Non-Binding Arbitration initiated March 21, 2013

pursuant to

Decree of May 19, 2003, 538 U.S. 720
Kansas v. Nebraska & Colorado
No. 126 Orig., U.S. Supreme Court

Report on the

Colorado Compact Compliance Pipeline Proposal

Republican River Compact

Response to proposal prepared by State of Colorado, dated April 5, 2013

Prepared by

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Introduction

The purpose of this report is to present a response to the Colorado proposal for augmentation of stream flow as part of the Colorado Compliance Pipeline Proposal (Colorado DWR, April 5, 2013). This report discusses Colorado's response to objections raised by Kansas' during the previous arbitration related to Colorado's first proposed augmentation plan (Arbitrator's Final Decision, October, 2010). Specifically, this report focuses on Colorado's first response relating to Colorado's failure to determine the augmentation credit using the RRCA Groundwater Model as required by the FSS.

In the previous arbitration over Colorado's proposed augmentation plan, the arbitrator found that Colorado's proposal did not meet the requirements of the FSS because it did not use the RRCA Groundwater Model to calculate the amount of the augmentation credit (Arbitrator's Decision, 2010, page 7 of 22). The arbitrator further recommended that a 10% reduction in the augmentation credit was a "reasonable reflection of the potential impact based on seasonal deliveries" (Arbitrator's Final Decision, 2010, page 11 of 22). This reduction was based on calculations made by Colorado of losses that would occur when the augmentation water is added to the stream system during the winter season (Transcript of Hearing, Vol.1, pages 181-183).

Background

The FSS states that credits associated with future augmentation projects will be calculated with the RRCA Groundwater Model (FSS, Sect. IV-H, page 25).

> H. Augmentation credit, as further described in Subsection III.B.1.k., shall be calculated in accordance with the RRCA Accounting Procedures and by using the RRCA Groundwater Model.

The current Colorado proposal does not use the RRCA Groundwater Model to calculate the augmentation credit. Rather, the credit is presumed to be 100% of the augmentation amount. The credit is proposed to be used to offset stream depletions to the North Fork of the Republican River.

The Colorado proposal does include augmentation water in the calculation of groundwater consumptive beneficial use (CBCUg) for each State. The proposal includes augmentation water in both the pumping and no-pumping runs of the model for each State. This presents a considerable conceptual problem of understanding where the augmentation water would be derived from in a model run where there is no pumping in Colorado. It also creates a situation in

which the CBCUg for Kansas and Nebraska is increased over what it would be if augmentation water were not present.

Calculation of Augmentation Credit using the RRCA Groundwater Model

The Colorado proposal did not include calculations to demonstrate what the impacts would be under hypothetical future conditions of calculating the augmentation credit using the RRCA Groundwater model. However, Colorado did provide backup materials from its discussions with Kansas that can be used to illustrate results that might be expected from the Colorado proposal.

Based on the materials provided by Colorado, Kansas has calculated what the augmentation credit would be using the RRCA Groundwater Model. These results were obtained by comparing model runs with and without augmentation water. The amount of augmentation water assumed in the hypothetical calculations varies over the study period from 4,000 acre feet per year initially to as much as 13,600 acre feet per year during the later years of the period. The augmentation water is added seasonally, initially during the months of January through March. During later years in the study period when augmentation water is assumed to increase the augmentation period is expanded by one to three months to accommodate the increased flows. During these years augmentation water is assumed to begin in months of October, November and December during some years. The average amount of augmentation water added to the stream system was about 8,200 acre feet per year over the 40-year study period.

The calculations of the impact to augmentation water using the RRCA Groundwater Model indicate that, over a 40-year study period, the calculated augmentation credit would be about 89% of the augmentation amount on average or about 7,200 acre feet per year. The results would range from a low of about 41% to a high of about 110% during the 40-year study period. The results of these calculated impacts are compiled on Table 1. The results demonstrate that the expected reduction in augmentation credit for the assumed conditions would average about 11% over the 40-year study period or about 940 acre feet per year on average. The reduction in the credit from 100% to an average of about 89% is almost all caused by losses of augmentation water in the reach above Swanson Reservoir.

Impact of the Colorado Proposal on Calculations of CBCUg

The Colorado proposal is to include augmentation water in all runs of the RRCA Groundwater Model that are used to compute CBCUg for each State. In other words, augmentation water would be included in the model run to compute the baseline condition (all States pumping on) and in the model runs to compute each State's pumping impact (one State's pumping off, one State at a time). Colorado has provided results that compile these impacts for each State and for

the Imported Water Supply (IWS) credit. These results are shown on Tables 2 through 5. These tables were provided by Colorado and were originally labeled as Tables 1 through 4. The table numbers were changed to Tables 2 through 5 to conform with the sequence of their reference in this report.

Table 2 represents calculations for Colorado's CBCUg. The table includes two columns for each subbasin. The column labeled NB under each subbasin shows calculated impacts if the augmentation water was not included in either the baseline condition or the alternative condition without pumping in Colorado. The column labeled CCP shows calculated impacts if augmentation water is included in both the baseline condition and in the alternative condition without pumping in Colorado. As mentioned previously, the concept of having no pumping in Colorado but including augmentation water derived from pumping in Colorado is not readily apparent. However, the results are shown because they reflect the effect of the Colorado proposal.

As shown on Table 2, the Colorado proposal to include augmentation water in both model runs would increase the calculated CBCUg for Colorado by about 400 acre feet per year on average over what would be calculated if augmentation water were not included in the model runs. Tables 3 and 4 compile impacts for Kansas and Nebraska pumping, respectively, in the same manner as the impacts for Colorado pumping shown on Table 1. As shown on Table 3 for Kansas pumping, the impact or CBCUg for Kansas would increase by about 90 acre feet per year over the 40-year study period from what it would be if augmentation water were not included in the model runs. Similarly, for Nebraska as shown on Table 4, the impact or CBCUg would increase by about 490 acre feet per year over the 40-year study period from what it would be if augmentation water were not included in the model runs. The IWS credit as shown on Table 5 would not be effected by including the augmentation water in the model runs as opposed to not including augmentation water.

