

DUPLICATE ORIGINAL

MOA # 18AG630082

MEMORANDUM OF AGREEMENT
BETWEEN THE
BOSTWICK IRRIGATION DISTRICT IN NEBRASKA
AND
KANSAS BOSTWICK IRRIGATION DISTRICT NO. 2

This AGREEMENT made this 21st day of December, 2018, by and between Kansas Bostwick Irrigation District No. 2, party of the first part, and the Bostwick Irrigation District in Nebraska, party of the second part.

BACKGROUND:

1. The Kansas Bostwick Irrigation District No. 2 (KBID) is a duly organized irrigation district organized under the laws of the State of Kansas and operating under contract with the Bureau of Reclamation, Department of the Interior, and
2. The Bostwick Irrigation District (BID) in Nebraska is an irrigation district operating in Harlan, Franklin, Webster and Nuckolls Counties of the State of Nebraska and operating under a contract with the Bureau of Reclamation, Department of the Interior, and
3. There is situated on the Republican River in Webster County of the State of Nebraska, a diversion dam that is known as the Superior-Courtland Diversion Dam, and
4. The portion of the Courtland Canal located in Webster and Nuckolls Counties in the State of Nebraska, herein designated as Courtland Canal in Nebraska, is used by both parties for transportation of irrigation waters for later use on their respective lands, and
5. Certain subsurface drains as herein designated have been built in Nebraska and for the purposes of this agreement are considered a part of the water supply works that serves both parties, and
6. Both of the aforementioned parties have agreed to contract terms, executed on July 25, 2000, with the United States acting through the Bureau of Reclamation (Reclamation), and
7. Both parties have agreed to assume certain operation, maintenance and replacement (OM&R) activities associated with their respective irrigation districts, and
8. The contract terms dated July 25, 2000, provide for OM&R of the aforementioned Superior-Courtland Diversion Dam, any drains or portions of drains constructed in Nebraska as part of the Courtland Canal water supply works, and the Courtland Canal in Nebraska by one of the parties,

and

9. There are certain OM&R costs associated with the Superior-Courtland Diversion Dam, the drains or portions of drains constructed in Nebraska as part of the Courtland Canal water supply works, and the Courtland Canal in Nebraska, and the parties hereto desire to enter into an agreement for the OM&R of these facilities and an apportionment of the costs associated with these activities, and

10. There are designated irrigation costs incurred by the Corps of Engineers in the OM&R of Harlan County Dam and Harlan County Lake and the parties desire to describe the apportionment and payment of those costs, and

11. The District Operating Plans associated with the contracts dated July 25, 2000, provide for certain operating criteria for Harlan County Dam and Harlan County Lake and Lovewell Dam and Reservoir, and

12. The State of Nebraska through its Compact Call Year designation, and the Republican River Compact Administration through its August 24, 2016, Resolution have modified the operations of Harlan County Lake, and

13. The parties desire to establish separate accounts in Harlan County Lake and change the procedures that determine the annual apportionment of the available water supply of the Bostwick Division so that a specific amount of water in Harlan County Lake is designated for each party's perpetual use, and

AGREEMENT

NOW, THEREFORE, it is agreed by and between the parties hereto as follows:

1. To the procedures for operation, maintenance and replacement of Superior-Courtland Diversion Dam, the drains or portions of drains constructed in Nebraska as part of the Courtland Canal water supply works, and the Courtland Canal in Nebraska as follows:
 - A. KBID will operate, maintain and replace these facilities and BID in Nebraska in consideration thereof will bear a percentage of the costs associated with such activities, and
 - B. For purposes of this agreement, the subsurface drains or portions of subsurface drains constructed in Nebraska as part of the Courtland Canal water supply works shall include but is not limited to Subsurface Drain 34-1-

7C, Subsurface Drain 33-1-7C, Subsurface Drain 33-1-7, Subsurface Drain 33-1-7-3C, Subsurface Drain 9-1-9, and Subsurface Drain 13-1-9, and

