

# Nebraska Department of Natural Resources

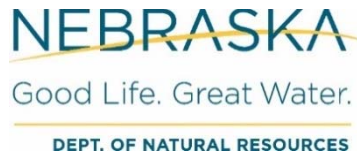
## 2019 Annual Report

*of 2018 Data for the*

***Lower Platte River Basin Coalition's  
Lower Platte River Basin-Wide  
Water Management Plan***



Prepared by the  
Nebraska Department of Natural Resources  
July 2019



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## 1. INTRODUCTION

In April of 2013, The Nebraska Department of Natural Resources (NeDNR) and seven Natural Resources Districts (NRDs) entered into an Interlocal Cooperative Agreement to form the **Lower Platte River Basin Water Management Plan Coalition** (Coalition). The Nebraska Association of Resource Districts (NARD) serves as the coordinator on behalf of the Coalition. The seven NRDs are:

- Lower Platte South NRD,
- Lower Platte North NRD,
- Papio-Missouri River NRD,
- Lower Loup NRD,
- Lower Elkhorn NRD,
- Upper Elkhorn NRD, and
- Upper Loup NRD

The Lower Platte River Basin (Basin) is located in the central and eastern portion of the state (Figure 1). The Coalition recognizes the hydrologic connectivity of groundwater and surface water resources within the Basin, and desires to work together to manage the resources as one. The Coalition jointly developed and adopted the Lower Platte River Basin Water Management Plan (Plan) in early 2018. It is through this Plan that the Coalition will protect and sustain the long-term balance between the water uses and water supplies throughout the areas of the Basin that are within the seven represented NRDs. The Plan requires reporting on an annual basis, which this report serves to fulfill.

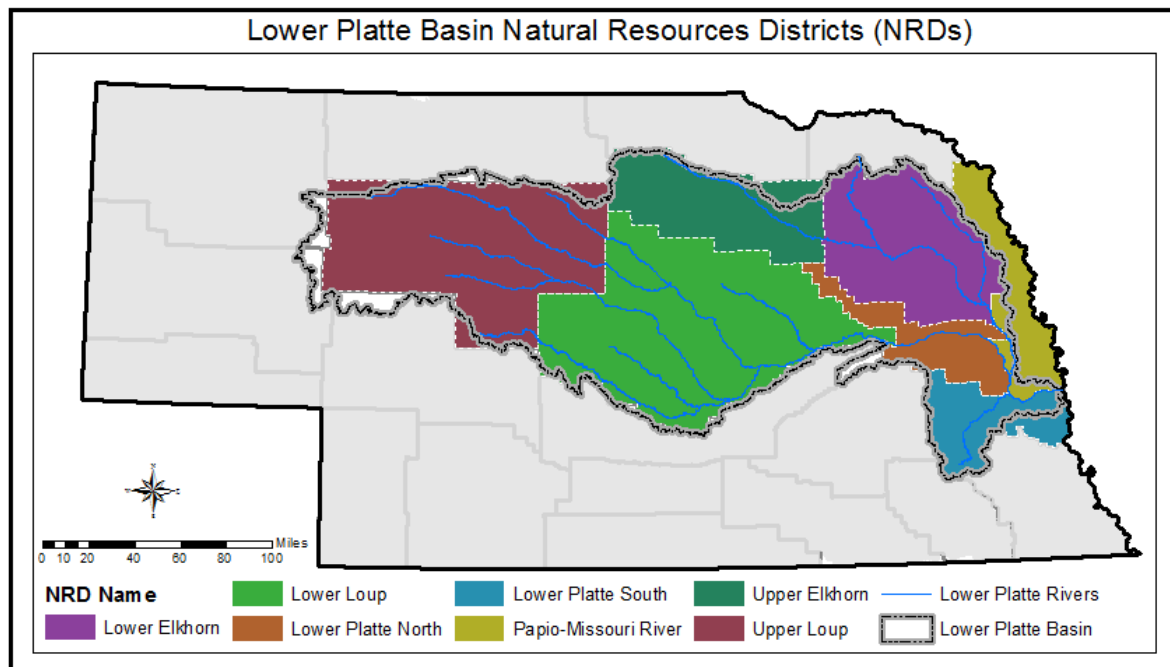


Figure 1. Natural Resources Districts in the Lower Platte River Basin

## 2. NeDNR SURFACE WATER MONITORING AND GROUNDWATER REPORTING

### A. Streamgages in the Lower Platte River Basin

NeDNR maintains 22 water-measuring structures within the Basin in order to measure various parameters of streams. The Plan requires NeDNR to list our maintained streamgages in this report. A listing of NeDNR maintained streamgages is shown in Table 1. There are additional gages within the Basin that are maintained by U.S. Geological Survey. The streamgage data for both NeDNR and U.S. Geological Survey maintained active gages in the Basin may be accessed at: <https://nednr.nebraska.gov/RealTime/>. All website data are provisional and subject to revision unless otherwise denoted.

*Table 1. NeDNR's maintained streamgages within the Basin*

NeDNR's Maintained Streamgages in the Lower Platte River Basin			
Station Name	Station Number	River Basin	Type
Middle Loup River at Rockville	6780000	Loup	Stream
Mud Creek near Sweetwater	6783500	Loup	Stream
Turkey Creek near Dannebrog	6784800	Loup	Stream
Calamus River near Harrop	6787000	Loup	Stream
Calamus River near Burwell	6787500	Loup	Stream
North Loup River at Ord	6788500	Loup	Stream
Mira Creek near North Loup	6788988	Loup	Stream
Cedar River near Spalding	6791500	Loup	Stream
Cedar River near Fullerton	6792000	Loup	Stream
Loup River Power Canal Return at Columbus	82100	Loup	Stream
Beaver Creek at Loretto	6793500	Loup	Stream
Loup River at Columbus	6794500	Loup	Stream
Elkhorn River near Atkinson	6796973	Elkhorn	Stream
South Fork Elkhorn River near Ewing	6798000	Elkhorn	Stream
Elkhorn River at Neligh	6798500	Elkhorn	Stream
Elkhorn River near Tilden	6798780	Elkhorn	Stream
Willow Creek near Foster	6799080	Elkhorn	Stream
Willow Creek near Pierce	232500	Elkhorn	Stream
Union Creek at Madison	6799230	Elkhorn	Stream
Pebble Creek at Scribner	6799385	Elkhorn	Stream
Logan Creek at Pender	6799450	Elkhorn	Stream
Elkhorn River near Winslow	6799510	Elkhorn	Stream

## B. Canal diversion measurements

DNR also measures diversions at 20 canals located within the Basin. The list of canals measured by NeDNR is shown in Table 2. The canal diversion data may be accessed at: <https://nednr.nebraska.gov/RealTime/>. All website data is provisional and subject to revision unless otherwise denoted.