Summary

The results compiled in Tables 1 through 5 illustrate the impact of the Colorado proposal on CBCUg for each State and what the reduction in augmentation credit would be if it were computed using the RRCA Groundwater Model consistent with the FSS. The results were computed for a hypothetical 40-year future period. The Colorado proposal would increase the CBCUg for Colorado by an average of about 400 acre feet per year over what it would otherwise be. CBCUg for Kansas and Nebraska would increase by about 90 and 490 acre feet per year over what it would otherwise be. If the RRCA Groundwater Model is used to compute the augmentation credit, the credit would be reduced by about 11% on average over the 40-year study period.

Qualifications

This report was prepared by Steven P. Larson with assistance from Dr. Samuel P. Perkins and Dr. Alexandros Spiliotopoulos. I am a principal and the Executive Vice President of S.S. Papadopulos & Associates, Inc. (SSP&A), a firm that provides consulting services related to environmental and water-resource issues. My area of expertise is hydrology, with emphasis on groundwater hydrology.

I hold a Bachelor of Science in Civil Engineering from the University of Minnesota, conferred in 1969, and a Master of Science in Civil Engineering, also from the University of Minnesota, conferred in 1971. I am a member of the Association of Ground Water Scientists and Engineers (a division of the National Ground Water Association) and the American Institute of Hydrology. I am also certified as a Professional Hydrologist/Ground Water with the American Institute of Hydrology.

Prior to joining SSP&A in 1980, I was employed as a hydrologist with the Water Resources Division of the U.S. Geological Survey (USGS) for almost 9 years. During my tenure with the USGS, I conducted numerous hydrological studies on a variety of groundwater and surface water problems and conducted research into the development of mathematical models to simulate groundwater flow processes. This work included working on the project that ultimately led to the development of the program, MODFLOW, which was the program used to construct the RRCA Groundwater Model. I have spent the last 33 years with SSP&A conducting and managing projects related to a variety of environmental and water-resource issues. During my tenure at SSP&A, I have been involved in numerous projects covering a wide spectrum of technical, environmental, and legal issues including environmental impact evaluations, evaluations of water-resource development, water-rights permitting and adjudication, remedial investigations at CERCLA and other waste-disposal sites, feasibility studies, engineering evaluations/cost analyses, and remedial action plans.

I have also testified as an expert in numerous legal and administrative forums. These cases have included permit and licensing hearings, water-rights adjudications, arbitration hearings, interstate compact claims, toxic torts, liability claims, various legal actions under CERCLA, property damage claims, and insurance claims.

As part of my work for the State of Kansas on issues related to the Republican River, I served as an expert on modeling regarding development of the RRCA Groundwater Model. Further, I was a member of the Modeling Committee on behalf of the State of Kansas that was charged with development of the groundwater model. In that capacity, I actively participated in the technical efforts by the three states in development, calibration, and operation of the RRCA Groundwater Model. As a result of that work, I am very familiar with the groundwater Model, its structure, its capabilities, and the manner in which it is applied for use in the RRCA Accounting Procedures.

References

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2010. Arbitrator's Final Decision. *State of Kansas v. State of Nebraska and State of Colorado*. Supreme Court of the United States. 126. October, 7, 2010.

Colorado Depart of Water Resources (Colorado DWR). 2013. Resolution by the Republican River Compact Administration approving an augmentation plan and related accounting procedures for the Colorado Compact Compliance Pipeline. April 5, 2013.

Tables

Table 1: Augmentation Credit calculated using the RRCA Groundwater Model.

