Upper Loup Natural Resources District

Basin Water Management Plan Annual Report

Report Year: January 1, 2019 – December 31,2019

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INTRODUCTION

The Upper Loup NRD Board of Directors adopted the Lower Platte River Basin Water Management Plan (LPBWMP), dated October of 2017, on December 14, 2017. As part of the Lower Platte River Basin Coalition, the six other NRD's and the Nebraska Department of Natural Resources also approved the LPBWMP and agreed to cooperatively implement the plan per Interlocal Agreement.

This report is intended to satisfy the Lower Platte River Basin Coalition annual data collection and reporting requirements as described in section 5.0 Plan Review and Monitoring.

The report contains information on those activities required to be tracked for the period January 1, 2019 to December 31, 2019.

CERTIFIED IRRIGATED ACRES

The Upper Loup Natural Resources District (ULNRD) completed certifying ground water irrigated acres in 2008. We have not certified any surface water acres and do not have any co-mingled certified acres. The ULNRD has two types of certified acres; active and inactive. Inactive acres are any certified acres associated with wells that are inactive and do not contain a pump and therefore are not watering any land with ground water. Active acres are all certified acres that are being irrigated or watering land and have a flow meter installed.

The Table below indicates the total number of wells associated with certified acres as well as the total number of certified acres that are currently irrigated. Total number of certified agricultural irrigated acres for 2019 was 84,645 and of that total 71,693 acres were active (~85%).

County	ACTIVE wells w/ certified acres	Certified acres	Active certified acres
Blaine	105	15863	13115
Brown	35	7207	4155
Cherry	52	9142	6906
Grant	13	2780	1674
Hooker	26	4311	3780
Logan	262	34843	32326
McPherson	49	6840	6345
Thomas	38	3659	3392
TOTALS	**580**	**84,645**	**71,693**

AGRICULTURAL USES

Since 2009 the ULNRD has had agricultural ground water users submit annual ground water use amounts under the District's Groundwater Management Area Rules and Regulations. Flow meters are to be installed on all high capacity wells in the entire District, incrementally through May 2020.

For the most accurate reporting purposes, we chose to only include the information obtained from irrigation wells that have flow meters installed. To date of this report 94% of the ULNRD is metered. ** 28 meters across district had stopped working in the 2019 growing season.

County	# of metered wells	Acres watered	Average inches pumped	Mode inches pumped	Total inches pumped	AF depletions	Primary crop
Blaine	105	7,496	5.94	3	368	31	corn
Brown	35	2,632	4.93	4	118	10	grass
Cherry	33	3,280	4.7	3.4	118	10	alfalfa
Grant	9	398	4	2.2	12	1	grass
Hooker	17	1,311	8.5	5	85	7	grass
Logan	265	28385	4.86	5.5	1,109	92	corn
McPherson	48	5,686	6	5.6	279	23	corn
Thomas	18	1,348	4.8	2.7	53	4	alfalfa
TOTALS	**530**	**50,536**	**5.5**		**2,142**	**178.5**	**grass**

MUNICIPAL, COMMERCIAL / INDUSTRIAL USES

Since 2009 the ULNRD has had municipal and commercial / industrial ground water users submit annual ground water use amounts under the District's Groundwater Management Area Rules and Regulations. All active high capacity commercial wells were also required to have flowmeters installed by 2010. * Water bottling facility uses municipal well – not separated – skewed gallons

Municipal Well Summary:

Municipality	Baseline year	Baseline gallons	Baseline per capita use gal / person / day	2019 gallons	2019 AF depletions	2019 per capita use gal / person / day
Dunning	2013	6,450,000	140	5,461,100	17	145
Hyannis	2013	46,106,000	601	39,500,000	121	515
Mullen	2010	73,992,060	398	*86,783,100	266	*467
Stapleton	2010	31,427,580	282	30,500,000	94	274
Thedford	2010	47,118,000	612	38,032,000	117	494
TOTALS		**205,093,640**		**200,276,200**	**615**	

Commercial/Industrial Well Summary:

County	Well Reg #	Use	Base line year	Baseline gallons	2019 gallons	2019 AF
Grant	G-104731	Community Golf Course Irrigation	2011	2,310,000		
Grant	G-170722	Community Golf Course Irrigation	2016			
Grant	G-182260	Used as Domestic Well	Not Recorded	Not Recorded	Not Recorded	Not Recorded
Grant	G-156372	Used as Domestic Well	Not Recorded	Not Recorded	NA	NA
Hooker	G-078662	Golf Course Irrigation	2011	51,104,100	29,289,750	90
Hooker	G-076336	Golf Course Irrigation	2011	28,039,700	16,438,800	50
Hooker	G-111905	Community Golf Course Irrigation	2011	19,068,600	11,922,500	37
Hooker	G-141320	Golf Course – lawn / domestic / fire supp	2014	96,694,500	54,638,000	168
Hooker	G-141180	Golf Course – portable water	2014	32,663,000	14,893,000	46
Hooker	G-134610	Golf Course – emergency backup	2014	0	0	0
Hooker	G-162940	Golf Course Irrigation – Doak	2018		47,489,744	146
Hooker	G-135198	Golf Course Irrigation - Nickalus	2014	56,200,000	44,900,500	138
Hooker	G-137707	Driving Range Irrigation	2014	9,226,500	6,265,500	19
Hooker	G-141035	Turf Nursery	2014	7,920,000	937,900	3
Hooker	G-140590	Golf Course Air Strip	2009	8,640,000		Dead meter
Hooker	G-123215	Redi-mix cement plant	NA			
Hooker	G-158004	Drinking Water Bottling Domestic Well	NA			
Logan	G-127099	Community Golf Course Irrigation	2011			
Thomas	G-116415	Used as Domestic Well	Not Recorded	Not Recorded	NA	NA
Thomas	G-117963	Inactive			NA	NA
Thomas	G-104962	Community Golf Course Irrigation	2014	19,980,000	10,782,800	33
Thomas	G-014205	Tree, shrub & cover crop irrigation	2014	4,217,100	1,273,700	4
Thomas	G-014206	Tree, shrub & cover crop irrigation	2014	6,614,600	7,070,800	22
Thomas	G-014204	Tree, shrub & cover crop irrigation	2014	3,358,200	13,051,000	40
Thomas	G-059745	Tree, shrub & cover crop irrigation	2014	9,924,600	6,760,300	21
Thomas	G-021694	Tree, shrub & cover crop irrigation	2014	4,530,200	4,624,800	14