- C. The BID in Nebraska shall reimburse the KBID ten-percent(10%) of the OM&R costs incurred by the KBID in performing the OM&R of the Superior-Courtland Diversion Dam, Courtland Canal in Nebraska and the drains referenced in Article 1.B above. These costs include the following: all costs of electricity, personnel and equipment costs associated with OM&R of the diversion dam, canal headgates and river sluice gates, and Willow Creek Drain, etc., and
 - D. BID in Nebraska will furnish the demands for Courtland Canal in Nebraska, Superior Canal and Franklin Pump Canal at least 2 days in advance of usage to Reclamation, and KBID will furnish the demands of KBID above Lovewell Reservoir to Reclamation at least 2 days in advance of usage, and
 - E. The BID in Nebraska will assist, if necessary, in OM&R with its personnel and equipment where practical at rates mutually agreed upon, and
 - F. Special expenses such as judgements, damage claims, and individual causes of action should be borne by each party on the same basis as the OM&R expenses, and
 - G. The accounts associated with these activities shall be settled at the end of each year, and
2. To the allocation and payment of irrigation's share of the Corps of Engineers' OM&R costs associated with Harlan County Dam and Harlan County Lake based on the most recent three-year moving average of each District's total diversions as established by Reclamation. (See the spreadsheet attached hereto and made a part hereof as Attachment A for prior year computations and procedure for computing individual District percentages.) and,
3. To the apportionment of the Bostwick Division water supply on a perpetual basis as follows and further described in Attachment B and by this reference made a part hereof:
- A. The apportionment will provide for a designated storage space in Harlan County Lake for each party and will be accomplished by Reclamation following a procedure that is outlined in Attachment B, and
 - B. Accounting of the storage accounts in Harlan County Lake will be accomplished by Reclamation, and

- C. Day to day calculation of inflows into Harlan County Lake, releases, losses, pickup and usage during the irrigation season will be made as necessary by Reclamation to determine proper accounting of waters at Harlan County Lake, the Superior-Courtland Diversion Dam and the Courtland Canal inflow station to Lovewell Reservoir, and
- D. An adjustment will be made if natural flow diversions are taken for seasoning of canals or for early irrigation (prior to May 15) keep Harlan County Lake or Lovewell Reservoir from reaching the target elevation for the year, and
- E. At the end of each month adjustments will be made to the storage accounts in Harlan County Lake as outlined in Attachment B, and
- F. Deliveries to the irrigators can be made as long as water is available in a party's account and the water can be put to beneficial use, and
- G. If one of the parties uses all of their available storage water from Harlan County Lake and irrigation demands continue and water remains available for irrigation release, it is solely the decision of the party with water remaining as to whether to allow a release for the party that is out of water, and
- H. It is understood that the requirements of the Republican River Compact Administration or Nebraska's Compact Call Year designation may require modification of this apportionment so that water being provided by Nebraska's augmentation projects or other water management activities will be made exclusive to KBID as project water as defined in the contract dated July 25, 2000, and
- I. The parties shall review the terms of this agreement and the procedures within "Attachment B" no later than December 31, 2021, and by mutual agreement of the parties and with the approval of Reclamation may revise and modify the calculation procedures or continue with the current procedures under a new agreement; in the absence of such mutual agreement, the apportionment of the Bostwick Division water supplies will be made as described in Appendix A beginning January 1, 2022; and

This agreement once executed will replace in its entirety Memorandum of Agreement No.

00AG6B0151 as amended, dated October 4, 2000.

THEREFORE, it is agreed that the parties will enact resolutions approving this agreement.

Kansas-Bostwick Irrigation District No. 2

Bostwick Irrigation District in Nebraska



President



President




Secretary



V. Pres/Sec.




Treasurer



Treasurer

APPROVED:

BUREAU OF RECLAMATION
Nebraska-Kansas Area Office



Aaron M. Thompson
Area Manager

COST DISTRIBUTION PERCENTAGES

ATTACHMENT A

Corps of Engineers
HARLAN COUNTY DAM

Revised: 11/30/2017

Year	Bostwick in Nebraska		Kansas-Bostwick No.2		Total Annual Diversions	3-Year Total Diversions	Percentage Nebraska	Distribution Kansas	Use For Year
	(1)	3-Year	(3)	3-Year					
	Annual Diversions	Total Diversions	Annual Diversions	Total Diversions					
1972	48,713	--	50,701	--	99,414	--	--	--	
1973	53,569	--	50,635	--	104,204	--	--	--	
1974	56,204	158,486	80,126	181,462	136,330	339,948	46.6%	53.4%	
1975	52,810	162,583	79,574	210,335	132,384	372,918	43.6%	56.4%	
1976	66,885	175,899	110,406	270,106	177,291	446,005	39.4%	60.6%	
1977	40,226	159,921	59,353	249,333	99,579	409,254	39.1%	60.9%	
1978	50,356	157,467	71,009	240,768	121,365	398,235	39.5%	60.5%	
1979	33,418	124,000	56,927	187,289	90,345	311,289	39.8%	60.2%	
1980	55,360	139,134	83,490	211,426	138,850	350,560	39.7%	60.3%	
1981	27,916	116,694	52,661	193,078	80,577	309,772	37.7%	62.3%	
1982	39,776	123,052	66,436	202,587	106,212	325,639	37.8%	62.2%	
1983	52,238	119,930	83,964	203,061	136,202	322,991	37.1%	62.9%	
1984	58,875	150,889	84,092	234,492	142,967	385,381	39.2%	60.8%	
1985	51,553	162,666	60,331	228,387	111,884	391,053	41.6%	58.4%	
1986	58,665	169,093	69,133	213,556	127,798	382,649	44.2%	55.8%	
1987	47,181	157,399	67,334	196,798	114,515	354,197	44.4%	55.6%	
1988	62,288	168,134	90,207	226,674	152,495	394,808	42.6%	57.4%	
1989	48,740	158,209	68,414	225,955	117,154	384,164	41.2%	58.8%	
1990	41,837	152,865	80,909	239,530	122,746	392,395	39.0%	61.0%	
1991	39,993	130,570	64,110	213,433	104,103	344,003	38.0%	62.0%	
1992	25,471	107,301	20,323	165,342	45,794	272,643	39.4%	60.6%	
1993	17,718	83,182	30,542	114,975	48,260	198,157	42.0%	58.0%	
1994	55,207	98,396	71,277	122,142	126,484	220,538	44.6%	55.4%	
1995	62,291	135,216	80,129	181,948	142,420	317,164	42.6%	57.4%	
1996	46,764	164,262	71,942	223,348	118,706	387,610	42.4%	57.6%	
1997	53,121	162,176	74,549	226,620	127,670	388,796	41.7%	58.3%	
1998	53,122	153,007	75,370	221,861	128,492	374,868	40.8%	59.2%	
1999	55,797	162,040	80,163	230,082	135,960	392,122	41.3%	58.7%	
2000	67,992	176,911	95,161	250,694	163,153	427,605	41.4%	58.6%	
2001	48,226	172,015	72,700	248,024	120,926	420,039	41.0%	59.0%	
2002	43,863	160,081	72,634	240,495	116,497	400,576	40.0%	60.0%	
2003	28,776	120,865	53,191	198,525	81,967	319,390	37.8%	62.2%	
2004	5,800	78,439	30,913	156,738	36,713	235,177	33.4%	66.6%	
2005	4,712	39,288	27,780	111,884	32,492	151,172	26.0%	74.0%	
* 2006	8,979	19,491	29,467	88,160	38,446	107,651	18.1%	81.9%	
** 2007	14,642	28,333	19,904	77,151	34,546	105,484	26.9%	73.1%	
2008	22,954	46,575	47,449	96,820	70,403	143,395	32.5%	67.5%	
2009	32,304	69,900	54,464	121,817	86,768	191,717	36.5%	63.5%	
2010	22,011	77,269	58,233	160,146	80,244	237,415	32.5%	67.5%	
2011	28,262	82,577	54,072	166,769	82,334	249,346	33.1%	66.9%	
2012	45,131	95,404	76,855	189,160	121,986	284,564	33.5%	66.5%	
***2013	24,476	97,869	55,282	186,209	79,758	284,078	34.5%	65.5%	
2014	0	69,607	32,795	164,932	32,795	234,539	29.7%	70.3%	
2015	24,133	48,609	51,980	140,057	76,113	188,666	25.8%	74.2%	
2016	27,500	51,633	48,214	132,989	75,714	184,622	28.0%	72.0%	
2017	26,850	78,483	62,094	162,288	88,944	240,771	32.6%	67.4%	

Data to fill in columns (1) and (3) can be found in Table 6 of AOP

* Bostwick in NE diversions were estimated based on assumption that the district utilized their share of the available water supply in Superior Canal. Bostwick in NE did not actually divert water during the 2006 irrigation season. KS Bostwick diversions were determined to be actual diversions less Bostwick in NE estimated diversions.

** Bostwick in NE diversions were estimated based on assumption that the district used 12,500 acre-feet of the available water supply in Harlan County and their share of the available natural flow at Superior-Courtland Diversion Dam as described in Attachment B of this MOA. Bostwick in NE did not actually divert water during the 2007 irrigation season. KS Bostwick diversions were determined to be actual diversions less diversions resulting from purchase of irrigation water from FCID, FVID and Riverside ID, less Bostwick in NE estimated diversions.