Table 2. NeDNR's measured canals within the Basin

NeDNR's measured canals in the Lower Platte River Basin			
Station Name	Station Number	River Basin	Type
Sargent Canal from Middle Loup River	130000	Loup	Canal
Middle Loup Canal No. 1 from Middle Loup	90000	Loup	Canal
Middle Loup Canal No. 1 Pump from Middle	90200	Loup	Canal
Middle Loup Canal No. 2 from Middle Loup	91000	Loup	Canal
Middle Loup Canal No. 3 from Middle Loup	92000	Loup	Canal
Middle Loup Canal No. 4 from Middle Loup	93000	Loup	Canal
Farwell (Sherman Feeder) Canal from Middle Loup River	47000	Loup	Canal
Middle Loup Canal No. 4 from Sherman Feeder Canal	93200	Loup	Canal
Farwell Main Canal from Sherman Reservoir	48000	Loup	Canal
Farwell South Canal from Sherman Reservoir	49000	Loup	Canal
Taylor-Ord Canal from North Loup River	107000	Loup	Canal
Taylor-Ord Canal inlet to Mirdan Canal	107100	Loup	Canal
Taylor-Ord Canal outlet from Mirdan Canal	107200	Loup	Canal
Kent Canal from North Loup River	76500	Loup	Canal
Calamus Fish Hatchery inlet from Calamus	19800	Loup	Canal
Mirdan Canal from Calamus Reservoir	100500	Loup	Canal
Inlet Canal to Davis Cr. Res. from Mirdan	88500	Loup	Canal
Fullerton Canal from Davis Creek Reservoir	54700	Loup	Canal
Burwell-Sumter Canal from North Loup River	108000	Loup	Canal
Ord-North Loup Canal from North Loup River	109000	Loup	Canal

### C. NeDNR field office surface water pump inspections

The NeDNR field office staff regularly inspects pump sites of surface water permit diversion points as time and staff allow. Not all pump sites are inspected every year, and some pump sites may be visited more than one time per year. NeDNR field offices within the Basin are located in Lincoln, Norfolk, and Ord, Nebraska. As a part of inspections, field staff collect the following data:

- Evidence of pump site;
- Pumps that are running,
- Crops in fields, and
- Irrigation methods.

Figure 2 shows surface water pump inspection sites for the year 2018. Table 3 provides a summary, by NRD, of data collected as a part of surface water pump site inspections.

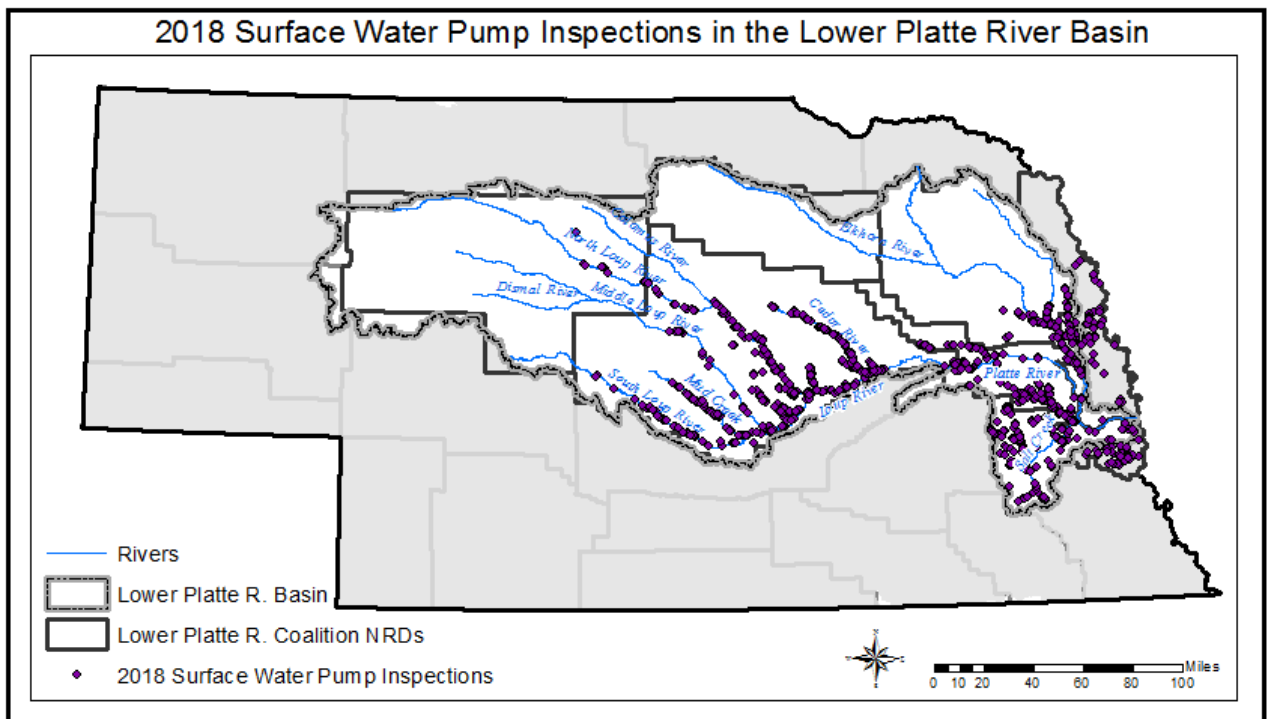


Figure 2. 2018 NeDNR surface water pump inspection sites

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*Table 3. Data from NeDNR surface water pump inspections summarized by NRD*

Surface Water Pump Inspections in 2018	
NRD	Number of Inspections
Lower Elkhorn	82
Lower Loup	241
Lower Platte North	151
Lower Platte South	183
Papio-Missouri River	87
Upper Elkhorn	0
Upper Loup	7
<b>Totals</b>	<b>751</b>

#### D. Surface water administration

No surface water administration (that is, the closing of an upstream junior water right for the benefit of a senior water right) occurred in the 2018 water year, as surface water supplies were sufficient for all permitted uses in the Basin.

