

Upper Loup Natural Resources District

Annual Report on Water Activities in the Upper Loup NRD

Report Year: January 1, 2018 – December 31, 2018



INTRODUCTION

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, 2018 to December 31, 2018.

CERTIFIED IRRIGATED ACRES

The Upper Loup Natural Resources District (ULNRD) began 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 that belong to 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 2018 was 84,074 and of that total 72,202 acres were active (~86%).

County	ACTIVE wells w/ certified acres	Certified acres	Active certified acres
Blaine	108	16128	13711
Brown	33	7145	4222
Cherry	55	8766	6999
Grant	14	2786	1673
Hooker	26	4183	3741
Logan	262	34923	32469
McPherson	47	6625	6129
Thomas	38	3518	3258

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 with certified acres, 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 89% of the ULNRD is metered.

** total less 12 wells where meters had stopped working

County	# of metered wells	Acres watered	Average inches pumped	Mode inches pumped	Total inches pumped	AF depletions	Primary crop
Blaine	108	12518	8.13	6.5	813	68	corn
Brown	33	3348	7.59	5.5	215	18	Grass
Cherry	33	4515	8.76	5.3	254	21	corn
Grant	8	695	5.31	5	27	2	grass
Hooker	11	1474	10.08	13	107	9	grass
Logan	262	30900	7.39	6.5	** 1840	153	corn
McPherson	47	5912	7.2	7.6	328	27	corn
Thomas	18	1759	6.4	6.7	103	9	alfalfa

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.

In 2018 a new water bottling business started, Sandhills Natural Water. This business is using a 25 gpm domestic well that was drilled in 2010. A cement company also started up an old cement business in 2018 using the same well that pumps 20 gpm.

Municipal Well Summary:

Municipality	Baseline year	Baseline gallons	Baseline per capita use gal / person / day	2018 gallons	2018 AF depletions	2018 per capita use gal / person / day
Dunning	2010	36,095,200	785	2,610,200	8	60
Hyannis	2010	56,000,000	731	40,511,000	124	526
Mullen	2010	73,992,060	398	56,232,200	173	303
Stapleton	2010	31,427,580	282	30,500,500	94	288
Theford	2010	47,118,000	612	44,285,000	136	575

Commercial/Industrial Well Summary:

County	Well Reg #	Use	Base line year	Baseline gallons	2018 gallons	2018 AF depletions
Grant	G-104731	Community Golf Course Irrigation	2011	2,310,000		
Grant	G-170722	Community Golf Course Irrigation	New well 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	32,298,000	99
Hooker	G-076336	Golf Course Irrigation	2011	28,039,700	18,292,300	56
Hooker	G-111905	Community Golf Course Irrigation	2011	19,068,600	10,899,900	33
Hooker	G-141320	Golf Course – lawn / heat pumps	2014	96,694,500	28,561,800	88
Hooker	G-141180	Golf Course – Water for club & resort	2014	32,663,000	5,098,000	16
Hooker	G-134610	Golf Course – emergency backup	2014	0	0	0
Hooker	G-162940	Red Golf Course Irrigation	New 2018		115,670,000	355
Hooker	G-135198	White Golf Course Irrigation	2014	118,634,300	110,900,500	341
Hooker	G-137707	Driving Range & Vegetation Irrigation	2014	9,226,500	11,431,100	35
Hooker	G-141035	Turf nursery / Wildlife habitat	2014	18,464,100	52,844,500	162
Hooker	G-123215	Redi-mix cement plant	New 2018			
Hooker	G-158004	Drinking Water Bottling Domestic Well	New in 2018		9,000	.03
Logan	G-127099	Community Golf Course Irrigation	2011	23,331,000	31,966,025	98
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	12,260,800	38
Thomas	G-014205	Tree, shrub & cover crop irrigation	2014	4,217,100	2,650,100	8
Thomas	G-014206	Tree, shrub & cover crop irrigation	2014	6,614,600	7,803,000	24
Thomas	G-014204	Tree, shrub & cover crop irrigation	2014	3,358,200	1,858,600	6
Thomas	G-059745	Tree, shrub & cover crop irrigation	2014	9,924,600	7,217,700	22
Thomas	G-021694	Tree, shrub & cover crop irrigation	2014	4,530,200	5,906,300	18

NEW GROUNDWATER CONSUMPTIVE USES & NEW DEPLETIONS

Refer to attached excel spreadsheet. A short summary of that information is provided below.