*** Beginning in 2013, KS Bostwick diversions were determined to be actual diversions less diversions resulting from the purchase of non project water. Non project water diversion (purchased) was estimated to be the amount released from Harlan County Lake less a 10 % loss to the Superior-Courtland Diversion Dam.

ATTACHMENT B

Water Supply Apportionment Calculations for Harlan County Lake

1. At the beginning of each year the available irrigation storage in Harlan County Lake (HCL) will be apportioned between the Kansas Bostwick Irrigation District No. 2 (KBID) and the Bostwick Irrigation District (BID) in Nebraska based on their respective carry-over account balances from the previous year.
2. Establish the target elevations for HCL and Lovewell Reservoir, in cooperation with the Corps of Engineers and the appropriate state agencies.
3. Determine whether seasoning of canals or early irrigation deliveries influenced the attainment of the target elevation at Lovewell Reservoir and/or HCL. If so, a storage adjustment may be necessary. It is understood that Superior-Courtland Diversion Dam and the Courtland Canal system may be used for diversion and carriage of waters during the non-irrigation season.
4. At the beginning of June calculate the shutoff content for HCL and compute the water available for irrigation release. Determine the storage water available for irrigation release for each district.
5. Target irrigation supply for aforementioned irrigation districts
 - a. The HCL supply for both districts will have initial storage target values as stated below.
 - i. KBID – 68,000 Acre-feet
 - ii. BID in Nebraska – 45,000 Acre-feet
 - b. The secondary storage target values for each district will be as stated below.
 - i. KBID – 78,000 Acre-feet
 - ii. BID in Nebraska – 52,000 Acre-feet
6. Apportionment of HCL Inflow
 - a. Inflows into HCL shall be split as stated below when the districts' supplies are both below their storage target(s) or both above their storage target(s).
 - i. KBID – Sixty (60) Percent

ii. BID in Nebraska – Forty (40) Percent

- b. If only one of the districts have reached their storage target(s), the other district shall receive one hundred (100) percent of the inflow until they also reach their storage target(s).
- c. Inflows into HCL, designated as project water in accordance with article 3.H. of this Agreement, are to be stored in the project water account for exclusive use by KBID.

7. Inflow apportionment during irrigation season

- a. The total irrigation supply for each district will consist of their storage account balance available in HCL plus each district's share of natural flow and storage releases until irrigation releases cease for the season.
- b. BID in Nebraska will have first use of the first 92.94 cubic feet per second (cfs) of natural inflow into HCL to satisfy BID in Nebraska senior water right appropriations for Franklin Canal, Franklin Pump Canal, and Naponee Canal.
- c. If releases into said canals is less than 92.94 cfs, the remaining natural inflow will be available to satisfy demands for Superior Canal and Courtland Canal.
- d. If remaining natural flow exceeds Superior Canal and Courtland Canal demands, natural inflow into HCL will be used to satisfy BID in Nebraska water right appropriations for Franklin Canal, Franklin Pump Canal, and Naponee Canal that are junior to KBID.
- e. Inflow exceeding total demands should be apportioned as stated in item 6 above.

8. Inflow apportionment following the irrigation season

- a. Once irrigation releases from HCL have ceased for the season all inflows into HCL shall be apportioned as stated in item 6 above.

9. Natural flow (pickup) at Superior-Courtland Diversion Dam

- a. BID in Nebraska will have first use of the first 51.30 cfs of pickup for satisfying BID in Nebraska senior water right appropriations for Superior Canal and Courtland Canal in Nebraska.
- b. KBID shall have the remaining pickup for use in the Courtland Canal including the portion of the 51.30 cfs not being utilized by BID in Nebraska.

- c. If the pickup exceeds KBID's demands, pickup at the Superior-Courtland Diversion Dam will be used to satisfy BID in Nebraska water right appropriations for Franklin Pump Canal, Superior Canal and Courtland Canal in Nebraska that are junior to KBID.
10. Day to day calculations of releases, losses, pickup and usage will be made as necessary by Reclamation to determine proper accounting of waters at Superior-Courtland Diversion Dam. Assumed losses and travel times from Harlan County Dam to Franklin Pump Diversion site 5% (1 day), and to Superior-Courtland Diversion Dam 10% (2 days).
11. Sharing of HCL Evaporation
 - a. Lake evaporation, as computed by Reclamation, will be charged proportionally to each districts storage accounts based on the districts' previous end of month account balances.
12. At the end of each month several adjustments will be considered
 - a. Adjust the computations to the official inflow, outflow and evaporation records.
 - b. Adjust for overuse or underuse of flows at the Superior-Courtland Diversion Dam. Also consider whether the overuse is available for use or used by the other party.
13. After the adjustments are made the new storage values will be input into the calculation process and the previous month storage accounting will be rerun as necessary.
14. At the end of the year the account balances of each district shall be made available the following irrigation season in accordance with the District Operating Plans (described within the contracts dated July 25, 2000).

