



# **2017 Annual Report of Integrated Water Management Activities in the Republican Basin Within Tri-Basin NRD**



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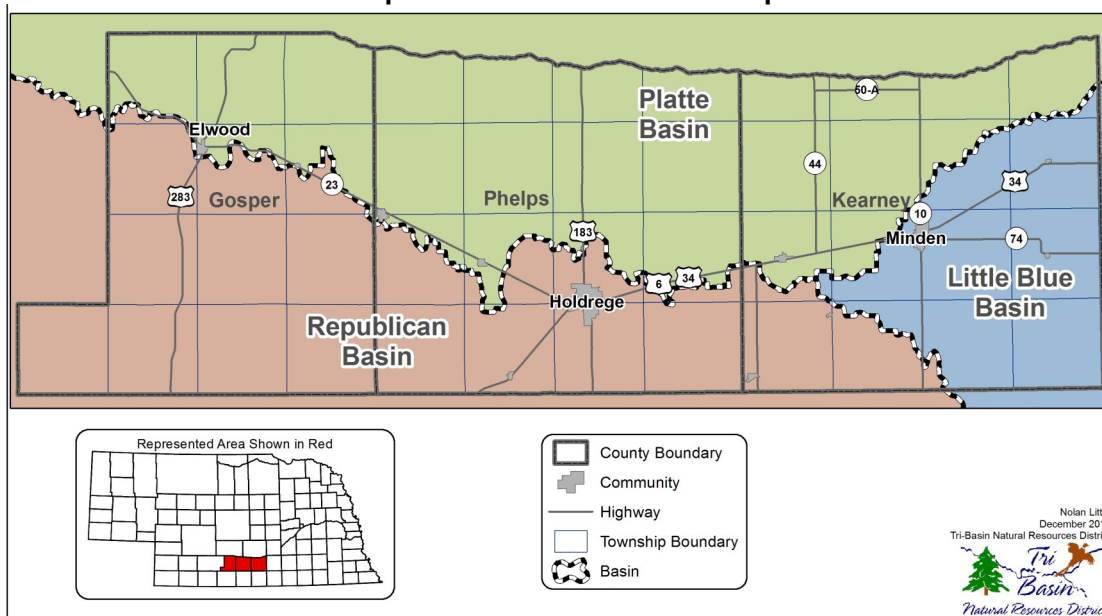
**October 2018**

**ANNUAL REPORT OF WATER USE ACTIVITIES  
IN THE REPUBLICAN BASIN WITHIN TRI-BASIN NRD  
TO MEET THE REQUIREMENTS OF THE JOINT INTEGRATED MANAGEMENT PLAN  
FOR THE 2016 JOINT INTEGRATED MANAGEMENT PLAN PROGRESS REVIEW MEETING**

**I. SUMMARY**

The purpose of this report is to convey information that Tri-Basin Natural Resources District (TBNRD) agreed to supply to the State of Nebraska as part of a joint Integrated Water Resources Management Plan for the Republican River Basin portion of the district.

**Map #1: Basin Reference Map**



**II. INTRODUCTION**

TBNRD encompasses portions of the Republican, Platte and Little Blue River Basins (see map #1, above). The district also contains an area commonly referred to as the “Groundwater Mound,” a large area spanning portions of all three basins that is characterized by groundwater levels that are generally higher than historic “pre-development” groundwater elevations.

More than 100,000 acres of cropland within the Platte Basin portion of TBNRD are irrigated with water diverted from the Platte River and distributed through the canals of the Central Nebraska Public Power and Irrigation District (CNPPID). Surface irrigation water and the canals that distribute it enhance recharge of groundwater supplies within the district. In addition to helping sustain groundwater supplies, this incidental recharge has increased streamflows in Platte and Republican tributaries.

**III. CERTIFIED IRRIGATED ACRES**

The district began certifying irrigated acres in the Republican Basin in 2004. The initial certification process in the Republican Basin ended on September 15,

2004. Since that time, corrections and revisions to the certified acre database have occurred with a net result of 189,883.67 certified irrigated acres in the Republican Basin portion of Tri-Basin NRD as of December 31, 2017. Data regarding certified irrigated acres can be found in **TABLE 1: Certified Irrigated Acres**, below. The comingled acres referred to in the table are acres that may be watered with either groundwater or surface water, or a combination of both. Detailed information about locations and distribution of certified irrigated acres is available in the Tri-Basin NRD office.

<b>TABLE 1: Certified Irrigated Acres</b>					
	<b>Year</b>	<b>Groundwater</b>	<b>CoMingled Acres</b>	<b>Surface Water</b>	
Gosper County	2012	56,489.90	1,057.16	173.00	
	2013	56,501.89	1,013.68	216.48	
	2014	56,494.37	1,013.68	123.48	
	2015	56,671.20	1,013.68	123.48	
	2016	56,707.83	1,013.68	88.48	
	2017	56,590.81	1,017.11	87.98	
Kearney County	2012	40,955.11	427.59		
	2013	40,938.11	427.59		
	2014	40,937.45	427.59		
	2015	40,918.57	427.59		
	2016	40,922.16	427.59		
	2017	40,938.16	427.59		
Phelps County	2012	85,504.59	4,532.56	236.51	
	2013	85,550.50	4,562.40	236.51	
	2014	85,926.68	4,562.66	161.23	
	2015	86,090.68	4,488.25	235.65	
	2016	86,100.60	4,488.25	235.65	
	2017	86,098.12	4,488.25	235.65	
<b>Total</b>	<b>2012</b>	<b>182,949.60</b>	<b>6,017.31</b>	<b>409.51</b>	<b>189,376.42</b>
	<b>2013</b>	<b>182,990.50</b>	<b>6,003.67</b>	<b>452.99</b>	<b>189,447.16</b>
	<b>2014</b>	<b>183,358.50</b>	<b>6,003.93</b>	<b>284.71</b>	<b>189,647.14</b>
	<b>2015</b>	<b>183,680.45</b>	<b>5,929.52</b>	<b>359.13</b>	<b>*189,969.10</b>
	<b>2016</b>	<b>183,730.59</b>	<b>4,929.52</b>	<b>324.13</b>	<b>*189,984.24</b>
	<b>2017</b>	<b>183,627.09</b>	<b>5,932.95</b>	<b>323.63</b>	<b>*189,883.67</b>

\*total does not include 157.8 Harlan County acres

<b>TABLE 2A: Republican Basin Transfers- Acres Original Locations</b>		
<b>NRD Permit Number</b>	<b>Legal Description</b>	<b>Acres Dried Up</b>
TBAT-0309	SW 1/4 Section 3-5- 16	8.7
TBAT-0324	Pt NW 1/4 Section 23-5- 19	6
TBAT-0325	NW 1/4 Section 26-5- 19	5
TBAT-0332	S 1/2 Section 10-6-23	3
TBAT-0333	E 1/2 SE 1/4 Section 9-6- 23	3
	<b>Total</b>	<b>25.7</b>

IV. APPROVED CERTIFIED ACRE AND GROUNDWATER TRANSFERS

A. TBNRD allows certified irrigated acres to be transferred from one parcel to another within the Republican Basin portion of the district, with some limitations. Certified irrigated acres cannot be transferred from parcels with surface water or commingled water resources to parcels that have groundwater wells as their only water source. The NRD also pro-rates certified acre transfers in which acres are transferred from low to high streamflow depletion zones. Between January 1, 2017 and December 31, 2017 the district approved five certified irrigated acre transfers in the Republican Basin. A total of 25.7 certified irrigated acres were involved in these transfers. Data regarding the location, amount and conditions associated with each transfer can be found in **TABLE 2A: Republican Basin Transfers-Acres Original Locations** (above) and **TABLE 2B: Republican Basin Transfers-Destinations for Transferred Acres** (below).