#### E. Municipal and industrial surface water permit monitoring

No new municipal surface water permits or changes to this type of permit occurred in 2018. Induced groundwater recharge permits have no reporting requirements as a condition of the permit. Currently, the two appropriators of induced groundwater recharge permits within the Basin are (1) the City of Lincoln and (2) Metropolitan Utilities District (MUD).

- The City of Lincoln has one induced groundwater recharge surface water permit and two municipal groundwater transfer permits for the Ashland wellfield. The monitoring of municipal groundwater transfer permits is discussed in Section E of this report.
- MUD has one induced groundwater recharge surface water permit and one municipal groundwater transfer permit for each of its two wellfields: A-17310 and A-10538 in the south wellfield; A-17318 and A-17356 in the west wellfield. The monitoring of municipal groundwater transfer permits is discussed in Section E of this report.

Table 4 provides a summary of the induced groundwater recharge permits within the Basin.

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*Table 4. City of Lincoln and MUD surface water permits for induced groundwater recharge*

Surface Water Permits for Induced Groundwater Recharge						
Permit Holder	Permit Number	Priority Date	Associated GW Municipal Transfer Permit	Number of Wells	Rate in Cubic feet per second (cfs)	Required Reporting
City of Lincoln	A-17312	January 21, 1964	A-10367	31	704 (summer, May 15 to September 15) 200 (all other seasons)	No
		January 1, 1970	A-16917	7	No additional streamflow	No
		January 1, 1980		6	No additional streamflow	
		January 1, 1990		2	No additional streamflow	
		January 1, 1993		2	No additional streamflow	
MUD	A-17310	January 1, 1970	A-10538	38	480	No
		January 1, 1990		1	20	
	A-17318	October 6, 1993	A-17356	42	160	No

#### F. NeDNR groundwater water permit reporting

The data provided by permit holders of water pumped in 2018, for the applicable permits listed in Table 5, is available electronically upon request. A listing of the types of groundwater permits authorized by NeDNR is included in Section 4. The types of groundwater permits shown in Table 5 are authorized as follows:

- Municipal (groundwater) is a Municipal Transfer Permit pursuant to *Neb. Rev. Stat. § 46-613.01, §§ 46-639 - 46-650,*
- Industrial Transfer (groundwater) is an Industrial Transfer Permit pursuant to *Neb. Rev. Stat. §§ 46-675 – 46-689,* and
- Municipal Notice of Intent is a notice pursuant to *Neb. Rev. Stat. § 46-655.01.*

Table 6 provides a summary of total water withdrawals for the City of Lincoln’s and MUD’s groundwater Municipal Transfer Permits. The complete City of Lincoln and MUD annual reports for these permits are available upon request.



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*Table 5. Groundwater permits issued by NeDNR in the Basin*

Groundwater Permits Issued by NeDNR in the Lower Platte Basin				
Index Number	Permit Holder	Permit Number	Approval Date	Permit Type
3	Lincoln, City of	A-10367	5/28/1964	Municipal
4	Fremont, City of	A-10411	8/21/1964	Municipal
8	Wakefield, City of	A-10531	3/8/1965	Municipal
9	Plattsmouth, City of	A-10533	3/8/1965	Municipal
11	Metropolitan Utilities District	A-10538	6/9/1965	Municipal
17	Leigh, Village of	A-10578	5/10/1965	Municipal
18	Laurel, City of	A-10579	5/10/1965	Municipal
24	Ashland, City of	A-10589	5/10/1965	Municipal
26	Lincoln, City of	A-10595	5/10/1965	Municipal
27	Columbus, City of	A-10596	5/10/1965	Municipal
32	Fremont, City of	A-12171	4/29/1971	Municipal
33	Fremont, City of	A-13909	2/19/1976	Municipal
34	Columbus, City of	A-15704	10/17/1980	Municipal
41	Wayne, City of	A-16525	1/16/1987	Municipal
42	Laurel, City of	A-16530	1/16/1987	Municipal
49	Howells, Village of	A-16888	12/8/1989	Municipal
51	Howells, Village of	A-16911	4/6/1990	Municipal
52	Lincoln, City of	A-16917	8/31/1990	Municipal
53	Wayne, City of	A-16927	6/25/1990	Municipal
54	Bruno, Village of	A-16964	7/12/1990	Municipal
57	Howells, Village of	A-17082	9/16/1991	Municipal
58	Valparaiso, Village of	A-17086	9/16/1991	Municipal
63	Valparaiso, Village of	A-17212	9/29/1992	Municipal
71	Columbus, City of	A-17325	12/11/1995	Municipal
72	Pleasant Dale, Village of	A-17351	4/11/1994	Municipal
73	Eagle, Village of	A-17352	10/27/1994	Municipal
74	Metropolitan Utilities District	A-17356	12/10/1998	Municipal
78	St. Paul, City of	A-17426	1/4/1996	Municipal
121	Clarkson, City of	A-17556	4/2/1998	Municipal
158	Humphrey, City of	A-17807	3/7/2001	Municipal
194	Palmer, Village of	A-17949	2/19/2002	Municipal
128	Ceresco, Village of	A-18018	8/27/2002	Municipal
199	Cuming County Rural Water District #1	A-18024	6/13/2005	Municipal
218	Weston, Village of	A-18070	6/13/2005	Municipal