Year	Arikaree	Beaver	Buffalo	Driftwood	Frenchman	North Fork	Above Swanson	Swanson - Harlan	Harlan - Guide Rock	Guide Rock - Hardy	Medicine	Prairie Dog	Red Willow	Rock	Sappa	South Fork	Hugh Butler	Bonny	Keith Sebelius	Enders	Harlan	Harry Strunk	Swanson	Mainstem Total	Total	Augmentation Amount	Credit Fraction
2010	22	-	-	-	-	-	3,462	-	-	-	-	-	-	-	-	76	-	-	-	-	-	-	-	3,462	3,565	4,000	89.1%
2011	23	-	-	-	-	-	3,535	-	-	-	-	-	-	-	-	81	-	-	-	-	-	-	-	3,535	3,646	4,000	91.2%
2012	22	-	-	-	-	-	3,338	-	-	-	-	-	-	-	-	80	-	-	-	-	-	-	-	3,338	3,449	4,000	86.2%
2013	31	-	-	-	-	-	4,556	-	-	-	-	-	-	-	-	118	-	-	-	-	-	-	-	4,556	4,719	5,400	87.4%
2014	32	-	-	-	-	-	5,337	-	-	-	-	-	-	-	-	126	-	-	-	-	-	-	-	5,336	5,511	6,000	91.9%
2015	34	-	-	-	-	-	5,198	-	-	-	-	-	-	-	-	118	-	-	-	-	-	-	-	5,199	5,363	5,700	94.1%
2016	32	-	-	-	-	-	5,006	-	-	-	-	-	-	-	-	122	-	-	-	-	-	-	-	5,006	5,173	6,000	86.2%
2017	38	-	-	-	-	-	5,889	-	-	-	-	-	-	-	-	132	-	-	-	-	-	-	-	5,889	6,071	6,500	93.4%
2018	33	-	-	-	-	-	4,983	-	-	-	-	-	-	-	-	111	-	-	-	-	-	-	-	4,983	5,138	5,400	95.1%
2019	25	-	-	-	-	-	3,694	-	-	-	-	-	-	-	-	86	-	-	-	-	-	-	-	3,694	3,814	4,000	95.4%
2020	23	-	-	-	-	-	3,369	-	-	-	-	-	-	-	-	85	-	-	-	-	-	-	-	3,369	3,486	4,000	87.2%
2021	24	-	-	-	-	-	3,531	-	-	-	-	-	-	-	-	83	-	-	-	-	-	-	-	3,531	3,647	4,000	91.2%
2022	30	-	-	-	-	-	4,366	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-	4,366	4,520	5,400	83.7%
2023	37	-	-	-	-	-	5,231	-	-	-	-	-	-	-	-	134	-	-	-	-	-	-	10	5,231	5,425	6,500	83.5%
2024	43	-	-	-	-	-	6,914	-	-	-	-	-	-	-	-	164	-	-	-	-	-	-	-	6,914	7,142	9,100	78.5%
2025	50	-	-	-	-	-	7,521	-	-	-	-	-	-	-	-	175	-	-	-	-	-	-	-	7,521	7,767	8,000	97.1%
2026	48	-	-	-	-	-	7,225	-	-	-	-	-	-	-	-	182	-	-	-	-	-	-	-	7,225	7,476	8,600	86.9%
2027	53	-	-	-	-	-	8,053	-	-	-	-	-	-	-	-	185	-	-	-	-	-	-	-	8,053	8,313	8,800	94.5%
2028	47	-	-	-	-	-	6,916	-	-	-	-	-	-	-	-	162	-	-	-	-	-	-	-	6,916	7,145	7,400	96.6%
2029	46	-	-	-	-	-	6,889	-	-	-	-	-	-	-	-	165	-	-	-	-	-	-	-	6,889	7,119	6,500	109.5%
2030	39	-	-	-	-	-	5,866	-	-	-	-	-	-	-	-	145	-	-	-	-	-	-	-	5,866	6,068	6,900	87.9%
2031	39	-	-	-	-	-	5,991	-	-	-	-	-	-	-	-	140	-	-	-	-	-	-	-	5,991	6,188	6,800	91.0%
2032	38	-	-	-	-	-	4,746	-	-	-	-	-	-	-	-	129	-	-	-	-	-	-	-	4,746	4,936	8,100	60.9%
2033	46	-	-	-	-	-	4,894	-	-	-	-	-	-	-	-	185	-	-	-	-	-	-	28	4,894	5,171	7,800	66.3%
2034	61	-	11	-	-	-	9,497	-	-	-	-	-	-	-	-	260	-	-	-	-	-	-	25	9,497	9,862	11,500	85.8%
2035	67	-	13	-	-	-	10,403	-	-	-	-	-	-	-	-	238	-	-	-	-	-	-	16	10,403	10,745	10,400	103.3%
2036	64	-	12	-	-	-	8,718	-	-	-	-	-	-	-	-	230	-	-	-	-	-	-	13	8,718	9,047	10,900	83.0%
2037	70	-	13	-	-	-	10,515	-	-	-	-	-	-	-	-	251	-	-	-	-	-	-	13	10,515	10,872	11,100	97.9%
2038	63	-	13	-	-	-	9,653	-	-	-	-	-	-	-	-	224	-	-	-	-	-	-	-	9,653	9,973	9,600	103.9%
2039	59	-	12	-	-	-	9,006	-	-	-	-	-	-	-	-	211	-	-	-	-	-	-	-	9,006	9,304	9,600	96.9%
2040	58	-	11	-	-	-	5,877	-	-	-	-	-	-	-	-	176	-	-	-	-	-	-	-	5,877	6,136	9,900	62.0%
2041	57	-	13	-	-	-	9,414	-	-	-	-	-	-	-	-	211	-	-	-	-	-	-	12	9,414	9,717	9,100	106.8%
2042	53	-	10	-	-	-	6,199	-	-	-	-	-	-	-	-	163	-	-	-	-	-	-	20	6,199	6,455	10,200	63.3%
2043	56	-	11	-	-	-	3,717	-	-	-	-	-	-	-	-	270	-	-	-	-	-	-	34	3,717	4,099	9,900	41.4%
2044	68	-	11	-	-	-	9,756	-	-	-	-	-	-	-	-	342	-	-	-	-	-	-	50	9,757	10,238	12,400	82.6%
2045	84	-	17	-	-	-	13,865	-	-	-	-	-	-	-	-	324	-	-	-	-	-	-	33	13,865	14,335	13,600	105.4%
2046	76	-	15	-	-	-	10,057	-	-	-	-	-	-	10	-	291	-	-	-	-	-	-	22	10,057	10,473	13,100	79.9%
2047	81	-	18	-	-	-	13,067	-	-	-	-	-	-	11	-	320	-	-	-	-	-	-	21	13,067	13,519	13,400	100.9%
2048	77	-	17	-	-	-	11,382	-	-	-	-	-	-	11	-	282	-	-	-	-	-	-	16	11,382	11,786	11,700	100.7%
2049	78	-	15	-	-	-	11,966	-	-	-	-	-	-	-	-	281	-	-	-	-	-	-	14	11,966	12,366	12,100	102.2%
Average 2010-2049	**48**	**-**	**-**	**-**	**-**	**-**	**6,990**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**179**	**-**	**-**	**-**	**-**	**-**	**-**	**11**	**6,990**	**7,244**	**8,185**	**88.5%**

Table 2. Colorado Pumping Impacts - NB=No Bonny, CCP=No Bonny, CCP added (acre-feet)