<b>TABLE 2B: Republican Basin Transfers - Destinations for Transferred Acres</b>		
<b>NRD Permit Number</b>	<b>Section</b>	<b>New Irrigated</b>
TBAT-0309	SW 1/4 Section 31-5- 15	8.7
TBAT-0324	SE 1/4 Section 25-5- 19	6
TBAT-0325	NE 1/4 Section 25-5- 19	5
TBAT-0332	SW of SW 1/4 Section 12-6- 23	3
TBAT-0333	SW of SW 1/4 Section 12-6- 23	3
	<b>Total</b>	<b>25.7</b>

B. TBNRD regulates groundwater pumping off of overlying land by requiring landowners to secure groundwater transfer permits before they can pump groundwater to properties that are not under the same ownership. Groundwater transfer permits can only be used to supply groundwater for irrigation of certified irrigated acres. Landowners are required to install flowmeters on wells that are permitted for transfers and to report pumping from these wells annually to TBNRD. TBNRD issued three groundwater

transfer permits involving 18 acres in the Republican Basin between January 1, 2017 and December 31, 2017 (see **TABLE 3: Groundwater Transfers**, below).

<b>TABLE 3: Groundwater Transfers</b>				
<b>NRD Permit Number</b>	<b>Legal Description</b>	<b>Well</b>	<b>Well ID</b>	<b>Neighboring Certified Acres to be watered with well</b>
GWT-0335	NW 1/4 Section 25-5- 19	G-119670	144772	6
GWT-0336	NW 1/4 Section 25-5- 19	G-119670	144772	6
GWT-0337	NW 1/4 Section 25-5- 19	G-119670	144772	6
				<b>18</b>

**V. WELL CONSTRUCTION PERMITS**

A. Since 1989, TBNRD has required landowners to secure well construction permits before they drill wells capable of pumping more than 50 gallons per minute. The district issues three categories of well permits: new well permits, conditional replacement well permits, and replacement well permits.

TBNRD requires landowners to agree to several conditions on the operation of new wells and conditional replacement wells before permits are issued. These conditions are listed in an agreement that is signed by landowners when they apply for these types of well permits. A copy of that agreement is attached to this report as Appendix A.

<b>TABLE 4: TBNRD Well Permits</b>	
<b>Well Permit Type</b>	<b>Permits</b>
New (variance) irrigation	0
Replacement irrigation	5
Conditional replacement irrigation - supplemental to groundwater	3
Dewatering	0
New commercial/industrial [Acre transfer involved]	1

B. **TABLE 4: TBNRD Well Permits** (above) is a breakdown of well permits TBNRD issued in the Republican Basin between January 1, 2017 and December 31, 2017. A detailed listing of well permits issued by TBNRD in 2017 is found in **TABLE 5: Well Permit Summary** (page 6).

**VI. VARIANCES**

TBNRD issues new well permits to owners of parcels without prior irrigation history only after owners have transferred sufficient certified irrigated acres for the intended new use. The TBNRD Board must approve a variance to the rule prohibiting



**TABLE 5: Well Permit Summary**

Permit Number	Well Permit Type	Legal Description	NDNR Reg. Number	NDNR Well ID Number
TBSG-1518	SG-Supplemental to Groundwater	Pt SE 1/4 Section 18-7- 21	G-182116	247245
TBSG-1519	SG-Supplemental to Groundwater	SE 1/4 Section 5-5- 16	G-182853	247422
TBSG-1521	SG-Supplemental to Groundwater	NE 1/4 Section 5-5- 16	G-184538	250907
TBTF-1520	TF-Certified Acre Transfer	SW 1/4 Section 12-6- 23	G-184679	250906
TBRP-G025829-R1	RP- Replacement Well	SW 1/4 Section 3-5- 16	G-025829	247421
TBRP-G025108-R1	RP- Replacement Well	NE 1/4 Section 8-5- 19	G-025108	248039
TBRP-G048034-R2	RP- Replacement Well	SW 1/4 Section 17-5- 17	G-048034	248540
TBRP-G035377-R1	RP- Replacement Well	SW 1/4 Section 32-6- 23	G-035377	251890
TBRP-G084459-R1	RP- Replacement Well	NE 1/4 Section 18-5- 16	G-084459	250908

new well construction before new well permits can be issued. One new well construction permit variance was issued in the Republican Basin between January 1, 2017 and December 31, 2017.

Tri-Basin NRD landowners must meet certain pre-conditions for the board of directors to consider irrigated acre corrections. Landowners must prove not only that land was irrigated during the period 1997-2004, but that land was also irrigated during three of the past five years. Tri-Basin NRD's Republican Basin Corrections data is in **TABLE 6: Republican Basin Certified Irrigated Variances** (below).

**TABLE 6: Republican Basin Certified Irrigated Variances**

Type of Variance	Section	Affected Acres	Comment
Flowmeter Exemption	NE 1/4 Section 34-5- 17	14	Estimate Required
Variance on Well Permit	SW 1/4 Section 12-6- 23	6	transfer acres to be able to drill this well. Well will be used for commercial use. Acres were required for offset.
Certified Acre Correction Request	Lots E-K Section 1-5- 16	12	City limit acres, not assessed as irrigated. Both historic, current and maps confirmed irrigation of crop acres.
Certified Acre Correction Request	All of Block 21 Section 1-5- 16	3.5	City limit acres, not assessed as irrigated. Both historic, current and maps confirmed irrigation of crop acres.

## VII. MUNICIPAL AND INDUSTRIAL ACCOUNTING

TBNRD collects water use data annually from all municipalities and industries within the district. Municipal and industrial water use data for communities and industries located in the Republican Basin reported to TBNRD in 2017 are shown in the next two tables. A summary of Municipal Water Use may be found in **TABLE 7: Republican Basin Municipal Water Use Data** (page 7). **TABLE 8** (page 7) shows Industrial and Commercial Water Use Data.

Municipality	2012	2013	2014	2015	2016	2017
Atlanta	33,219,000	23,124,400	20,357,400	21,729,800	18,953,600	14,161,100
Arapahoe	138,279,000	120,573,000	97,223,000	91,449,000	103,916,000	101,311,000
Holdrege	512,347,700	473,755,500	519,360,800	470,600,100	478,038,800	441,265,200
Wilcox	27,905,000	25,414,900	22,987,500	27,343,300	25,688,000	25,049,600
<b>Total</b>				<b>611,122,200</b>	<b>626,596,400</b>	<b>581,786,900</b>

#### VIII. FLOWMETER DATA

TBNRD requires flowmeters to be installed and annual water use to be reported to TBNRD when landowners drill new or supplemental wells, when irrigation-related cost-share funds are received, or when groundwater is transferred from one property to another. In 2017, landowners reported data from 1,610 metered wells in the Republican Basin, which provided irrigation for 179,220.98 certified irrigated acres. There are 29 wells in the Republican Basin that are exempt from having flowmeters because they irrigate less than 15 acres. All District flowmeter data is reported annually to the Nebraska Department of Natural Resources (NDNR) for Republican River Basin Compact Administration accounting. A summary of Republican Basin water use data is included in this report as Appendix B. Detailed Republican Basin flowmeter data is available from the Tri-Basin NRD office.