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Groundwater Permits Issued by NeDNR in the Lower Platte Basin				
Index Number	Permit Holder	Permit Number	Approval Date	Permit Type
212	Springfield, City of	A-18104	4/14/2006	Municipal
225	Cass County Rural Water District #2	A-18163	5/3/2006	Municipal
109	Tyson Fresh Meats, Inc.	I-4	10/22/1996	Industrial Transfer
110	Nebco, Inc.	I-5	9/27/1996	Industrial Transfer
270	Nebco, Inc.	I-5A	7/31/2006	Industrial Transfer
141	Hormel Foods Corp.	I-6	1/5/1999	Industrial Transfer
423	Coleridge, Village of	MNI-22	1/22/2014	Municipal Notice of Intent
261	Waverly, City of	MT-13	9/12/2007	Municipal
262	Cuming County Rural Water District #1	MT-14	6/7/2006	Municipal
263	Pierce, City of	MT-15	7/12/2007	Municipal
264	Madison, City of	MT-16	1/11/2007	Municipal
268	Papillion, City of	MT-18	11/6/2018	Municipal
284	Louisville, City of	MT-23	9/29/2006	Municipal
332	Wayne, City of	MT-24	7/12/2007	Municipal
351	Palmer, Village of	MT-27	10/5/2007	Municipal
375	Broken Bow, City of	MT-35	11/30/2009	Municipal
391	Waverly, City of	MT-38	2/25/2011	Municipal

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*Table 6. Groundwater municipal transfer permits for the City of Lincoln and MUD*

Groundwater Municipal Transfer Permits					
Permit Holder	Permit Number	Priority Date	Maximum Daily Withdrawal	Total Annual Withdrawal	Required Reporting
<b>City of Lincoln</b>	A-10367	June 15, 1931	60 Million Gallons	NA	Yes
	A-16917	January 25, 1990	50 Million Gallons	NA	Yes
<b>MUD</b>	A-10538	February 19, 1965	60 Million Gallons	NA	Yes
	A-17356	March 1, 1994	104 Million Gallons	19 Billion Gallons	Yes

### 3. NeDNR SURFACE WATER PERMITTING ACTIVITY

#### A. New surface water appropriations granted

In 2018, NeDNR took action on several filings by Twin Loups Reclamation District. These filings included:

- Relinquishments in part (relinquishing storage use water for irrigation- acres remained the same),
- Applications for new permits (to irrigate new acres using water from a reservoir), and
- Petitions requesting to redistribute stored water for irrigation.

The Twin Loups Reclamation District’s filings all related to the use of storage water from existing reservoirs, and as such, no additional surface water diversions were authorized by these approvals.

Surface water applications approved from January 1, 2018 to December 31, 2018 for the Lower Platte Basin Coalition NRDs are summarized in Table 7. It should be noted that a few of these permits, shown as the last four rows in Table 7, are actually outside the boundaries of the Lower Platte Basin, as some portions of the Coalition NRDs are in adjacent river basins. Permit use codes are as follows:

- IR (irrigation) is a permit to divert water from natural flow for irrigation,
- MF (manufacturing) is a permit to divert water for manufacturing, construction, or industrial uses,
- ST (storage) is a permit to store water,
- WT (wetland) is a permit to divert water for a wetland, and
- NL (natural lake) is a permit to irrigate from a natural lake.

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*Table 7. Surface water applications approved in 2018 for Basin NRDs*

Surface Water Applications Approved between January 1, 2018 to December 31, 2018									
NRD	Permit Number	Date Approved	Source	Diversion Location (S-T-R)	Sub-basin	Use	Grant in cfs	Grant in af	Acres
Lower Elkhorn	A-19574	Feb. 6	Logan Creek, North	23-29-3E	Elkhorn River Norfolk to Waterloo	IR	2.79	NA	195.2
Lower Loup	A-18990 <sup>1</sup>	Nov. 29	Deer Creek	8-13-19W	South Loup River	IR	0.58	NA	0.0
Lower Loup	A-19493	Dec. 28	Oak Creek	22-22-13W	Lower Loup River	IR	0.17	NA	11.7
Lower Loup	A-19550	Dec. 28	Loup River, Middle	10-19-18W	Middle Loup River	IR	0.73	NA	50.9
Lower Loup	A-19578	Dec. 28	Turkey Creek, Trib. To	12-14-12W	Middle Loup River	IR	1.23	NA	86.1
Lower Loup	A-19543	Dec. 31	Loup River, Middle	29-13-12W	Middle Loup River	IR	0.22	NA	15.5
Lower Loup	A-19604	Dec. 31	Loup River, Middle	35-18-17W	Middle Loup River	IR	0.58	NA	40.9
Lower Loup	A-19606	Dec. 31	Loup River, Middle	28-13-12W	Middle Loup River	IR	0.75	NA	52.7
Lower Loup	A-19613	Dec. 31	Loup River	22-17-4W	Lower Platte River Above North Bend	IR	0.97	NA	68.0
Lower Platte South	A-19462	Jan. 8	Cedar Creek	7-11-12E	Lower Platte River North Bend to Louisville	IR	1.61	NA	112.7
Lower Platte South	A-19598 <sup>2</sup>	June 7	Dee Creek	21-11-9E	Lower Platte River North Bend to Louisville	MF	1.00	NA	NA
Papio-Missouri River	A-19573 <sup>3</sup>	Jan. 29	Platte River	1-14-9E	Lower Platte River North Bend to Louisville	WT	0.11	NA	1.0
Upper Loup	A-19478	Dec. 8	Loup River, Middle	32-21-21W	Middle Loup River	IR	4.83	NA	338.3
Upper Loup	A-19556	Feb. 6	Penny Poke Lake	4-24-23W	North Loup River	NL	2.00	NA	235.0
Papio-Missouri River	A-19600 <sup>4</sup>	Oct. 2	Silver Creek, Trib. To	23-23-10E	Missouri River	ST	NA	49.0	NA
Lower Platte South	A-19582 <sup>4</sup>	Mar. 27	Weeping Water Creek, North Branch	6-10-13E	Nemaha River and Lower Missouri River	IR	1.07	NA	74.8