Year	Arikaree			Beaver			Buffalo			Driftwood			Frenchman			North Fork		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	1248	1246	-2	0	0	0	386	385	-1	0	0	0	1688	1688	0	16016	16015	-1
2011	1754	1752	-2	0	0	0	318	317	-1	0	0	0	120	120	0	16297	16297	0
2012	580	578	-2	0	0	0	192	191	-1	0	0	0	100	100	0	16251	16251	0
2013	347	344	-3	0	0	0	173	173	0	0	0	0	87	87	0	16673	16673	0
2014	414	411	-3	0	0	0	200	199	-1	0	0	0	85	85	0	16983	16982	-1
2015	1022	1018	-4	0	0	0	216	215	-1	0	0	0	85	85	0	16996	16994	-2
2016	1268	1265	-3	0	0	0	228	227	-1	0	0	0	87	87	0	16953	16948	-5
2017	1300	1295	-5	0	0	0	244	243	-1	0	0	0	93	92	-1	17380	17373	-7
2018	1703	1699	-4	0	0	0	281	279	-2	0	0	0	96	96	0	17646	17635	-11
2019	4450	4447	-3	0	0	0	409	408	-1	0	0	0	105	105	0	18542	18528	-14
2020	1552	1549	-3	0	0	0	373	371	-2	0	0	0	118	118	0	18593	18575	-18
2021	1877	1874	-3	0	0	0	265	263	-2	0	0	0	115	115	0	18867	18843	-24
2022	662	659	-3	0	0	0	240	238	-2	0	0	0	118	118	0	18751	18722	-29
2023	417	413	-4	0	0	0	226	223	-3	0	0	0	126	126	0	19188	19154	-34
2024	477	473	-4	0	0	0	247	244	-3	0	0	0	136	136	0	19502	19463	-39
2025	1158	1151	-7	0	0	0	279	275	-4	0	0	0	143	143	0	19560	19515	-45
2026	1363	1357	-6	0	0	0	284	279	-5	0	0	0	151	151	0	19423	19372	-51
2027	1411	1404	-7	0	0	0	314	309	-5	0	0	0	161	161	0	19907	19850	-57
2028	1822	1815	-7	0	0	0	360	354	-6	0	0	0	170	170	0	20181	20118	-63
2029	4783	4776	-7	0	0	0	385	377	-8	0	0	0	180	180	0	21095	21025	-70
2030	1962	1956	-6	0	0	0	358	351	-7	0	0	0	191	191	0	21057	20982	-75
2031	1979	1974	-5	0	0	0	322	315	-7	0	0	0	196	196	0	21326	21245	-81
2032	730	726	-4	0	0	0	306	298	-8	0	0	0	188	188	0	21158	21072	-86
2033	480	475	-5	0	0	0	321	313	-8	0	0	0	145	145	0	21603	21512	-91
2034	544	538	-6	0	0	0	334	324	-10	0	0	0	106	106	0	21938	21842	-96
2035	1273	1262	-11	0	0	0	347	337	-10	0	0	0	118	118	0	21996	21895	-101
2036	1442	1433	-9	0	0	0	353	342	-11	0	0	0	114	114	0	21797	21692	-105
2037	1509	1498	-11	0	0	0	371	359	-12	0	0	0	131	131	0	22308	22199	-109
2038	1930	1920	-10	0	0	0	410	397	-13	0	0	0	167	167	0	22591	22478	-113
2039	5047	5037	-10	0	0	0	461	448	-13	0	0	0	387	387	0	23500	23384	-116
2040	2462	2453	-9	0	0	0	439	426	-13	0	0	0	306	306	0	23399	23281	-118
2041	2070	2062	-8	0	0	0	404	390	-14	0	0	0	203	203	0	23666	23546	-120
2042	790	787	-3	0	0	0	354	346	-8	0	0	0	146	146	0	23457	23336	-121
2043	537	532	-5	0	0	0	317	311	-6	0	0	0	155	155	0	23911	23789	-122
2044	605	598	-7	0	0	0	389	389	0	0	0	0	147	147	0	24249	24125	-124
2045	1377	1364	-13	0	0	0	473	452	-21	0	0	0	157	156	-1	24305	24181	-124
2046	1513	1503	-10	0	0	0	435	424	-11	0	0	0	157	157	0	24061	23938	-123
2047	1596	1585	-11	0	0	0	488	469	-19	0	0	0	171	172	1	24590	24467	-123
2048	2027	2014	-13	0	0	0	496	478	-18	0	0	0	178	177	-1	24879	24756	-123
2049	5195	5180	-15	0	0	0	522	504	-18	0	0	0	189	188	-1	25776	25655	-121
2010 2049	**1616**	**1610**	**-6**	**0**	**0**	**0**	**338**	**331**	**-7**	**0**	**0**	**0**	**187**	**187**	**0**	**20659**	**20592**	**-67**