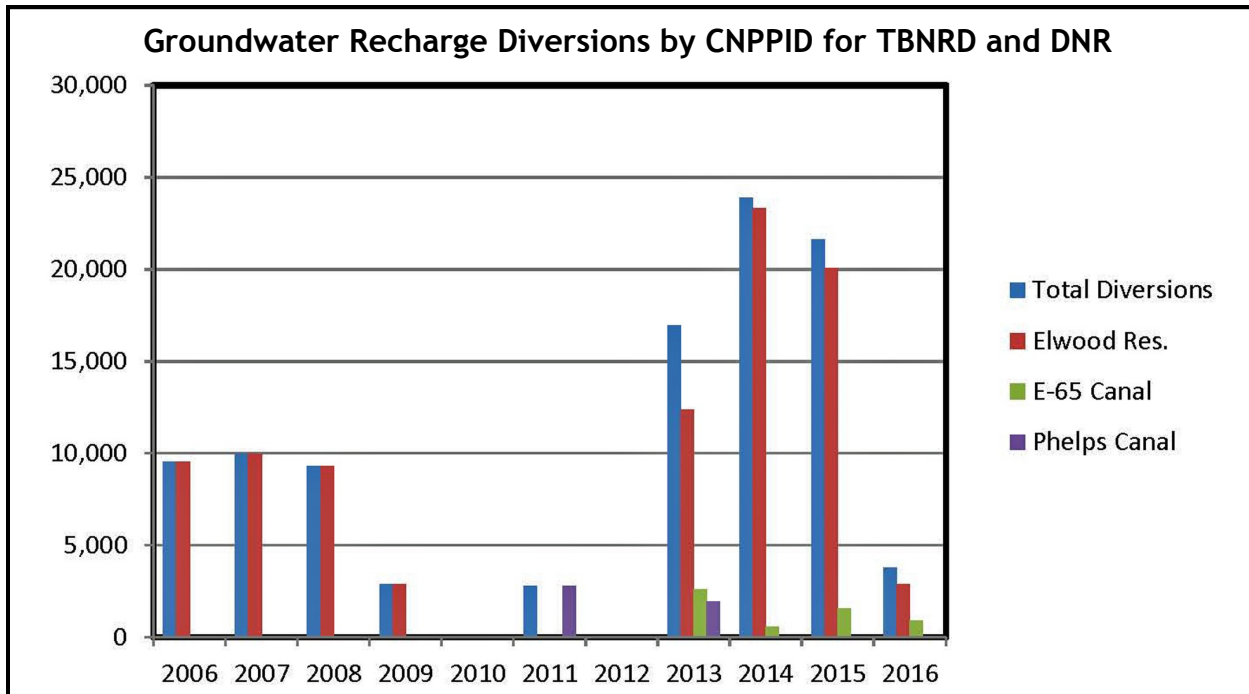
NDNR Reg. Number	Well ID	Owner	Legal Description	Gallons Used	Comments
G-070393	78555	NE Game & Parks, Sac-Wilcox WMA	Section 27 - 5 - 17W	0	Well not Used in 2017
G-030619	37512	City of Holdrege	Section 9 - 5 - 18W	0	Well not Used in 2017
G-025572	32122	City of Holdrege	Section 9 - 5 - 18W	0	Well not Used in 2017
G-135221	169721	Geer Utility	Section 27 - 6 - 18W	1,070,510	Series with G-135220 - 1 Meter
G-135220-R1	171309	Geer Utility	Section 27 - 6 - 18W		Series with G-135221 - 1 Meter
G-009687	14429	Holdrege County Club	Section 29 - 6 - 18W	23,231,500	
G-069908	78071	Holdrege County Club	Section 29 - 6 - 18W	23,000,000	
G-096786	109719	City of Holdrege	Section 34 - 6 - 18W	452,100	
G-071934	80096	Sargent Irrigation Co Inc	Section 34 - 6 - 18W	123,400	
G-070168	78331	Holdrege Irrigation	Section 34 - 6 - 18W	280,370	
G-179201	241336	Tri-Basin NRD	Section 7-6- 21W	1,007,685	

IX. WATER BANKING ACTIVITIES

TBNRD is considering establishing a type of water banking system, but no policy has been agreed upon by the TBNRD Board of Directors.

X. RETIRED ACRES AND OTHER STREAMFLOW ACCRETION ACTIVITIES

Tri-Basin NRD started utilizing the facilities of Central Nebraska Public Power District (CNPPID) to provide groundwater recharge and to augment streamflows when the district and the NE Game and Parks Commission paid CNPPID to divert 9551 acre-feet of water from the Platte River into Elwood Reservoir in Gosper County in 2006. Additional diversions (see Appendix C and graph below) have been made regularly over the past eleven years. In all these instances, diversions were made when Platte streamflows exceeded target flows, or when irrigation deliveries were suspended because of heavy rainfall in the CNPPID irrigated area. Diversions into Elwood Reservoir and E-65 Canal provide groundwater recharge and “imported water” to augment Republican Basin water supplies.



Tri-Basin and Lower Republican NRDs commissioned a feasibility study to examine directly diverting excess flows from the Platte via E-65 Canal to Turkey Creek, a Republican tributary in Gosper County. That study concluded that the diversion project is feasible both hydrologically and economically. The partners have purchased a 330 acre parcel of pasture at the upper end of Turkey Canyon. We have also applied for a water right for the project. Construction is anticipated in 2019, assuming that water right is approved this year.

Tri-Basin NRD also constructed a streamflow augmentation well on the east branch of Turkey Creek. This augmentation well is capable of pumping as much as 1000 acre-feet per year. The well has been tested and is fully functional. It hasn't been used yet for augmentation.



Tri-Basin NRD records indicate that 1654 irrigated acres are enrolled in USDA Conservation Reserve Enhancement Program (CREP) in the Republican Basin portion of the district. Nine of these contracts are set to expire by 2020.

On district water use reports, landowners reported to TBNRD that conservation tillage practices have been adopted or continue to be utilized on 82,790.18 certified irrigated acres in the Republican Basin portion of the district during 2017 (no-till data is available from the Tri-Basin NRD office). University research (Klocke, et al, 2009) indicates that evapotranspiration (ET) is reduced by as much as 3 inches per acre on irrigated cropland, as compared to conventional tillage systems. If the estimates of no-till acres are accurate, as much as 28,243.75 acre-feet of water was conserved in the Republican Basin in TBNRD in 2017 through this conservation practice.