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Surface Water Applications Approved between January 1, 2018 to December 31, 2018									
NRD	Permit Number	Date Approved	Source	Diversion Location (S-T-R)	Sub-basin	Use	Grant in cfs	Grant in af	Acres
Papio-Missouri River	A-19585 <sup>4</sup>	Nov. 1	Schram Creek	20-14-12E	Missouri River	ST	237.8	NA	NA
Totals <sup>5</sup>							17.57	NA	1208.0

<sup>1</sup>A-18990 provides additional water for land approved for irrigation under a prior appropriation, A-3881, and does not add additional irrigated acres.

<sup>2</sup>A-19598 is a temporary permit that expires one year from date of approval.

<sup>3</sup>This permit is to supply water to a 1 acre wetland, the permit is limited to pump no more than 50 gpm from the Platte River

<sup>4</sup>Permits that were approved that are outside the Lower Platte Basin, but within Coalition NRD boundaries.

<sup>5</sup>Totals for the Grant in cfs, Grant in af, and Acres do not include permits outside the Lower Platte Basin.

## B. Cancellation of surface water appropriations

NeDNR must follow statutory requirements when proceeding with any cancellation, in full or in part, of a surface water appropriation. NeDNR's basis for cancellations pertains to one or more of the following reasons:

- **BU (Beneficial Use):** A field investigation found the appropriator had not perfected their water right by beneficially applying the water, in the time allowed stated in the application approval order.
  - Authority upon which the action was based: *Neb. Rev. Stat. §46-229.02(7)* A water appropriation that has not been perfected pursuant to the terms of the permit may be canceled by the department without complying with sections 46-229.01 to 46-229.04 if the owner of such appropriation fails to comply with any of the conditions of approval in the permit, except that this subsection does not apply to appropriations to which subsection (2) of section 46-237 applies.
- **PDNU (Preliminary Determination of Non-use):** After a field investigation found the appropriation had not been used in the last five years, the owner did not successfully contest the preliminary determination of nonuse.
  - Authority upon which the action was based: *Neb. Rev. Stat. §§ 46-229.02(1) through 46-229.02(6)* which state that if the NeDNR makes a preliminary determination that an appropriation has not been used for more than five consecutive years, and the owner of said appropriation does not successfully contest the determination, then NeDNR may cancel said appropriation in whole or in part.
- **REL (Relinquishment):** Appropriator filed a voluntary relinquishment of water appropriation.
  - Authority upon which the action was based: Department of Natural Resources *Rules for Surface Water, Neb. Admin. Code. Title 457, Chapter 3* which specifies that any appropriation, or part of any appropriation, may be voluntarily relinquished.

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Table 8 shows the Basin surface water appropriations that were canceled in full, canceled in part, or dismissed in 2018. Table 9 shows other surface water appropriations that were canceled in full, canceled in part, or dismissed outside of the Basin, but within Coalition NRD boundaries.

Permit use codes are as follows:

- IR (irrigation) is a permit to divert water from natural flow for irrigation,
- SO (store-only) is a permit to divert water from a reservoir for irrigation, and
- ST (storage) is a permit to store water.

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*Table 8. Surface water appropriations (within the Basin) canceled in full, in part, or dismissed in 2018*

Surface Water Appropriations Canceled in Full, Canceled in Part, or Dismissed- January 1, 2018 to December 31, 2018												
NRD	App. Number	Canceled Date	Source	Status	Diversion/Reservoir Location (S-T-R)	Use	Begin Acres	Canceled Acres	Canceled (cfs)	Canceled (af)	Estimated Last Use Date	Basis for NeDNR Action
Lower Elkhorn	A-8604	2/15/2018	Buffalo Creek	Canceled in Full	26-24-4W	IR	38.0	38.0	0.27	NA	11/17/1987	REL-6440
Lower Elkhorn	A-14037	11/8/2018	Elkhorn River	Canceled in Full	28-21-6E	IR	272.0	272.0	3.89	NA	11/28/1979	PDNU-7045 & PDNU-6910
Lower Elkhorn	A-18612	7/5/2018	Union Creek, Trib. To	Canceled in Full	22-22-1W	ST	NA	NA	NA	36.10 <sup>1</sup>	Dam was never constructed	Failed to File Plans
Lower Elkhorn	A-17739 AR	5/2/2018	Elkhorn River	Canceled in Part	29-24-2W	IR	11.0	6.0	0.08	0.08	10/9/2002	REL-6449
Lower Elkhorn	A-3155	3/27/2018	Elkhorn River	Canceled in Part	29-18-9W	IR	113.0	82.6	0.59	0.22	2/20/1981	REL-6575
Lower Elkhorn	A-14680	3/27/2018	Elkhorn River	Canceled In Part	29-18-7W	IR	15.1	15.1	0.22	0.22	11/9/1979	REL-6576
Lower Loup	A-10573	5/2/2018	Beaver Creek	Canceled in Part	14-21-7W	IR	41.0	5	0.07	NA	11/16/1979	REL-6733
Lower Loup	A-11180	5/21/2018	Pease Reservoir No.1	Canceled in Full	14-12-15W	SO	378.0	378.0	NA	29.9 <sup>2</sup>	2012	PDNU-6171
Lower Loup	A-5198A	6/7/2018	Loup River, North	Canceled in Full	23-15-10W	IR	73.2	73.2	0.55	NA	7/12/2008	REL-6821
Lower Loup	A-6280A	6/7/2018	Loup River, North	Canceled in Full	23-15-10W	IR	27.7	27.7	0.20	NA	1997	REL-6822
Lower Loup	A-10246A	6/7/2018	Loup River, North	Canceled in Full	23-15-10W	IR	100.9	100.9	0.69	NA	1997	REL-6820
Lower Loup	A-3437	7/25/2018	Clear Creek, Trib. To	Canceled in Full	36-17-18W	ST	NA	NA	NA	28.0 <sup>1</sup>	1984	REL-6977

<sup>1</sup> Not included in total either due to dams not built or the dam was breached.