Year	Above Swanson			Swanson - Harlan			Harlan - Guide Rock			Guide Rock - Hardy			Medicine			Prairie Dog			Red Willow			Rock			Sappa		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	-5284	-5115	169	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85	0	0	0	0
2011	-5632	-5518	114	-13	-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	0	0	0	0
2012	-6737	-6704	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	101	100	-1	0	0	0
2013	-1044	-612	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84	83	-1	0	0	0
2014	-821	-665	156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	59	-1	0	0	0
2015	-2257	-2203	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	63	0	0	0	0
2016	-3795	-3493	302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	67	0	0	0	0
2017	-2307	-2161	146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72	0	0	0	0
2018	-2687	-2596	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	76	-1	0	0	0
2019	-1739	-1703	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	81	0	0	0	0
2020	-6686	-6436	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	86	0	0	0	0
2021	-6248	-6125	123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	92	-1	0	0	0
2022	-7086	-6821	265	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	102	101	-1	0	0	0
2023	-2557	-1717	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109	108	-1	0	0	0
2024	-704	-273	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	105	-1	0	0	0
2025	-2460	-2459	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109	108	-1	0	0	0
2026	-4787	-4285	502	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	111	-1	0	0	0
2027	-2715	-2543	172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	118	-1	0	0	0
2028	-3171	-3010	161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	125	124	-1	0	0	0
2029	-1825	-1866	-41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132	130	-2	0	0	0
2030	-8818	-8324	494	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	140	138	-2	0	0	0
2031	-6660	-6436	224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	147	145	-2	0	0	0
2032	-7668	-7084	584	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	153	151	-2	0	0	0
2033	-5238	-1918	3320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	158	-2	0	0	0
2034	-949	-398	551	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	157	154	-3	0	0	0
2035	-2319	-2918	-599	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156	154	-2	0	0	0
2036	-5944	-4858	1086	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159	156	-3	0	0	0
2037	-2857	-2958	-101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	167	164	-3	0	0	0
2038	-3715	-3885	-170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172	169	-3	0	0	0
2039	-1808	-1744	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	177	174	-3	0	0	0
2040	-10911	-8102	2809	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	185	181	-4	0	0	0
2041	-7112	-7746	-634	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197	193	-4	0	0	0
2042	-8735	-8095	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	199	-5	0	0	0
2043	-9194	-2027	7167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	190	186	-4	0	0	0
2044	-2562	-889	1673	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	170	167	-3	0	0	0
2045	-1730	-3112	-1382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180	177	-3	0	0	0
2046	-7294	-5335	1959	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160	156	-4	0	0	0
2047	-2823	-3312	-489	0	-11	-11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	166	162	-4	0	0	0
2048	-4186	-4363	-177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181	177	-4	0	0	0
2049	-1513	-2029	-516	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	235	232	-3	0	0	0
2010 2049	**-4314**	**-3795**	**519**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**133**	**131**	**-2**	**0**	**0**	**0**

Year	South Fork			Hugh Butler			Bonny			Keith Sebelius			Enders			Harlan			Harry Strunk			Swanson			Mainstem			Total		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	4820	4811	-9	0	0	0	-619	-619	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0	-5272	-5104	168	18368	18525	157
2011	4296	4288	-8	0	0	0	-1082	-1082	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	0	-5645	-5532	113	16167	16268	101
