completion of each approval has been verified. However, the District is reporting and accounting for these new depletions as part of its activities for 2017 and will subtract 225.82 Acre feet from the total available amount of 4514 Acre feet (for the Lower Elkhorn NRD portion of the Elkhorn Basin).

(4514 AF – 252.82 AF = 4261.18 AF).

Please refer to Appendix A (included as an attachment) for the specifics associated with these new depletions.

5.0 TRANSFERS

The Lower Elkhorn Natural Resource District did not receive or approve any groundwater use transfer requests during this reporting period, therefore no data is provided for this section.

6.0 WELL CONSTRUCTION PERMITS GRANTED

Table 3 (below) contains the permits to construct high-capacity wells in the Lower Elkhorn Natural Resource District between July 1, 2016 and December 31, 2017.

(Table 3.) LENRD HIGH CAPACITY WELL PERMITS (JULY 2016 - DECEMBER 2017)				
NRD PERMIT NO.	COUNTY	USE	REPLACEMENT	DNR REG. NO.
LE-16-18-R	PLATTE	I	YES	G-064344
LE-16-19-R	PIERCE	I	YES	G-066131
LE-16-20-R	THURSTON	I	YES	G-135366
LE-16-21-R	CUMING	I	YES	G-068264
LE-16-22-C	MADISON	C	NO	G-184547
LE-16-23	PIERCE	I	NO	G-184501
LE-16-24-L	PLATTE	L	NO	WELL NOT COMPLETED
LE-16-25-PWS	PIERCE	PWS	NO	G-182762
LE-16-26-R	MADISON	I	YES	G-037369
LE-27-R	PIERCE	I	YES	G-039513
LE-17-01-C	MADISON	C	NO	-
LE-17-02-R	STANTON	I	YES	G-059867
LE-17-03-R	DODGE	I	YES	G-155769
LE-17-04-R	STANTON	I	YES	G-023232
LE-17-05-R	PIERCE	I	YES	A-006786
LE-17-06-R	KNOX	I	YES	G-050268
LE-17-07-R	PIERCE	I	YES	G-051010
LE-17-08-R	PLATTE	I	YES	G-003482
LE-17-09-R	STANTON	I	YES	G-091860
LE-17-10-R	MADISON	I	YES	G-066159
LE-17-11-R	MADISON	I	YES	G-099781
LE-17-12-R	CUMING	I	YES	G-071222

LE-17-13-R	PIERCE	I	YES	G-054724
LE-17-14-R	DODGE	PWS	NO	G-183645
LE-17-15-R	DODGE	PWS	NO	G-183646
LE-17-17-R	KNOX	I	YES	G-048910
LE-17-18-R	STANTON	I	YES	G-043307
LE-17-19-R	COLFAX	I	YES	G- 039953
LE-17-20-R	CEDAR	I	YES	G-066231
LE-17-21-R	PIERCE	I	YES	G-076901
LE-17-22-R	MADISON	I	YES	G-070880
LE-17-23-R	WAYNE	I	YES	G-034519
LE-17-24-R	STANTON	I	YES	G-096798
LE-17-25-R	MADISON	I	YES	G-166363
LE-17-26-R	STANTON	I	YES	G-062907
LE-17-27-R	PIERCE	I	YES	G-070683
LE-17-28-R	COLFAX	I	YES	G-054019
LE-17-29-R	CUMING	I	YES	G-015710
LE-17-30-R	COLFAX	I	YES	G-128116
LE-17-31-R	CUMING	I	YES	G-032019
LE-17-32-R	DODGE	I	YES	G-042569
LE-17-33-R	BURT	I	YES	G-072898
LE-17-34-R	DODGE	I	YES	G-090007
LE-17-35-R	PLATTE	I	YES	G-054584
LE-17-36-R	COLFAX	I	YES	G-183041
LE-17-37-L	STANTON	L	NO	
LE-17-38-R	THURSTON	I	YES	G-054381
LE-17-39-PWS	MADISON	PWS	NO	
LE-17-40-O	MADISON	PWS (NO SPACING)	NO	
LE-17-41-L	WAYNE	L	NO	
LE-17-42	MADISON	I	NO	
LE-17-43-R	MADISON	I	YES	G-036393
LE-17-45-C	STANTON	C	NO	
LE-17-46-C	STANTON	C	NO	
LE-17-47	DODGE	I	NO	
LE-17-48-R	DODGE	I	YES	G-053323
LE-17-49-R	THURSTON	I	YES	G-048445
LE-17-50-R	WAYNE	I	YES	G-042959
LE-17-51-R	CEDAR	I	YES	G-014932

7.0 RETIREMENT OF GW CONSUMPTIVE USES

During the reporting period, there were no retirements of groundwater uses inventoried or reviewed within the Lower Elkhorn NRD.

8.0 FLOW METER DATA

Water use data, generated from flow meters installed on high capacity wells within the Lower Elkhorn NRD is contained in Appendix B. The District has been gradually accumulating pumping data from high capacity wells equipped with flow meters and is currently housing this information in a data management tool that will be used to manage technical information related to flow meter installations (serial number, brand name, model number, totalizer units, etc.) along with water use information. Many locations require more than one flow meter due to plumbing and equipment limitations and therefore the process of organizing the specifics for each location, well, meter and usage information is a work in progress. Appendix B currently lists over 4,000 individual wells that may or may not have more than one flow meter measuring the flow, due to equipment and/or field configurations.