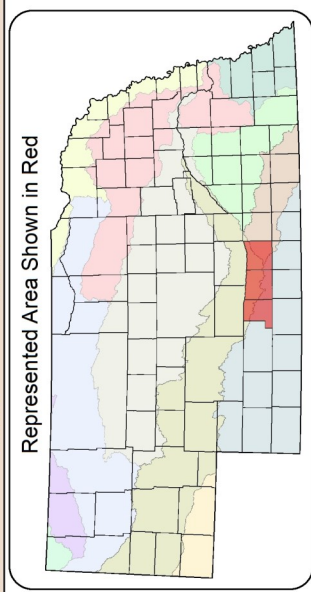
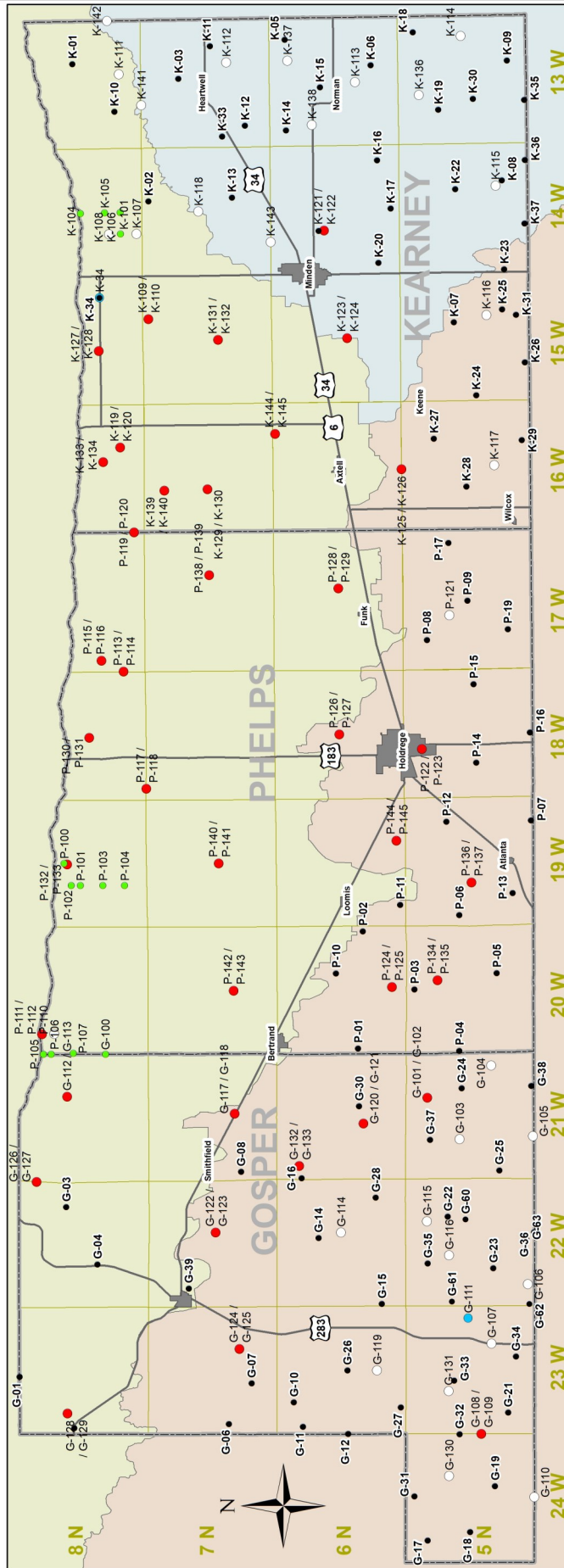
#### XI. GROUNDWATER LEVELS

TBNRD has an extensive network of 121 dedicated groundwater observation wells (44 in the Republican Basin) and 90 irrigation wells (60 in the Republican Basin) that are used to measure groundwater levels (see Map #2, page 10). TBNRD also works cooperatively with CNPPID to gather groundwater level data. Data from 10 wells measured by CNPPID are included in TBNRD's groundwater observation well database. District water level data is reported bi-annually to U.S. Geological Survey and UNL-Conservation and Survey Division. Groundwater level data for the district is available from the Tri-Basin NRD office.

Map #2: Dedicated Groundwater Observation Wells

# Tri-Basin Natural Resources District

## Static Water Measurement Wells



	Irrigation Well		Community
	Single Well		County Boundary
	Transect Well		Township
	Nested Well		Little Blue Basin
	Other Well		Republican Basin
	Highway		Platte Basin

<b>Observation Well Stats:</b>	<b>Irrigation Well Stats:</b>
• 83 Sites	• 9 Platte Basin
• 38 Nested Wells	• 31 Little Blue Basin
• 121 Data Loggers	• 48 Republican Basin
• 12 Hour Interval	• 88 Measured Wells
	• Spring & Fall

Nolan Little  
July 2017  
Tri-Basin Natural Resources District

**Tri-Basin NRD – Republican Basin Annual Report**  
**Appendix A**

**Tri-Basin Natural Resources District**  
**New Well and Conditional Replacement Well Permit**  
**Applicant Certification and Agreement**

Applicant Certification and Agreement to be bound by Conditions and Limitations on operation of a Well permitted as a New Well or as a Conditional Replacement Well pursuant to Rule 1.12, Tri-Basin Natural Resources District Rules and Regulations for Management of Land and Water Resources

NRD Permit # \_\_\_\_\_ Applicant \_\_\_\_\_

Applicant is the owner of the following- described real estate:

\_\_\_\_\_  $\frac{1}{4}$  Section T N - R W \_\_\_\_\_

\*\*\*\*\*

Applicant accepts and agrees to be bound by the following conditions and limitations on the operation of a well that is constructed under the authority of a permit issued by the Tri-Basin Natural Resources District (“NRD”). The conditions and limitations are (check the box and initial those that apply):

1.  Applicant agrees to offset any “new depletions” to streamflows of the Platte River, Little Blue River, Republican River, or their tributaries that may be determined to be associated with use of this well. Applicant agrees to use methods to offset those depletions that are deemed acceptable by the NRD and the State of Nebraska. Applicant understands and agrees that Applicant’s failure to offset said new depletions may result in closure of this well or restrictions being imposed by the NRD on the number of acres of land that can be irrigated by this well.
  
2.  Applicant agrees to abide by well spacing and pumping capacity limitations that apply to the well that is the subject of this permit, whether such limitations arise pursuant to federal or state law or by rule or regulation of the NRD. Applicant understands and agrees that Applicant’s failure to comply with all rules and regulations of the NRD that pertain to this well may result in closure of this well and civil or criminal prosecution and other penalties.
  
3.  Applicant agrees to comply with all current and future rules and regulations of the NRD that pertain to this well. Applicant understands and agrees that Applicant’s failure to comply with all rules of regulations of the NRD that pertain to this well may result in closure of this well and civil or criminal prosecution and other penalties.
  
4.  Applicant agrees to maintain any and all surface water rights associated with the land to be irrigated by this well for the lifespan of the permitted well. Applicant understands and agrees that Applicant’s failure to comply with all rules and regulations of the NRD that pertain to this well may result in closure of this well and civil or criminal prosecution and other penalties (conditional replacement wells only).
  
5.  Applicant agrees to irrigate only land that has been certified for irrigation by the NRD (no new irrigated acres will be allowed). Applicant understands and agrees that Applicant’s failure to prevent irrigation of land not certified for irrigation by the NRD may result in closure of this well and prosecution by the State of Nebraska (conditional replacement wells only).

Applicant certifies that Applicant is familiar with the information contained in this instrument and that to the best of Applicant’s knowledge and belief, such information is true, complete and accurate. Applicant further acknowledges and agrees that the NRD and/or the State of Nebraska may impose additional conditions, limitations and restrictions on operation of the well that is the subject of this permit. Applicant further acknowledges and agrees that the conditions and limitations agreed to herein shall also be binding upon Applicant’s successors-in-interest to the well and/or the subject real estate.