2012	4106	4100	-6	0	0	0	-1203	-1203	0	0	0	0	0	0	0	0	0	0	0	0	0	15	12	-3	-6744	-6711	33	13404	13425	21
2013	3798	3785	-13	0	0	0	-1570	-1570	0	0	0	0	0	0	0	0	0	0	0	0	0	26	20	-6	-1045	-613	432	18581	18991	410
2014	4189	4179	-10	0	0	0	-1837	-1837	0	0	0	0	0	0	0	0	0	0	0	0	0	26	21	-5	-822	-666	156	19307	19442	135
2015	7363	7352	-11	0	0	0	-1722	-1722	0	0	0	0	0	0	0	0	0	0	0	0	0	17	16	-1	-2258	-2204	54	21792	21826	34
2016	7083	7070	-13	0	0	0	-1225	-1225	0	0	0	0	11	11	0	0	0	0	0	0	0	18	18	0	-3796	-3494	302	20694	20973	279
2017	7584	7574	-10	0	0	0	-1036	-1036	0	0	0	0	12	12	0	0	0	0	0	0	0	20	19	-1	-2310	-2164	146	23358	23480	122
2018	9057	9047	-10	0	0	0	-2016	-2016	0	0	0	0	12	12	0	0	0	0	0	0	0	18	18	0	-2690	-2599	91	24184	24249	65
2019	15614	15605	-9	0	0	0	-927	-927	0	0	0	0	13	13	0	0	0	0	0	0	0	16	15	-1	-1745	-1709	36	36559	36565	6
2020	9609	9592	-17	0	0	0	-581	-581	0	0	0	0	14	14	0	0	0	0	0	0	0	16	15	-1	-6685	-6436	249	23095	23303	208
2021	4668	4660	-8	0	0	0	-1074	-1074	0	0	0	0	15	15	0	0	0	0	0	0	0	17	17	0	-6248	-6126	122	18595	18679	84
2022	3881	3872	-9	0	0	0	-1172	-1172	0	0	0	0	16	16	0	0	0	0	0	0	0	20	17	-3	-7087	-6821	266	15531	15750	219
2023	3607	3599	-8	0	0	0	-1542	-1542	0	0	0	0	17	17	0	0	0	0	0	0	0	33	24	-9	-2557	-1717	840	19625	20405	780
2024	4018	4000	-18	0	0	0	-1874	-1874	0	0	0	0	19	19	0	0	0	0	0	0	0	32	26	-6	-706	-275	431	21956	22315	359
2025	7098	7078	-20	0	0	0	-1757	-1757	0	0	0	0	20	20	0	0	0	0	0	0	0	23	19	-4	-2461	-2460	1	24171	24091	-80
2026	6909	6883	-26	0	0	0	-1246	-1246	0	0	0	0	21	21	0	0	0	0	0	0	0	23	20	-3	-4788	-4286	502	22252	22664	412
2027	7356	7337	-19	0	0	0	-1065	-1065	0	0	0	0	22	22	0	0	0	0	0	0	0	24	22	-2	-2717	-2545	172	25533	25613	80
2028	8836	8817	-19	0	0	0	-2076	-2076	0	0	0	0	24	24	0	0	0	0	0	0	0	23	22	-1	-3173	-3012	161	26293	26356	63
2029	16510	16487	-23	0	0	0	-1626	-1626	0	0	0	0	25	25	0	0	0	0	0	0	0	20	18	-2	-1828	-1868	-40	39675	39525	-150
2030	11501	11472	-29	0	0	0	-667	-667	0	0	0	0	27	27	0	0	0	0	0	0	0	19	17	-2	-8824	-8330	494	25764	26138	374
2031	4497	4482	-15	0	0	0	-1125	-1125	0	0	0	0	29	29	0	0	0	0	0	0	0	22	20	-2	-6662	-6438	224	20731	20842	111
2032	3727	3727	0	0	0	0	-1219	-1219	0	0	0	0	31	31	0	0	0	0	0	0	0	29	21	-8	-7670	-7086	584	17434	17911	477
2033	3477	3448	-29	0	0	0	-1575	-1575	0	0	0	0	32	32	0	0	0	0	0	0	0	54	29	-25	-5238	-1917	3321	19461	22619	3158
2034	3945	3888	-57	0	0	0	-1942	-1942	0	0	0	0	34	34	0	0	0	0	0	0	0	49	26	-23	-953	-402	551	24213	24570	357
2035	6884	6847	-37	0	0	0	-1859	-1859	0	0	0	0	37	37	0	0	0	0	0	0	0	35	21	-14	-2322	-2921	-599	26665	25890	-775
2036	6755	6725	-30	0	0	0	-1286	-1286	0	0	0	0	39	39	0	0	0	0	0	0	0	32	21	-11	-5947	-4861	1086	23457	24375	918
2037	7177	7139	-38	0	0	0	-1121	-1121	0	0	0	0	42	42	0	0	0	0	0	0	0	32	22	-10	-2863	-2964	-101	27754	27469	-285
2038	8650	8617	-33	0	0	0	-2154	-2154	0	0	0	0	45	45	0	0	0	0	0	0	0	29	23	-6	-3720	-3890	-170	28119	27772	-347
2039	16668	16638	-30	0	0	0	-1702	-1702	0	0	0	0	48	48	0	0	0	0	0	0	0	26	21	-5	-1813	-1749	64	42800	42686	-114
2040	11721	11718	-3	0	0	0	-769	-769	0	0	0	0	51	51	0	0	0	0	0	0	0	22	19	-3	-10914	-8105	2809	26902	29562	2660
2041	4345	4313	-32	0	0	0	-1189	-1189	0	0	0	0	54	54	0	0	0	0	0	0	0	29	19	-10	-7116	-7749	-633	22663	21841	-822
2042	3583	3596	13	0	0	0	-1250	-1250	0	0	0	0	57	57	0	0	0	0	0	0	0	41	23	-18	-8738	-8098	640	18643	19141	498
2043	3362	3295	-67	0	0	0	-1598	-1598	0	0	0	0	60	60	0	0	0	0	0	0	0	60	33	-27	-9193	-2027	7166	17801	24737	6936
2044	3911	3809	-102	0	0	0	-1981	-1981	0	0	0	0	63	63	0	0	0	0	0	0	0	75	30	-45	-2562	-889	1673	25068	26459	1391
2045	6724	6660	-64	0	0	0	-1964	-1964	0	0	0	0	67	67	0	0	0	0	0	0	0	53	24	-29	-1739	-3121	-1382	29631	27995	-1636
2046	6611	6574	-37	0	0	0	-1334	-1334	0	0	0	0	70	70	0	0	0	0	0	0	0	41	22	-19	-7299	-5340	1959	24414	26170	1756
2047	7046	6989	-57	0	0	0	-1181	-1181	0	0	0	0	74	73	-1	0	0	0	0	0	0	40	24	-16	-2833	-3323	-490	30157	29437	-720
2048	8480	8426	-54	0	0	0	-2237	-2237	0	0	0	0	77	77	0	0	0	0	0	0	0	34	23	-11	-4194	-4371	-177	29922	29520	-402
2049	16393	16345	-48	0	0	0	-1744	-1744	0	0	0	0	81	81	0	0	0	0	0	0	0	33	21	-12	-1523	-2038	-515	45156	44424	-732
2010 2049	**7146**	**7121**	**-25**	**0**	**0**	**0**	**-1428**	**-1428**	**0**	**0**	**0**	**0**	**31**	**31**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**20**	**-9**	**-4317**	**-3799**	**518**	**24397**	**24800**	**403**