9.0 WATER BANKING ACTIVITIES

The Lower Elkhorn NRD does not operate or participate in any water banking activities at this time and therefore no data exists for this reporting requirement.

10.0 STEAM FLOW ACCRETION ACTIVITIES

Within the Lower Elkhorn NRD there are currently no operating projects that would create reporting data associated with stream flow augmentation or to compensate for any conjunctive management requirements.

11.0 GROUNDWATER ELEVATION DATA

The Lower Elkhorn NRD collects groundwater elevation data from a network of 234 privately owned irrigation wells located in the District.

The information summarized in Appendix C contains the data collected during March of 2017.

12.0 STREAM-GAGE MEASUREMENTS

The Lower Elkhorn NRD does not maintain any stream gages within the District that are independent of gage-data collected by the United States Geological Survey (USGS) or the Nebraska Department of Natural Resources (NDNR).

13.0 NRD REGULATIONS AND MANAGEMENT ACTIVITIES

The Lower Elkhorn NRD adopted changes to its Groundwater Management Plan in both 2016 and 2017. The associated changes were changes to the controls associated with high-capacity wells only, and no boundary changes were included in those changes.

- Required the installation of a flow meter on all active, high-capacity wells used for agricultural irrigation by Jan. 1, 2018
- Required the installation of a flow meter on all high-capacity wells listed for use as commercial/industrial, public water supply, livestock, or any series of wells when used in conjunction with one another pump greater than 50 gallons per minute by Jan. 1, 2019.

Also, the Board of Directors adopted a new rule; ***Rule 18 – Transfers of Water Uses***, in early 2018 which will allow for the consideration of requests to transfer irrigated acres within the boundaries of the District. The District will limit transfers to achieve its conservation priorities, and will track and report any changes in depletions as required by the Plan.

Additionally, the Board of Directors approved the integration of the components of the Lower Elkhorn NRD Drought Management Plan into the Groundwater Management Plan. The following information titled “Section VII, Goals, Policies, Objectives and Programs” is the reference document that was adopted into the Groundwater Management Plan in January 2018.

Section VII. Goals, Policies, Objectives and Programs

Drought Mitigation Response

To minimize the negative impact to groundwater supplies due to prolonged periods of deficit precipitation and increased groundwater use from all sectors, the District will utilize information provided weekly from the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The U.S. Drought Monitor was implemented in 1999 and is also utilized by USDA to trigger disaster declarations, the Farm Service Agency to determine eligibility for the Livestock Forage Program (LFP) and the Internal Revenue Service to determine eligibility for deferral of taxes on forced livestock sales due to drought.

The Lower Elkhorn NRD will utilize the Drought Severity Classifications, which have been pre-determined by the National Drought Mitigation Center, as the basis for triggering remedial actions to protect groundwater supplies. The NDMC category names and descriptions are:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

See Appendix 9 for a full description of the U.S. Drought Monitor.

Trigger Levels and Action Items

To address the goals of the LENRD Drought Mitigation Plan, the following trigger levels with will be implemented with suggested action items. Any action will need consent from the Board of the LENRD.

- 1) D0 No action suggested
- 2) D1 No action suggested
- 3) D2 Public service announcements, encourage groundwater conservation measures, voluntary water-use limits requested and such other controls as deemed appropriate by the LENRD.
- 4) D3 Water use limits, continue public service announcements, enhanced water level monitoring, utilization of real-time monitoring well water level data and such other controls as deemed appropriate by the LENRD.
- 5) D4 Water use limits, moratorium for new wells or variances to expand water use (conditions of variance), continue public service announcements, enhanced water level monitoring, utilization of real-time monitoring well water level data and such other controls as deemed appropriate by the LENRD.

The LENRD Drought Mitigation Plan is designed to give the LENRD board of director's authority to amend the controls used within the D2, D3 and D4 trigger levels in order to address existing and potential groundwater shortages due to drought conditions. As such, the board of

13.0 NEW DEPLETIONS ACCOUNTING REPORT

Refer to Appendix A for New Depletions Accounting data.

14.0 NEW DATA COLLECTED THROUGH MODELS OR STUDIES

The Lower Elkhorn NRD has been aggressively pursuing the accumulation of geophysical data by cooperating with partner Districts and the Nebraska Department of Natural Resources to complete a 3 mile by 3 mile grid of AEM data within the boundaries of the District. The District has been fortunate to receive outside grant funds from both the Nebraska Environmental Trust and the Nebraska Department of Natural Resources, Water Sustainability Fund to provide supplemental financial support for this effort. More flights are planned for 2018 which will complete the 3 mile grid within the District.

The District is also partnering with the Nebraska State Climate Office to expand the network of Mesonet weather monitoring stations in the District. Two (2) additional monitoring locations are planned to be installed in 2018. The data from these weather stations will provide valuable information to modeling and monitoring efforts, both for water resources and drought management purposes.