NEW GROUNDWATER CONSUMPTIVE USES & NEW DEPLETIONS

For the 2019 expansion of irrigated acres the ULNRD received 22 applications with 16 being approved. 1,385 acres were permitted to be developed with 1,325 actually being improved with an estimated groundwater depletion of 216.09.

County	Number of Expansion Permits	Number of Approved Permits
Blaine	10	6
Brown	2	1
Cherry	1	1
Hooker	2	1
Logan	3	3
McPherson	3	3
Thomas	1	1
TOTALS	22	16

County	Use	New Well	Legal S-T-R	New Acres	AF Depletion
Blaine	Crop Production	No	21-24-22	25	4.58
Blaine	Crop Production	Yes	33-24-22	135	27.54
Blaine	Crop Production	No	34-23-21	39	11.23
Blaine	Crop Production	Yes	33-23-21	112	31.92
Blaine	Crop Production	No	27-23-21	59	15.40
Blaine	Crop Production	Yes	26-23-22	65	17.55
Brown	Crop Production	Yes	27-25-23	94	15.79
Hooker	Crop Production	Yes	6-23-33	120	15.84
Cherry	Crop Production	No	28-27-30	260	30.42
Logan	Crop Production	Yes	18-17-28	24	.29
Logan	Crop Production	No	23-17-27	20	.96
Logan	Crop Production	No	25-17-27	20	1.26
McPherson	Crop Production	No	12-19-31	29	1.13
McPherson	Crop Production	Yes	13-19-31	190	6.27
Thomas	Crop Production	No	12-24-26	133	35.91
TOTALS				**1,325**	**216.09**

TRANSFERS

No water transfer permits were granted, cancelled or denied.

WELL CONSTRUCTION PERMITS

NRD Permit No.	County	Use	Status	Replacement	DNR Reg. No.
UL 175 – 19	Blaine	Irrigation	Approved	No	G-187873
UL 176 – 19	Blaine	Irrigation	Approved	No	Not Drilled

RETIREMENT OF GROUND WATER CONSUMPTIVE USES

County	Well Reg #	Use	Legal S-T-R	Pumping gpm	Acres Retiring	AF Depletion (credit)
Blaine	G-042298	Crop Production	1-23-24	1,000	114	31.46
Blaine	G-061745	Crop Production	6-23-23	1,000	142	39.19
Blaine	G-031693	Crop Production	6-23-23	950	139	38.36
TOTALS					**395**	**109.01**

WATER BANKING ACTIVITIES

To date the ULNRD doesn't not have an established water banking system.

STREAM FLOW ACCRETIONS ACTIVITIES

At the time of this report there are no new projects or conjunctive management projects in any stages of development.

GROUND WATER ELEVATION DATA

The ULNRD collected spring static water levels from 115 wells across the District. Water levels maintained across the District with some slight increases noted District wide.

STREAM GAGE MEASUREMENTS

The ULNRD, along with USGS, operates 4 stream gauges within the District.

Station 06775500 Middle Loup at Dunning
Station 06781600 South Loup at Arnold
Station 06775900 Dismal near Thedford
Station 06785500 North Loup at Brewster

Streamflow data can be acquired from USGS's National Water Information System at http://waterdata.usgs.gov/

NRD REGULATIONS / MANAGEMENT ACTIVITIES

The entire ULNRD is in the same Ground Water Management Area and thus abide by the same Rules and Regulations district wide.

Management activities in the District include:

- Any ground water user who irrigates with ground water is required to have obtained certification
- Applications for the construction of a high capacity commercial / industrial wells shall provide a hydrological evaluation as well as the permit fee to the District
- No new high capacity wells (≥ 50 gpm) shall be drilled within 300 feet from any active domestic well or within 1,320 feet of any other high capacity well
- All active commercial / industrial wells shall be equipped with a flowmeter
- All high capacity wells across the entire District shall be equipped with a flowmeter by May 1, 2020
- Annually approving not more than 2,500 acres across the entire District
- Annually collecting, tracking, evaluating, and reporting of: ground water level measurements; municipal, commercial, industrial, and agricultural water use; certified irrigated acres and any changes to certifications; well water construction permits approved, cancelled or denied; variances granted, cancelled or denied; and water transfer permits granted, cancelled, or denied

NEW DATA COLLECTED OR MODEL / STUDY RESULTS

The ULNRD is in year two of a three-year study that will look at the availability of the springs along the South Loup River and its tributaries to maintain consistent flow over periods of prolonged drought. Helping us to better evaluate management strategies needed to mitigate low flow periods along the South Loup.