**Tri-Basin NRD – Republican Basin Annual Report**  
**Appendix A**

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete and accurate. I further acknowledge that Tri-Basin Natural Resources District or the State of Nebraska may impose additional conditions, limitations and restrictions on operation of the well that is the subject of this permit.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Witness

**Approval by Tri-Basin Natural Resources District**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Tri-Basin NRD Representative

**Tri-Basin NRD – Republican Basin Annual Report  
Appendix B**

<b>Tri-Basin NRD Republican Basin Water Use</b>									
<b>Kearney County</b>									
	2010	2011	2012	2013	2014	2015	2016	2017	
<b>Certified Irrigated Acres</b>	41,347.80	41,348.06	41,351.41	41,365.70	41,365.04	41,346.16	41,349.75	41,370.75	
<b>Pivots</b>									
Actual Reported Acres	23,420.07	19,638.94	20,353.60	24,643.73	24,765.78	24,650.91	25,014.85	31,018.14	
Gallons Used	2,488,373,015	3,068,789,295	6,888,349,787	7,063,988,419	3,748,611,721	6,060,475,376	7,037,163,570	5,486,469,797	
Average acre inches	3.91	5.75	12.46	10.56	5.57	9.05	10.36	6.51	
<b>Gravity</b>									
Actual Reported Acres	6,336.83	6,379.60	6,331.91	4,280.08	3,817.91	3,584.80	3,458.16	2,624.22	
Gallons Used	1,061,531,125	1,661,542,627	3,198,184,631	2,290,597,600	1,004,222,115	1,610,758,519	1,902,782,114	896,621,660	
Average acre inches	6.2	9.59	18.60	19.71	9.69	16.55	20.26	12.58	
<b>Combination</b>									
Actual Reported Acres	6,762.61	11,616.34	11,607.68	10,100.91	9,834.82	10,367.16	10,052.32	4,977.82	
Gallons Used	738,619,900	2,194,067,314	4,146,802,562	3,338,885,321	1,662,313,886	2,655,672,700	2,938,231,843	970,126,131	
Average acre inches	4.0	6.96	13.16	11.98	6.22	9.43	10.76	7.18	
<b>Drip Tape</b>									
Actual Reported Acres					37.00	37.00	37.00	37.00	
Gallons Used					7,942,200	18,391,400	12,882,000	9,601,700	
Average acre inches					7.91	18.31	12.82	9.56	
<b>Total Irrigation Use</b>									
Actual Reported Acres	36,519.51	37,634.88	38,293.19	39,024.72	38,455.51	38,639.87	38,562.33	38,657.18	
Gallons Used	4,288,524,040	6,924,399,236	14,233,336,980	12,693,471,340	6,423,089,922	10,345,297,995	11,891,059,527	7,362,819,288	
Average acre inches	4.32	6.78	13.69	11.98	6.15	9.86	11.36	7.01	
<b>Misc (gallons used)</b>									
Wildlife Areas						104,039,000	10,227,000	58,700,000	
Other Uses									
<b>Total Gallons Used</b>	4,288,524,040	6,924,399,236	14,233,336,980	12,693,471,340	6,423,089,922	10,449,336,995	11,901,286,527	7,421,519,288	
									<b>February 16, 2018</b>

**Tri-Basin NRD – Republican Basin Annual Report**  
**Appendix B**

<b>Tri-Basin NRD Republican Basin Water Use</b>									
<b>Phelps County</b>									
	2010	2011	2012	2013	2014	2015	2016	2017	
<b>Certified Irrigated Acres</b>	90,122.96	90,327.49	90,253.97	90,349.41	90,650.57	90,814.58	90,823.25	90,822.02	
<b>Pivots</b>									
Actual Reported Acres	47,644.47	47,521.53	47,981.03	51,634.20	50,670.04	51,898.96	53,338.05	55,447.14	
Gallons Used	5,979,452,137	7,841,490,355	18,803,353,405	18,349,493,213	8,303,306,913	11,443,663,774	15,208,478,608	10,910,834,987	
Average acre inches	4.6	6.08	14.43	13.09	6.03	8.12	10.50	7.25	
<b>Gravity</b>									
Actual Reported Acres	17,294.97	16,438.95	16,632.09	8,916.10	7,431.08	7,894.43	7,652.13	6,145.48	
Gallons Used	3,811,778,122	4,761,461,576	9,377,865,221	5,972,669,159	2,358,776,689	3,343,075,013	4,134,425,635	2,295,801,707	
Average acre inches	8.12	10.67	20.76	24.67	11.69	15.60	19.90	13.76	
<b>Combination</b>									
Actual Reported Acres	16,540.54	18,173.41	18,052.33	22,874.36	22,523.31	23,976.76	23,270.96	22,411.53	
Gallons Used	2,340,349,155	3,563,491,797	7,338,795,255	8,950,299,149	3,596,843,384	5,701,876,965	7,562,355,869	4,819,237,536	
Average acre inches	5.2	7.22	14.97	14.41	5.88	8.76	11.97	7.92	
<b>Drip Tape</b>									
Actual Reported Acres					435.40	435.40	670.40	732.40	
Gallons Used					79,980,790	133,860,021	189,132,035	155,429,742	
Average acre inches					6.76	11.32	10.39	7.82	
<b>Total Irrigation Use</b>									
Actual Reported Acres	81,479.98	82,133.89	82,665.45	83,424.66	81,059.83	84,205.55	84,931.54	84,736.55	
Gallons Used	12,131,579,414	16,166,443,728	35,520,013,881	33,272,461,521	14,338,907,776	20,662,475,773	27,094,392,147	18,181,303,972	
Average acre inches	5.48	7.25	15.82	14.69	6.51	9.02	11.75	7.90	
<b>Misc (gallons used)</b>									
Wildlife Areas						14,106,000	45,054,000	58,903,200	
Other Uses									
<b>Total Gallons Used</b>	12,131,579,414	16,166,443,728	35,520,013,881	33,272,461,521	14,338,907,776	20,636,581,773	27,139,446,147	18,240,207,172	<b>February 16, 2018</b>