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Surface Water Appropriations Canceled in Full, Canceled in Part, or Dismissed- January 1, 2018 to December 31, 2018												
NRD	App. Number	Canceled Date	Source	Status	Diversion/ Reservoir Location (S-T-R)	U s e	Begin Acres	Canceled Acres	Canceled (cfs)	Canceled (af)	Estimated Last Use Date	Basis for NeDNR Action
Lower Loup	A-15685	9/5/2018	Loup River, North	Canceled in Full	19-21-16W	IR	50.0	50.0	0.71	NA	2001	PDNU-6925
Lower Loup	A-10641	10/2/2018	Cedar River	Canceled in Part	13-20-10W	IR	86.0	50.0	NA	NA	1991	REL-7054
Lower Loup	A-10641R	10/2/2018	Cedar River	Canceled in Full	14-20-10W	IR	17.2	17.2	0.25	NA	1994	REL-7053
Lower Loup	A-3883	10/12/2018	Mud (Beaver) Creek	Canceled in Full	13-13-16W	IR	52.8	52.8	0.44	NA	2009	PDNU-7014
Lower Loup	A-3723	10/12/2018	Mud (Beaver) Creek	Canceled in Full	24-16-13W	IR	18.0	18.0	0.15	NA	1989	PDNU-7017
Lower Loup	A-3882	10/12/2018	Mud (Beaver) Creek	Canceled in Full	29-13-15W	IR	13.8	13.8	0.12	NA	2003	PDNU-7018
Lower Loup	A-15714	11/1/2018	Mud (Beaver) Creek	Canceled in Part	13-14-16W	IR	105.0	75.0	1.07	NA	2013	PDNU-7015
Lower Loup	A-1871A	12/18/2018	Mud (Beaver) Creek	Canceled in Full	1-12-15W	IR	33.2	33.2	0.47	NA	1991	PDNU-7055
Lower Loup	A-1871B	12/18/2018	Mud (Beaver) Creek	Canceled in Full	12-12-15W	IR	113.0	113.0	1.61	NA	2011	REL-7163
Lower Platte North	A-19349	11/8/2018	Robert's Reservoir 254	Canceled in Full	32-15-7E	S O	72.6	72.6	NA	15.9 <sup>2</sup>	Never	BU-7185
Lower Platte North	A-19330	12/18/2018	Fendrich Lake	Canceled in Full	23-16-4E	S O	6.6	6.6	NA	2.2 <sup>2</sup>	Never	BU-7199
Lower Platte South	A-6173	4/16/2018	Oak Creek, North	Canceled in Part	6-11-6E	IR	13.0	0.9	0.01	NA	1987	REL-6667

<sup>2</sup> Not included in total, land never irrigated.



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Surface Water Appropriations Canceled in Full, Canceled in Part, or Dismissed- January 1, 2018 to December 31, 2018												
NRD	App. Number	Canceled Date	Source	Status	Diversion/Reservoir Location (S-T-R)	Use	Begin Acres	Canceled Acres	Canceled (cfs)	Canceled (af)	Estimated Last Use Date	Basis for NeDNR Action
Lower Platte South	A-15332	5/23/2018	Bachelor Creek	Canceled in Full	3-12-13E	IR	109.1	109.1	1.56	NA	2008	REL-6804
Lower Platte South	A-13862A	6/7/2018	Oak Creek, North, Trib. To	Canceled in Full	19-14-5E	IR	188.0	188.0	2.68	NA	1988	REL-6460, REL-6462, REL-6464 & REL-6465
Lower Platte South	A-13137	3/2/2018	Fourmile Creek	Canceled in Part	9-12-13E	IR	72.5	19.1	0.27	NA	2014	PDNU-6363
Lower Platte South	A-14032	3/2/2018	Fourmile Creek	Canceled in Part	9-12-13E	IR	80.0	19.5	0.28	NA	2014	PDNU-6364
Lower Platte South	A-5542	2/23/2018	Salt Creek	Canceled in Full	34-8-6E	IR	39.0	39.0	0.28	NA	2002	REL-6637
Lower Platte South	A-11078	3/27/2018	Elk Creek	Canceled in Part	18-11-5E	IR	31.0	16.6	0.23	NA	1980	REL-6553, REL-6554 & REL-6557
Lower Platte South	A-9108	11/15/2018	Eight Mile Creek	Canceled in Part	20-12-13E	IR	200.0	153.4	2.19	NA	1970's	PDNU-6998 & REL-7109
Lower Platte South	A-10863	11/15/2018	Eight Mile Creek	Canceled in Part	20-12-13E	IR	200.0	153.4	0.14	NA	1978	PDNU-6998 & REL-7109
Totals							2570.7	2199.7	19.02	0.52		

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*Table 9. Surface water appropriations (outside the Basin, but within Coalition NRDs) canceled in full, in part, or dismissed in 2018*