Table 3. Kansas Pumping Impacts - NB=No Bonny, CCP=No Bonny, CCP added (acre-feet)

Year	Arikaree			Beaver			Buffalo			Driftwood			Frenchman			North Fork			Above Swanson			Swanson - Harlan			Harlan - Guide Rock		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	68	68	0	6893	6893	0	0	0	0	0	0	0	0	0	0	0	0	0	18	21	3	-1173	-1173	0	0	0	0
2011	157	158	1	5972	5972	0	0	0	0	0	0	0	0	0	0	0	0	0	212	220	8	48	48	0	0	0	0
2012	100	100	0	2807	2807	0	0	0	0	0	0	0	0	0	0	0	0	0	137	156	19	344	344	0	0	0	0
2013	92	92	0	897	897	0	0	0	0	0	0	0	0	0	0	0	0	0	88	120	32	-235	-235	0	0	0	0
2014	105	106	1	784	784	0	0	0	0	0	0	0	0	0	0	0	0	0	241	273	32	0	0	0	0	0	0
2015	107	107	0	2143	2143	0	0	0	0	0	0	0	0	0	0	0	0	0	198	182	-16	-34	-34	0	0	0	0
2016	77	76	-1	3453	3453	0	0	0	0	0	0	0	0	0	0	0	0	0	296	361	65	-394	-394	0	0	0	0
2017	91	91	0	5503	5503	0	0	0	0	0	0	0	0	0	0	0	0	0	344	333	-11	382	382	0	0	0	0
2018	86	86	0	7574	7574	0	0	0	0	0	0	0	0	0	0	0	0	0	313	300	-13	154	154	0	0	0	0
2019	148	148	0	7925	7925	0	0	0	0	0	0	0	0	0	0	0	0	0	299	313	14	82	82	0	0	0	0
2020	63	63	0	7010	7010	0	0	0	0	0	0	0	0	0	0	0	0	0	80	83	3	-1578	-1578	0	12	12	0
2021	153	154	1	6074	6074	0	0	0	0	0	0	0	0	0	0	0	0	0	335	392	57	62	63	1	0	0	0
2022	98	98	0	2849	2849	0	0	0	0	0	0	0	0	0	0	0	0	0	136	195	59	542	542	0	0	0	0
2023	90	90	0	916	916	0	0	0	0	0	0	0	0	0	0	0	0	0	62	152	90	-276	-276	0	0	0	0
2024	100	101	1	803	803	0	0	0	0	0	0	0	0	0	0	0	0	0	176	292	116	0	0	0	0	0	0
2025	106	106	0	2155	2155	0	0	0	0	0	0	0	0	0	0	0	0	0	243	220	-23	-557	-557	0	0	0	0
2026	75	75	0	3460	3460	0	0	0	0	0	0	0	0	0	0	0	0	0	321	329	8	-1066	-1066	0	0	0	0
2027	90	90	0	5503	5503	0	0	0	0	0	0	0	0	0	0	0	0	0	348	331	-17	793	793	0	0	0	0
2028	85	85	0	7537	7537	0	0	0	0	0	0	0	0	0	0	0	0	0	295	352	57	191	191	0	0	0	0
2029	148	148	0	8300	8300	0	0	0	0	0	0	0	0	0	0	0	0	0	254	263	9	81	81	0	0	0	0
2030	60	60	0	7206	7206	0	0	0	0	0	0	0	0	0	0	0	0	0	205	218	13	-1700	-1700	0	13	13	0
2031	152	154	2	6134	6134	0	0	0	0	0	0	0	0	0	0	0	0	0	253	280	27	-71	-71	0	11	11	0
2032	96	98	2	2834	2834	0	0	0	0	0	0	0	0	0	0	0	0	0	130	153	23	623	623	0	0	0	0
2033	86	88	2	907	907	0	0	0	0	0	0	0	0	0	0	0	0	0	-793	135	928	-274	-274	0	0	0	0
2034	96	98	2	789	789	0	0	0	0	0	0	0	0	0	0	0	0	0	392	293	-99	0	0	0	0	0	0
2035	107	107	0	2138	2138	0	0	0	0	0	0	0	0	0	0	0	0	0	254	230	-24	-622	-622	0	0	0	0
2036	73	73	0	3440	3440	0	0	0	0	0	0	0	0	0	0	0	0	0	291	323	32	-2223	-2223	0	10	10	0
2037	90	90	0	5484	5484	0	0	0	0	0	0	0	0	0	0	0	0	0	429	393	-36	1333	1333	0	0	0	0
2038	85	85	0	7506	7506	0	0	0	0	0	0	0	0	0	0	0	0	0	258	290	32	253	253	0	0	0	0
2039	148	148	0	8579	8579	0	0	0	0	0	0	0	0	0	0	0	0	0	242	234	-8	70	70	0	10	10	0
2040	56	56	0	7374	7374	0	0	0	0	0	0	0	0	0	0	0	0	0	255	320	65	-1769	-1769	0	14	14	0
2041	154	154	0	6142	6142	0	0	0	0	0	0	0	0	0	0	0	0	0	195	230	35	-199	-199	0	11	11	0
2042	93	95	2	2821	2821	0	0	0	0	0	0	0	0	0	0	0	0	0	-113	164	277	651	651	0	0	0	0
2043	83	85	2	899	899	0	0	0	0	0	0	0	0	0	0	0	0	0	-827	134	961	-273	-273	0	10	10	0
2044	93	93	0	776	776	0	0	0	0	0	0	0	0	0	0	0	0	0	-533	300	833	0	0	0	0	0	0
2045	107	108	1	2123	2123	0	0	0	0	0	0	0	0	0	0	0	0	0	282	197	-85	-668	-668	0	10	10	0
2046	72	72	0	3429	3429	0	0	0	0	0	0	0	0	0	0	0	0	0	257	333	76	-2443	-2443	0	10	11	1
2047	89	90	1	5473	5473	0	0	0	0	0	0	0	0	0	0	0	0	0	568	365	-203	1411	1411	0	0	0	0
2048	86	86	0	7479	7479	0	0	0	0	0	0	0	0	0	0	0	0	0	216	273	57	369	369	0	0	0	0
2049	149	149	0	8816	8816	0	0	0	0	0	0	0	0	0	0	0	0	0	259	220	-39	71	71	0	11	11	0
2010 2049	100	100	0	4472	4472	0	0	0	0	0	0	0	0	0	0	0	0	0	165	249	84	-202	-202	0	3	3	0