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<b>Tri-Basin NRD Republican Basin Water Use</b>									
<b>Gosper County</b>									
	2010	2011	2012	2013	2014	2015	2016	2017	
<b>Certified Irrigated Acres</b>	57,896.60	57,760.72	57,742.11	57,732.05	57,631.53	57,808.36	57,809.99	57,589.54	
<b>Pivots</b>									
Actual Reported Acres	33,488.46	34,753.39	36,082.66	34,348.63	34,731.48	34,890.31	35,728.47	36,932.09	
Gallons Used	5,874,547,547	7,451,121,723	13,656,214,745	12,023,940,692	6,214,034,271	7,540,338,329	8,270,724,930	7,646,156,083	
Average acre inches	6.5	7.90	13.94	12.89	6.59	7.96	8.53	7.62	
<b>Gravity</b>									
Actual Reported Acres	10,885.50	10,258.10	9,784.30	5,515.43	5,313.43	4,590.33	4,193.53	3,398.67	
Gallons Used	3,203,004,797	3,327,536,001	6,393,890,714	3,343,182,638	1,735,788,826	1,936,717,927	1,618,658,819	1,485,661,126	
Average acre inches	10.8	11.95	24.07	22.32	12.03	15.54	14.21	16.10	
<b>Combination</b>									
Actual Reported Acres	8,294.00	8,603.37	8,571.25	14,310.51	14,543.61	14,714.00	14,829.31	14,987.23	
Gallons Used	1,472,894,300	1,747,329,785	3,336,512,330	7,034,537,746	3,063,979,197	4,145,559,266	3,830,557,883	3,437,938,742	
Average acre inches	6.54	7.48	14.34	18.10	7.76	10.38	9.51	8.73	
<b>Drip Tape</b>									
Actual Reported Acres					360.77	360.77	510.37	538.76	
Gallons Used					84,044,100	123,091,700	133,466,835	131,221,335	
Average acre inches					8.58	12.57	9.63	8.97	
<b>Total Irrigation Use</b>									
Actual Reported Acres	52,667.96	53,614.86	54,438.21	54,174.57	54,949.29	54,555.41	55,261.68	55,367.75	
Gallons Used	10,550,446,644	12,525,987,509	23,386,617,789	22,401,661,076	11,097,846,394	13,745,707,222	13,853,408,466	12,700,977,286	
Average acre inches	7.38	8.60	15.82	15.23	7.44	9.28	9.23	8.45	
<b>Misc (gallons used)</b>									
Wildlife Areas						76,368,100			
Other Uses									
<b>Total Gallons Used</b>	10,550,446,644	12,525,987,509	23,386,617,789	22,401,661,076	11,097,846,394	13,822,075,322	13,853,408,466	12,700,977,286	
									<b>February 16, 2018</b>

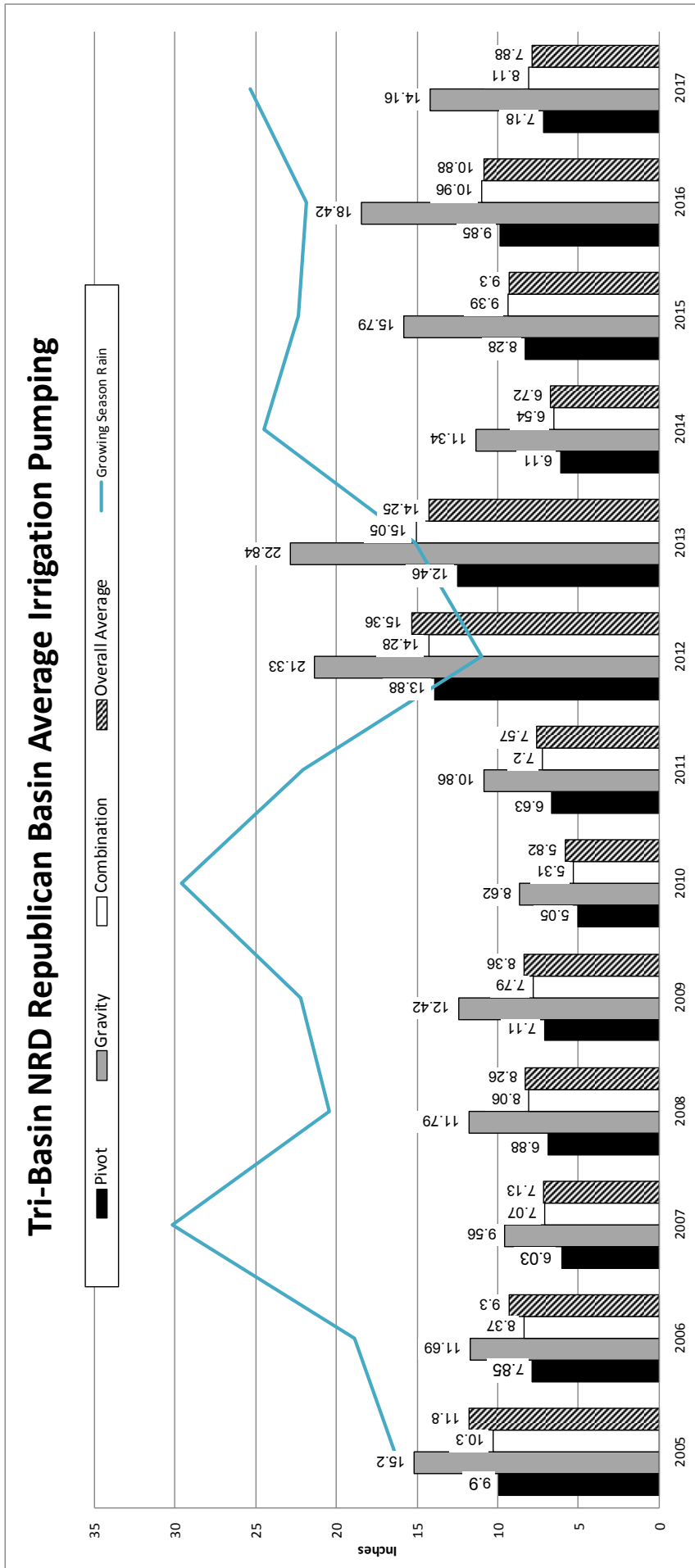
**Tri-Basin NRD – Republican Basin Annual Report**  
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<b>Tri-Basin NRD Republican Basin Water Use</b>									
<b>Kearney County</b>									
	2010	2011	2012	2013	2014	2015	2016	2017	
<b>Certified Irrigated Acres</b>	189,367.36	189,436.27	189,347.49	189,447.16	189,647.14	189,969.10	189,982.99	189,882.31	
<b>Pivots</b>									
Actual Reported Acres	104,553.00	101,913.86	104,417.29	110,626.56	110,167.30	111,440.18	114,081.37	123,397.37	
Gallons Used	14,342,372,699	18,361,401,373	39,347,917,937	37,437,422,324	18,265,952,905	25,044,477,479	30,516,367,107	24,043,460,867	
Average acre inches	5.1	6.63	13.88	12.46	6.11	8.28	9.85	7.18	
<b>Gravity</b>									
Actual Reported Acres	34,517.30	33,076.65	32,748.30	18,711.61	16,562.42	16,069.56	15,303.82	12,168.37	
Gallons Used	8,076,314,044	9,750,540,204	18,969,940,566	11,606,449,397	5,098,787,630	6,890,551,459	7,655,866,568	4,678,084,493	
Average acre inches	8.6	10.86	21.33	22.84	11.34	15.79	18.42	14.16	
<b>Combination</b>									
Actual Reported Acres	31,597.15	38,393.12	38,231.26	47,285.78	46,901.74	49,057.92	48,152.59	41,887.58	
Gallons Used	4,551,863,355	7,504,888,896	14,822,110,147	19,323,722,216	8,323,136,467	12,503,108,931	14,331,145,595	9,227,302,409	
Average acre inches	5.31	7.2	14.28	15.05	6.5	9.39	10.96	8.11	
<b>Drip Tape</b>									
Actual Reported Acres					833.17	833.17	1,217.77	1,308.16	
Gallons Used					171,967,090	275,343,121	335,480,870	296,252,777	
Average acre inches					7.60	12.17	10.15	8.34	
<b>Total Irrigation Use</b>									
Actual Reported Acres	170,667.5	173,383.63	175,396.85	176,623.95	174,464.63	177,400.83	178,755.55	178,761.48	
Gallons Used	26,970,550,098	35,616,830,473	73,139,968,650	68,367,593,937	31,859,844,092	44,713,480,990	52,838,860,140	38,245,100,546	
Average acre inches	5.82	7.57	15.36	14.25	6.73	9.28	10.89	7.88	
<b>Misc (gallons used)</b>									
Wildlife Areas								117,603,200	
Other Uses								244,300	
Harlan County Wells								19,580,400	
<b>Total Gallons Used</b>	26,970,550,098	35,616,830,473	73,139,968,650	68,367,593,937	31,859,844,092	44,713,480,990	52,838,860,140	38,382,528,446	
									<b>February 16, 2018</b>