Surface Water Appropriations (All Uses) Canceled in Full, Canceled in Part, or Dismissed January 1, 2018 to December 31, 2018 (outside the Lower Platte Basin, but within Coalition NRDs)											
NRD	App. Number	Canceled Date	Water Division	Status	Diversion/ Reservoir Location (S-T-R)	U s e	Begin Acres	Canceled Acres	Canceled cfs	Canceled af	Basis for NeDNR Action
Papio-Missouri River	A-13865	1/18/2018	Upper Missouri River and Tributaries	Canceled In Full	20-29-7E	IR	94.0	13.8	1.34	NA	REL-6443
Papio-Missouri River	A-16312	2/12/2018	Upper Missouri River and Tributaries	Canceled In Full	6-21-12E	IR	74.5	75.0	10.6	NA	REL-6542
Papio-Missouri River	A-12092	8/17/2018	Upper Missouri River and Tributaries	Canceled In Full	23-25-8E	IR	30.0	33.2	0.43	NA	PDNU-6884
Papio-Missouri River	A-13410	8/17/2018	Upper Missouri River and Tributaries	Canceled In Full	25-21-10E	IR	40.5	113.0	0.58	NA	PDNU-6885
Papio-Missouri River	A-17247	8/17/2018	Upper Missouri River and Tributaries	Canceled In Full	19-21-11E	IR	22.3	72.6	0.32	NA	PDNU-6888
Papio-Missouri River	A-18135	8/17/2018	Upper Missouri River and Tributaries	Canceled In Full	2-23-10E	IR	35.0	6.6	0.50	NA	PDNU-6881
Papio-Missouri River	A-8253A	8/17/2018	Upper Missouri River and Tributaries	Canceled In Full	3-23-9E	IR	3.0	0.9	0.02	NA	PDNU-6883
Papio-Missouri River	A-14348	9/5/2018	Upper Missouri River and Tributaries	Canceled In part	16-23-10E		33.2	109.1	0.19	NA	REL-7008
Papio-Missouri River	A-14192	9/5/2018	Upper Missouri River and Tributaries	Canceled In part	36-10-12E	IR	309.5	188.0	3.36	NA	PDNU-6886
Papio-Missouri River	A-12938	10/2/2018	Upper Missouri River and Tributaries	Canceled In Full	13-20-11E	ST	NA	19.1	NA	12.4	REL-7009
Lower Platte South	A-19122	11/1/2018	Nemaha and Lower Missouri River and Tributaries	Canceled In part	36-10-12E	IR	304.5	19.5	1.79	NA	BUC-7151
Totals							946.5	650.8	19.13	0.52	

### C. Municipal and industrial surface water permitting activity

In the reporting period, NeDNR had no surface water permitting activity within the Basin for the following uses:

- Induced Groundwater Recharge Permits—No cancellations or new permits issued.
- Manufacturing Permits—No cancellations or new permits issued.
- Municipal Permits—No cancellations or new permits issued.

## 4. NeDNR GROUNDWATER PERMITTING ACTIVITY

In 2018, NeDNR had no groundwater permitting activity within the Basin for the following uses:

- Application to Drill Without Regard to Spacing (no cancellations or new permits issued),
- Industrial Groundwater Transfers (no cancellations or new permits issued),
- Industrial Transfer Notice (no cancellations or new permits issued),
- Municipal Groundwater Transfers (no cancellations or new permits issued),
- Municipal Notice of Intent (no cancellations or new permits issued),
- Permit to Violate Well Spacing (no cancellations or new permits issued),
- Transfer to Adjoining State permit (no cancellations or new permits issued).

## 5. ESTIMATED STREAM DEPLETIONS FOR NEWLY PERMITTED SURFACE WATER ACRES

The Plan provides an overview of the agreed-upon methodology to calculate stream depletions for newly permitted irrigated acres. In line with this methodology, NeDNR applied the Net Corn Crop Irrigation Requirement to estimate stream depletions for newly permitted surface water acres (see Table 7 for a listing of permits). The net stream depletion estimates by NRD are shown in Table 10. The permit use codes shown in Table 10 are defined as follows:

- IR (irrigation) is a permit to divert water from natural flow for irrigation,
- MF (manufacturing) is a permit to divert water for manufacturing, construction, or industrial uses,
- ST (storage) is a permit to store water,
- WT (wetland) is a permit to divert water for a wetland, and
- NL (natural lake) is a permit to irrigate from a natural lake.

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Table 10. Estimated stream depletion by NRD for newly permitted surface water acres

Estimated Stream Depletion by NRD for new acres for Surface Water Permits Approved January 1, 2018 through December 31, 2018. <sup>3</sup>							
NRD	Number of Applications Approved 2018	Purpose of Use	Total Net Irrigation Requirement (NIR)	Newly Permitted Acres	Annual Consumptive use in ac-ft. ((NIR * (Newly Permitted Acres))/12)	Peak Season Stream Depletion in Acre-Feet <sup>1</sup>	Non-Peak Season Stream Depletion in Acre-Feet
Lower Elkhorn	1	IR	5.94 in.	195.2	$5.94 * 195.2 = 1,159.49$ ac-in. $1,159.49/12 = \mathbf{96.62}$ ac-ft.	97	0
Lower Loup	7	IR	8.4 in.	325.8	$8.4 * 436.1 = 3,663.2$ ac-in. $3,663.2/12 = \mathbf{305.3}$ ac-ft.	305	0
Lower Platte North	0	0	0	0		0	0
Lower Platte South	1	MF <sup>2</sup>	0	0	<b>10</b> ac-ft.	10 <sup>5</sup>	0
Papio-Missouri River	1	WT <sup>3</sup>	7.7 in.	1	100,000 gal / 325,851 (gal/AF) = 0.307 AF	0.3 <sup>5</sup>	0
Upper Elkhorn	0	0	0	0		0	0
Upper Loup	1	IR	10.9 in.	338.3	$10.9 * 338.3 = 3,687.47$ ac-in. $3,687.54/12 = \mathbf{307.3}$ ac-ft.	307	0
	1	NL <sup>4</sup>	10.87 in.	235	$10.87 * 235 = 2,554.45$ ac-in. $2,554.45/12 = \mathbf{212.87}$ ac-ft.	$212.87 * 0.6 * 0.3 = \mathbf{38.32}$	$212.87 * 0.6 * 0.7 = \mathbf{89.41}$
<b>Total</b>				<b>970.6*</b>		<b>793</b>	

<sup>1</sup> For Irrigated acres whose source of water is surface water, all of the consumptive use comes from the stream in the peak season

<sup>2</sup> Temporary permit for road construction valid for 1 year, maximum amount allowed.