APPENDIX A

Apportionment Calculations for Harlan County Lake

1. In cooperation with the Corps of Engineers and the appropriate state agencies, establish the target elevations for Harlan County Lake and Lovewell Reservoir.
2. Determine whether seasoning of canals or early irrigation deliveries influenced the attainment of the target elevation at Lovewell Reservoir and/or Harlan County Lake. If so, an adjustment will be necessary. It is understood that Superior-Courtland Diversion Dam and the Courtland Canal system may be used for diversion and carriage of waters during the non-irrigation season.
3. At the beginning of June calculate the shutoff content for Harlan County Lake and compute the water available for irrigation release. Compute the water available for irrigation release from Lovewell Reservoir. It is assumed that inflow will offset evaporation losses during the summer months at both reservoirs.
4. The following table is established to determine the storage or flows necessary to delivery 1 inch of water from the different sources to all of the lands under that canal:

Canal	Acres	Storage Req'd Harlan County (AF)	Storage Req'd Lovewell (AF)	Pickup Required at Div. Dam (AF)
Franklin	11262	2079		
Naponee	1628	237		
Franklin Pump	2106	299		
Superior	5972	1080		972
Courtland (NE)	1967	223		201
Total in Nebraska	22935	3918		
Upper Courtland (KS)	13378	2705		2434
Lower Courtland	29122	5975	4092	
Total in Kansas	42500	8680		

5. Determine the storage water available for irrigation release from Lovewell Reservoir and

then determine the estimated inches of farm delivery for the Lower Courtland Canal using the values from the above table.

6. Estimate the length of irrigation season so that the delivery from pickup can be computed. Deliveries of an inch of water each 6 to 7 days is anticipated. Using values from the above table and assuming 80 cfs available pickup compute the water supply from pickup for the lands served by Superior, Courtland (NE) and Upper Courtland(KS) canals.
7. Using the values from the above table determine the storage required by canal in Harlan County Lake so that the deliveries can be equal to the inches of delivery in Step 5.
8. Determine the remaining storage available for irrigation release and convert to inches of available irrigation water for all lands.
9. Calculate the total storage water in Harlan County Lake that is assigned to each District and adjust for use prior to June 1.
10. Day to day calculations of releases, losses, pickup and usage will be made as necessary by Reclamation to determine proper accounting of waters at Superior-Courtland Diversion Dam and the Courtland Canal inflow station to Lovewell Reservoir (34.8). Assumed losses and travel times from Harlan County Dam to Franklin Pump Diversion site 5% (1 day), and to Superior-Courtland Diversion Dam 10% (2 days). Assumed losses from and travel times from Superior-Courtland Diversion Dam to Courtland Canal State Line 12.3% (1 day) and from state line to Courtland Canal inflow station to Lovewell reservoir 13.2% (1 day).
11. At the end of each month several adjustments will be considered:
 - A. Adjust the computations to the official inflow, outflow and evaporation records.
 - B. Adjust for overuse or underuse of flows at the Superior-Courtland Diversion Dam. Also consider whether the overuse is available for use or used by the other party.
 - C. Adjust for pickup variation from 80 cfs at the diversion dam.
 - D. Adjust for inflows in excess of evaporation loss at Harlan County Lake and Lovewell Reservoir. For Lovewell Reservoir take into account whether canal inflows are bypassed to the Lower Courtland Canal.
12. If no storage releases are being made and Harlan County Lake and Lovewell Reservoir are at the target elevations, the water at the Superior-Courtland Diversion Dam will be

apportioned according to the ratio of the values in the last column of the table in item 4. These values would be 32.5% for Bostwick Irrigation District in Nebraska and 67.5% for Kansas Bostwick Irrigation District No. 2.

13. After the adjustments are made the new values will be input into the calculation process and the previous month storage accounting will be rerun as necessary.