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<b>Tri-Basin NRD Republican Basin Water Use</b>									
<b>Union Township</b>									
	2010	2011	2012	2013	2014	2015	2016	2017	
<b>Certified Irrigated Acres</b>		8,295.03	8,294.02	8,259.02	8,184.02	8,163.02	8,164.49	8,167.47	
<b>Pivots</b>									
Actual Reported Acres	7,104.63	7,233.7	7,143.75	7,275.42	7,029.67	7,176.67	7,156.70	7,224.67	
Gallons Used	1,211,998,807	1,494,522,702	2,332,264,805	2,029,206,694	955,549,803	1,290,179,868	1,650,537,892	1,439,253,491	
Average acre inches	6.3	7.6	12.0	10.3	5.0	6.6	8.50	7.34	
<b>Gravity</b>									
Actual Reported Acres								45.00	
Gallons Used								10,749,400	
Average acre inches								8.80	
<b>Combination</b>									
Actual Reported Acres	470.8	470.8	476.7	476.7	462.8	462.8	462.8	462.8	
Gallons Used	41,032,600	63,472,500	92,857,600	90,473,600	46,298,000	71,712,700	64,802,400	59,907,800	
Average acre inches	3.2	5.0	7.2	7.0	3.7	5.7	5.2	4.77	
<b>Drip Tape</b>									
Actual Reported Acres									
Gallons Used									
Average acre inches									
<b>Total Irrigation Use</b>									
Actual Reported Acres	7,575.43	7,704.50	7,620.45	7,752.12	7,492.47	7,639.47	7,619.50	7,732.47	
Gallons Used	1,253,031,407	1,557,995,202	2,425,122,405	2,119,680,294	1,001,847,803	1,361,892,568	1,715,340,292	1,509,910,691	
Average acre inches	6.09	7.45	11.72	10.07	4.92	6.57	8.29	7.19	
									<b>February 16, 2018</b>

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Dates of Recharge diversions	Elwood Reservoir Diversions				Elwood Releases				E65 Canal				Phelps Canal				Funds				
	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/othe	Notes	Total \$	PRRIP	NDNR	TBNRD	NGPC
1/24/2006 to 2/13/2006	6131			gravity, Appears to be no charges													NA				
8/8/2006 to 2/13/2006	627			gravity, Appears to be no charges													NA				
12/22/2006 to 12/31/2006	2793			gravity, JO costs, NGPC was billed for 50% of the JO costs													\$ 16,752.44				\$ 16,752.44
5/30/2007 to 6/25/2007	7261			gravity, JO costs													\$ 57,819.51				\$ 57,819.51
7/9/2007 to 7/11/2007	419			gravity, Not billed													NA				
7/31/2007 to 8/8/2007	2277			gravity, JO Costs													\$ 17,686.39				\$ 17,686.39
5/23/2008 to 6/11/2008	6963			4240 af gravity, 2543 pumped, \$ pump & hydro													\$ 66,568.32			\$ 33,284.16	\$ 33,284.16
7/18/2008 to 7/21/2008	1168			pumped, \$pump & hydro													\$ 12,878.02			\$ 6,439.01	\$ 6,439.01
8/10/2008 to 8/19/2008	1193			gravity, \$ for hydro offset													\$ 10,498.40			\$ 5,249.20	\$ 5,249.20
6/21/2009 to 8/21/2009	2906			diversions stopped once irr decision was made													\$ 25,572.80			\$ 12,786.40	\$ 12,786.40
9/28/2011 to 1/5/2012													5558.16	25		down to MP 9.7	\$ 138,954.00	\$ 69,477.00	\$ 41,686.20	\$ 27,790.80	
12/4/2012 to 3/11/2013													4088	25		EA water down to MP 13.3	\$ 102,200.00	\$ 102,200.00			
9/19/2013 to 10/31/2013	12385	35		Pumped													\$ 433,475.00		\$ 260,085.00	\$173,390.00	
												2615	35		Canal to MP 23.7-3.2, Cottonwood WPA, and 36.2S	\$ 91,525.00		\$ 54,915.00	\$ 36,610.00		
													3890	25		down to MP 13.3	\$ 97,250.00	\$ 48,625.00	\$ 29,175.00	\$ 19,450.00	
													2000	25		Funk Lagoon	\$ 50,000.00	\$ 50,000.00			
													3897	NA		Phelps below 13.3 to 51.1 plus 19.1, 38.6. No payment for these diversions.	NA				
6/10/2014 to 7/7/2014	13237	39		Pumped, 15,000 af contract with amendment													\$ 516,243.00		\$ 258,121.50	\$258,121.50	
11/26/2014 to 11/30/2014	1763	39		Pumped, finished contract 11-26 to 11-30													\$ 68,757.00		\$ 34,378.50	\$ 34,378.50	
	37	NA		Not billed but pumped into Elwood													NA				
												70	NA		Not billed, part of Elwood filling, down to MP 5.9		NA				
12/9/2014 to 12/27/2014	8309.2	41		Pumped, 5000 af contract + 5000 af ammendment													\$ 340,677.20		\$ 170,338.60	\$170,338.60	
												567.1	38		down to MP 20.1		\$ 21,549.80	\$ 10,774.90	\$ 10,774.90		
11/26/2014 to 12/31/2014													2345.9	27		down to MP 13.3	\$ 63,339.30	\$ 31,669.65	\$ 31,669.65		
1/1/2015 to 2/14/2015													1654.1	28.08		down to MP 13.3, up to 4000 af, then PRRIP to get 100%	\$ 46,447.13	\$ 23,223.56	\$ 23,223.56		
													543.7	28.08		down to MP 13.3, PRRIP only	\$ 15,267.10	\$ 15,267.10			
1/14/2015 to 1/21/2015	1028.8	42.64		Finished out 10,000 af contract, pumped													\$ 43,868.03		\$ 21,934.02	\$ 21,934.02	
												94.9	39.52		in Canal to MP 5.9		\$ 3,750.45	\$ 1,875.22	\$ 1,875.22		
5/11/2015 to 8/24/2015	6800	42.64		For NDNR/TBNRD, finished out Amendments No 1 thru No 4 (Total 17,000 AF)													\$ 289,952.00		\$ 144,976.00	\$144,976.00	
												200	39.52		Into Cottonwood WPA, part of Amendment No 1		\$ 7,904.00	\$ 3,952.00	\$ 3,952.00		
	9007	42.64		For PRRIP													\$ 384,058.48	\$ 384,058.48			