County	Number of Expansion Permits	Number of Approved Permits
Blaine	9	4
Brown	1	1
Cherry	1	1
Hooker	2	2
Logan	5	5
McPherson	3	3
Thomas	4	3

County	Use	New Well	Legal S-T-R	New Acres	AF Depletion
Blaine	Crop Production	Yes	21-24-22	90	16.47
Blaine	Crop Production	Yes	22-24-22	108	19.76
Blaine	Crop Production	Yes	28-24-22	49	9.55
Blaine	Crop Production	No	4-24-23	50	9.15
Brown	Crop Production	No	34-25-23	178	30.44
Cherry	Crop Production	Yes	29-25-32	134	22.11
Hooker	Crop Production	Yes	35-24-32	90	14.58
Hooker	Crop Production	Yes	34-24-32	150	24.75
Hooker	Water Bottling	No	19-24-32		
Hooker	Cement Company	No	21-24-32		
Logan	Crop Production	Yes	3-20-26	130	25.74
Logan	Crop Production	Yes	35-17-28	58	1.22
Logan	Crop Production	No	29-17-28	13	.157
Logan	Crop Production	Yes	22-17-27	38	1.82
Logan	Crop Production	Yes	31-17-27	80	2.16
McPherson	Crop Production	No	18-19-30	22	.792
McPherson	Crop Production	Yes	12-19-31	45	1.75
McPherson	Crop Production	Yes	9-18-30	90	1.08
Thomas	Crop Production	Yes	34-21-26	25	4.95
Thomas	Crop Production	Yes	15-24-27	98	19.99
Thomas	Crop Production	No	12-24-28	47	8.18

TRANSFERS

No water transfer permits were granted, cancelled or denied.

WELL CONSTRUCTION PERMITS

Permits UL 161-169 are for approved acres in 2018. Permits UL 170-174 are for approved acres in 2019. Refer to attached excel spreadsheet. A short summary of that information is provided below.

NRD Permit No.	County	Use	Status	Replacement	DNR Reg. No.
UL 161 - 18	McPherson	Irrigation	Approved	No	G-184776
UL 162 - 18	Hooker	Commercial	Approved	No	Never Drilled
UL 163 - 18	Hooker	Irrigation	Approved	No	G-185472
UL 164 - 18	Hooker	Irrigation	Approved	No	G-185468
UL 165 - 18	Cherry	Irrigation	Approved	No	G-185337
UL 166 - 18	Blaine	Irrigation	Approved	No	G-185789
UL 167 - 18	Blaine	Irrigation	Approved	No	G-185788
UL 168 - 18	Blaine	Irrigation	Approved	No	G-185790
UL 169 - 18	Logan	Irrigation	Approved	No	G-185851
UL 170 -18	Hooker	Irrigation	Approved	No	G-186484
UL 171 - 18	McPherson	Irrigation	Approved	No	Not yet drilled
UL 172 - 18	Logan	Irrigation	Approved	No	G-186495
UL 173 - 18	Brown	Irrigation	Approved	No	Not Yet drilled
UL 174 - 18	Blaine	Irrigation	Approved	No	Not Yet drilled

RETIREMENT OF GROUND WATER CONSUMPTIVE USES

County	Well Reg #	Use	Legal S-T-R	Pumping gpm	Acres Retiring	AF Depletion
Logan	G-022317	Crop Production	5-17-27	1,200	57	1.54
Logan	G-063355	Crop Production	11-19-27	950	153	11.93
Blaine	G-041145	Crop Production	27-24-21	700	30	5.85
Blaine	G-041205	Crop Production	1-23-22	700	30	6.21

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 06775900 Dismal near Thedford
Station 06781600 South Loup at Arnold 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 had a water budget study performed end of 2017 start of 2018. This study was heavily based on the CENEB model and some of the data in our District was not included in the calibration process. This worked for an initial study but it would be in our interest to refine the model to achieve more precise and accurate representation of the hydrologic cycle in our NRD area in the future. This study really just affirmed information we already knew about water inflows and outflows specific to our NRD.