<sup>3</sup> The permit is limited to pump no more than 100,000 gallons per year

<sup>4</sup> The source of the water is a natural lake that is an expression of the groundwater table in the area and does not appear to be connected to a surface water stream; therefore, this permit is being evaluated as if it were a groundwater permit.

<sup>5</sup> Assumed all depletion is occurring in the peak season

## 6. OTHER BASIN PLAN IMPLEMENTATION ACTIONS

The Coalition has taken action in 2018 to implement Action item A of Objective 2 under Goal<sup>1</sup> of the Basin Plan. The Coalition signed a contract with HDR, Inc. to create a database tool for annual reporting. NeDNR signed a separate contract to share costs on this project through a U.S. Geological Survey (USGS) grant, as the ongoing development of the database tool focuses on two primary functions: (1) a tool for members of the Coalition to report and store data on new uses reported annually, and (2) a tool that NeDNR can use statewide for collecting, storing, and reporting water use types not related to irrigated agriculture, that are part of the USGS Water Census. The reason for development of a single database tool with the flexibility and capability to meet both functions is that many of the elements related to the development of the database tool will overlap. Completion of the database tool is anticipated in 2019.

The NeDNR completed the Lower Platte Missouri Tributaries (LPMT) model<sup>2</sup> in December of 2018. The LPMT model covers the northern and central portion of eastern Nebraska, an area that previously had no regional model. The model uses the most up-to-date modeling techniques to provide the Department a scientific basis on which to make informed decisions on the aquifer-stream interaction for the rivers in the area including the Lower Platte River, and Elkhorn River. The LPMT model is currently in use by the Department to analyze the hydrologic connectivity between the streams and aquifers in the region. The Department is in the process of adding the LPMT model to the Department's SUSTAIN graphical user interface, which will aid our partners in their water planning decisions. The NeDNR staff are currently working on updating the new hydrologically connected or 10/50 lines by the end of 2019.

Beginning in 2016, the Lower Platte River Consortium (made up of the Lower Platte Basin NRDs, Metropolitan Utilities District, Lincoln Water System, and Nebraska Department of Natural Resources) embarked on a collaborative effort to develop a drought contingency plan<sup>3</sup> for the Lower Platte River Basin in Nebraska. The focus of this first increment of the Drought Plan is on augmenting surface water supplies in the Lower Platte River near Ashland. It is believed that in addressing the water supply shortages in the Lower Platte River, ancillary benefits to the remaining sectors would exist including: irrigation, power, environmental, and recreational. There are a wide-range of stakeholder interests in the Lower Platte River Basin. The Consortium solicited stakeholder input throughout the planning effort. Two stakeholder workshops and two public open houses were held, and written comments were accepted via comment forms and a project email posted on the project website open to the public.

The LENRD and the NeDNR have signed a contract with JEO Consulting Group (JEO) to develop a pilot-scale project<sup>4</sup> for the LENRD. This project is designed to test incorporating airborne electromagnetic

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<sup>1</sup> Goal 1: Develop and maintain a water supply and use inventory based on the best available data and analysis; Objective 2: Monitor current and future water demands in the Basin; Action Item A: Develop a standard data collection and reporting system for all NRDs in the Lower Platte River Basin for documenting water uses in the Basin.

<sup>2</sup> Goal 1: Develop and maintain a water supply and use inventory based on the best available data and analysis. Objective 1.1: Develop and maintain a comprehensive inventory of the location and source of the Basin's current and future water supplies, water uses and outflows.

<sup>3</sup> Goal 1: Develop and maintain a water supply and use inventory based on the best available data and analysis; Objective 1.5: Evaluate variations in water inventory due to climate cycles.

<sup>4</sup> Goal 1: Develop and maintain a water supply and use inventory based on the best available data and analysis. Objective 1.1: Develop and maintain a comprehensive inventory of the location and source of the Basin's current and future water supplies, water uses and outflows.

survey (AEM) data into a sub-regional flow model at a pilot scale to inform efficiently processing the AEM data into a flow model to cover the entire NRD. In this project, the partners worked to overcome discrepancies between the AEM and geologic data that became obvious during the establishment of the hydrogeologic framework for the pilot-scale model. The consultants customized an approach that combines the AEM and geologic data to provide a solution that allowed them to move the project forward. JEO calibrated the model to observed groundwater levels and stream baseflows in different parts of the model area. They also provided a geospatial assessment (performed a geospatial analysis to understand the differences between the framework created from the AEM data and geologic framework from geologic logs; this was delivered in a GIS Geodatabase format). This task will allow LENRD and NeDNR to better understand how AEM data can most effectively be utilized throughout the remainder of the NRD in a sub-regional model. The consultant's work has yielded invaluable lessons working with both the geologic logs and the AEM data. The process will enable the LENRD and NeDNR to clearly understand the most effective ways to maximize the investment that has been made into AEM data.

The NeDNR has contracted with the University of Nebraska to have UNL School of Natural Resources graduate student Jacqueline Polashek track water levels consistently at selected well sites near AEM flight lines over the irrigation season for 10 well sites within the Lower Platte North Natural Resources District (LPNNRD) SQS2 area in Platte and Colfax Counties<sup>5</sup>. These are data that the NeDNR needs for use in integrated water management planning with the NRDs in order to balance water supplies and uses and to protect the rights of existing users of surface and groundwater. On October 26<sup>th</sup>, 2018, Russell Oakland (LPNNRD employee) and Jacqueline Polashek installed 8 of the 10 sets of equipment at the selected well sites. The remaining two sets of equipment were installed at later dates by the NRD. Because the irrigation season was over by the time these were installed, the data has not been downloaded and collected yet. LPNNRD has access to and monitors this equipment and the tests in the spring. Data will be downloaded during the summer irrigation season to be analyzed.

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<sup>5</sup> Goal 1: Develop and maintain a water supply and use inventory based on the best available data and analysis.  
Objective 1.1: Develop and maintain a comprehensive inventory of the location and source of the Basin's current and future water supplies, waster uses and outflows.