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Dates of Recharge diversions	Elwood Reservoir Diversions				Elwood Releases				E65 Canal				Phelps Canal				Funds				
	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/othe	Notes	Total \$	PRRIP	NDNR	TBNRD	NGPC
11/23/2015 to 12/18/2015	3227	42.64		For NDNR/TBNRD, 11-16-15 Agreement for 4500 af total Canal and Elwood													\$ 137,599.28		\$ 68,799.64	\$ 68,799.64	
									1273	39.52		For NDNR/TBNRD, 11-16-15 Agreement for 4500 af total Canal and Elwood, down to MP 20.1					\$ 50,308.96		\$ 25,154.48	\$ 25,154.48	
	5776	42.64		For PRRIP, May 2015 Agreement and Ammendment No. 1													\$ 246,288.64	\$ 246,288.64			
11/16/2015 to 12/31/2015													747.5	28.08		down to MP 13.3, 25% of diversions for NDNR, 11-18-15 Agreement	\$ 20,989.80		\$ 20,989.80		
													2242.5	28.08		down to MP 13.3, 75% of diversions for PRRIP, 11-26-14 Agreement	\$ 62,969.40	\$ 62,969.40			
12/19/2015 to 2/1/2016					1118.7			Released from Elwood to E65 Canal. Subtracted from NDNR/State Elwood Account for recharge in E65 Canal, No charge in the contract.									NA				
1/1/2016 to 2/14/2016													489.25	29.2		down to MP 13.3, 25% of diversions for NDNR, 11-18-15 Agreement	\$ 14,286.10		\$ 14,286.10		
													1467.75	29.2		down to MP 13.3, 75% of diversions for PRRIP, 12-11-15 Agreement	\$ 42,858.30	\$ 42,858.30			
3/16/2016 to 4/13/2016													157.5	29.2		down to MP 13.3, 25% of diversions for NDNR, 11-18-15 Agreement	\$ 4,599.00		\$ 4,599.00		
													472.5	29.2		down to MP 13.3, 75% of diversions for PRRIP, 12-11-15 Agreement	\$ 13,797.00	\$ 13,797.00			
3/16/2016 to 3/20/2016									500	41.1		Fullfills 3-17-16 agreement (ammendment NO.1), down to MP 20.1					\$ 20,550.00		\$ 10,275.00	\$ 10,275.00	
									28			Not Billed, excess diversion as part of 500 af agreement					NA				
9/15/2016 to 12/31/2016													1080.50	29.2		down to MP 13.3, 25% of diversions for NDNR, 9-20-2016 Agreement	\$ 31,550.60		\$ 31,550.60		
													3241.40	29.2		down to MP 13.3, 75% of diversions for PRRIP, 9-26-2016 Agreement	\$ 94,648.88	\$ 94,648.88			



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Dates of Recharge diversions	Elwood Reservoir Diversions				Elwood Releases				E65 Canal				Phelps Canal				Funds				
	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/othe	Notes	Total \$	PRRIP	NDNR	TBNRD	NGPC
12/10/2016 to 12/31/2016	1152	44.35		For TBNRD, 12-7-2016 Agreement with \$127,036 limit for TBNRD and 60% NDNR/40% TBNRD split												\$ 51,091.20				\$ 51,091.20	
	2880	44.35		For PRRIP, 9-26-16 Agreement, 8,000 af limit												\$ 127,728.00	\$ 127,728.00				
	1728	44.35		For NDNR, 12-7-2016 Agreement with \$190,554 limit for NDNR and 60% NDNR/40% TBNRD split												\$ 76,636.80		\$ 76,636.80			
12/9/2016 to 12/31/2016									335.9	41.1		For TBNRD, 12-7-2016 Agreement with \$127,036 limit for TBNRD and 60% NDNR/40% TBNRD split, Water down to MP 19.3				\$ 13,805.49				\$ 13,805.49	
									503.8	41.1		For NDNR, 12-7-2016 Agreement with \$190,554 limit for NDNR and 60% NDNR/40% TBNRD split, Water down to MP 19.3				\$ 20,706.18		\$ 20,706.18			
1/1/2017 to 1/30/2017	1631.6	45.68		For TBNRD, 1-23-17 Ammendment for \$164,800 limit.												\$ 74,531.49				\$ 74,531.49	
	2447.4	45.68		For NDNR, 1-23-17 Ammendment for \$247,200 limit.												\$ 111,797.23		\$ 111,797.23			
1/1/2017 to 1/31/2017	4570.7	45.68		For PRRIP, 9-26-16 Agreement, 8,000 af limit												\$ 208,789.58	\$ 208,789.58				
1/1/2017 to 2/14/2017									599.4	42.33		For TBNRD, 1-23-17 Ammendment for \$164,800 limit. Water to MP 19.3				\$ 25,372.60				\$ 25,372.60	
									899.1	42.33		For NDNR, 1-23-17 Ammendment for \$247,200 limit. Water to MP 19.3				\$ 38,058.90		\$ 38,058.90			
1/1/2017 to 2/14/2017													338.50	30.08		down to MP 13.3, 25% of diversions for NDNR, 9-20-2016 Agreement, 2,666 af limit	\$ 10,182.08		\$ 10,182.08		
1/1/2017 to 2/14/2017													1015.40	30.08		down to MP 13.3, 75% of diversions for PRRIP, 9-26-2016 Agreement, 8,000 af limit	\$ 30,543.23	\$ 30,543.23			
9/15/2017 to 10/12/2017													1353.50	30.08		down to MP 13.3, 75% of diversions for PRRIP, 10-20-17 Agreement	\$ 40,713.28	\$ 40,713.28			
													451.20	30.08		down to MP 13.3, 25% of diversions for NDNR, 9-20-2016 Agreement, 2,666 af limit	\$ 13,572.10		\$ 13,572.10		
11/28/2017 to 12/22/2017	6953.6	45.68		For PRRIP, 10-20-17 Agreement, 8,000 af limit, All diversion to PRRIP until 12-15-17 when NDNR/TBNRD signed agreement, then 50%/50% split with them												\$ 317,640.45	\$ 317,640.45				

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Dates of Recharge diversions	Elwood Reservoir Diversions				Elwood Releases				E65 Canal				Phelps Canal				Funds				
	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/other	Notes	AF, in	\$/af	\$/othe	Notes	Total \$	PRRIP	NDNR	TBNRD	NGPC
12/15/2017 to 12/22/2017	657.5	50.68		For TBNRD, 12-15-17 Agreement, 50/50 split with PRRIP and then 40% of that split to TBNRD, 13,500 af limit for State and TBNRD combined													\$ 33,322.10			\$ 33,322.10	
	986.3	50.68		For NDNR, 12-15-17 Agreement, 50/50 split with PRRIP and then 60% of that split to State, 13,500 af limit for State and TBNRD combined													\$ 49,985.68		\$ 49,985.68		
									66.6	42.33		For TBNRD, 12-15-17 Agreement, Contract No. 1024, 40% split to TBNRD, 60% to NDNR, 13,500 af limit for State and TBNRD combined					\$ 2,819.18			\$ 2,819.18	
									100	42.33		For NDNR, 12-15-17 Agreement, Contract No. 1024, 60% of that split to NDNR, 40% split to TBNRD, 13,500 af limit for State and TBNRD combined					\$ 4,233.00		\$ 4,233.00		
12-1-2017 to 12-31-17													1317.70	30.08		down to MP 13.3, 75% of diversions for PRRIP, 10-20-17 Agreement	\$ 39,636.42	\$ 39,636.42			
													439.20	30.08		down to MP 13.3, 25% of diversions for NDNR, 9-20-2016 Agreement, 2,666 af limit	\$ 13,211.14		\$ 13,211.14		