Year	Guide Rock - Hardy			Medicine			Prairie Dog			Red Willow			Rock			Sappa			South Fork			Hugh Butler			Bonny		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	245	245	0	0	0	0	3513	3513	0	0	0	0	0	0	0	2482	2482	0	1810	1812	2	0	0	0	0	0	0
2011	44	44	0	0	0	0	5026	5026	0	0	0	0	0	0	0	1540	1540	0	3213	3215	2	0	0	0	0	0	0
2012	54	54	0	0	0	0	3139	3139	0	0	0	0	0	0	0	266	266	0	1578	1578	0	0	0	0	0	0	0
2013	56	57	1	0	0	0	1690	1690	0	0	0	0	0	0	0	-661	-661	0	1189	1191	2	0	0	0	0	0	0
2014	69	69	0	0	0	0	1873	1873	0	0	0	0	0	0	0	-784	-784	0	1858	1861	3	0	0	0	0	0	0
2015	62	62	0	0	0	0	5841	5841	0	0	0	0	0	0	0	-1700	-1700	0	3951	3953	2	0	0	0	0	0	0
2016	53	53	0	0	0	0	5564	5564	0	0	0	0	0	0	0	-1038	-1038	0	2911	2916	5	0	0	0	0	0	0
2017	68	68	0	0	0	0	5816	5816	0	0	0	0	0	0	0	820	820	0	3505	3507	2	0	0	0	0	0	0
2018	41	41	0	0	0	0	12547	12547	0	0	0	0	0	0	0	3471	3471	0	3932	3936	4	0	0	0	0	0	0
2019	54	54	0	0	0	0	10357	10357	0	0	0	0	0	0	0	4056	4056	0	8004	8006	2	0	0	0	0	0	0
2020	245	245	0	0	0	0	3776	3776	0	0	0	0	0	0	0	2529	2529	0	3654	3648	-6	0	0	0	0	0	0
2021	44	44	0	0	0	0	5432	5432	0	0	0	0	0	0	0	1794	1794	0	2999	3001	2	0	0	0	0	0	0
2022	54	54	0	0	0	0	3403	3403	0	0	0	0	0	0	0	399	399	0	1406	1409	3	0	0	0	0	0	0
2023	56	56	0	0	0	0	1914	1914	0	0	0	0	0	0	0	-641	-641	0	1007	1015	8	0	0	0	0	0	0
2024	69	69	0	0	0	0	2143	2143	0	0	0	0	0	0	0	-803	-803	0	1642	1647	5	0	0	0	0	0	0
2025	62	62	0	0	0	0	6159	6159	0	0	0	0	0	0	0	-1598	-1598	0	3738	3743	5	0	0	0	0	0	0
2026	53	53	0	0	0	0	5912	5911	-1	0	0	0	0	0	0	-781	-781	0	2775	2779	4	0	0	0	0	0	0
2027	68	68	0	0	0	0	6190	6190	0	0	0	0	0	0	0	1051	1051	0	3337	3341	4	0	0	0	0	0	0
2028	41	41	0	0	0	0	12749	12749	0	0	0	0	0	0	0	3627	3627	0	3757	3761	4	0	0	0	0	0	0
2029	54	54	0	0	0	0	10481	10481	0	0	0	0	0	0	0	3991	3991	0	7636	7641	5	0	0	0	0	0	0
2030	245	245	0	0	0	0	3970	3970	0	0	0	0	0	0	0	2589	2589	0	4157	4147	-10	0	0	0	0	0	0
2031	44	44	0	0	0	0	5723	5723	0	0	0	0	0	0	0	1887	1887	0	2824	2828	4	0	0	0	0	0	0
2032	53	53	0	0	0	0	3591	3591	0	0	0	0	0	0	0	478	478	0	1277	1283	6	0	0	0	0	0	0
2033	56	56	0	0	0	0	2091	2091	0	0	0	0	0	0	0	-633	-633	0	862	874	12	0	0	0	0	0	0
2034	69	69	0	0	0	0	2358	2358	0	0	0	0	0	0	0	-789	-789	0	1492	1495	3	0	0	0	0	0	0
2035	62	63	1	0	0	0	6438	6438	0	0	0	0	0	0	0	-1517	-1517	0	3559	3567	8	0	0	0	-11	-11	0
2036	53	53	0	0	0	0	6164	6164	0	0	0	0	0	0	0	-633	-633	0	2653	2667	14	0	0	0	0	0	0
2037	68	68	0	0	0	0	6501	6501	0	0	0	0	0	0	0	1193	1193	0	3205	3208	3	0	0	0	0	0	0
2038	40	40	0	0	0	0	12976	12976	0	0	0	0	0	0	0	3715	3715	0	3619	3625	6	0	0	0	-11	-11	0
2039	54	54	0	0	0	0	10646	10646	0	0	0	0	0	0	0	4004	4004	0	7469	7477	8	0	0	0	0	0	0
2040	245	245	0	0	0	0	4127	4127	0	0	0	0	0	0	0	2672	2672	0	3601	3610	9	0	0	0	0	0	0
2041	44	44	0	0	0	0	5964	5964	0	0	0	0	0	0	0	1983	1983	0	2604	2606	2	0	0	0	0	0	0
2042	54	53	-1	0	0	0	3744	3744	0	0	0	0	0	0	0	542	542	0	1164	1172	8	0	0	0	0	0	0
2043	56	56	0	0	0	0	2246	2246	0	0	0	0	0	0	0	-626	-626	0	740	770	30	0	0	0	0	0	0
2044	69	69	0	0	0	0	2554	2554	0	0	0	0	0	0	0	-776	-776	0	1356	1365	9	0	0	0	0	0	0
2045	62	62	0	0	0	0	6670	6670	0	0	0	0	0	0	0	-1456	-1456	0	3407	3426	19	0	0	0	-21	-21	0
2046	53	53	0	0	0	0	6389	6389	0	0	0	0	0	0	0	-520	-520	0	2555	2572	17	0	0	0	0	0	0
2047	68	67	-1	0	0	0	6768	6768	0	0	0	0	0	0	0	1305	1305	0	3086	3099	13	0	0	0	-12	-12	0
2048	40	40	0	0	0	0	13155	13155	0	0	0	0	0	0	0	3780	3780	0	3498	3503	5	0	0	0	-16	-16	0
2049	53	54	1	0	0	0	10846	10846	0	0	0	0	0	0	0	4043	4043	0	7317	7327	10	0	0	0	-12	-12	0
2010 2049	74	74	0	0	0	0	5911	5911	0	0	0	0	0	0	0	981	981	0	3108	3114	6	0	0	0	-2	-2	0

Year	Keith Sebelius			Enders			Harlan			Harry Strunk			Swanson			Mainstem			Total		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	490	490	0	0	0	0	131	131	0	0	0	0	0	0	0	-900	-898	2	14492	14496	4
2011	432	432	0	0	0	0	102	102	0	0	0	0	0	0	0	313	321	8	16759	16769	10
2012	555	555	0	0	0	0	85	85	0	0	0	0	0	0	0	543	562	19	9077	9096	19
2013	581	581	0	0	0	0	84	84	0	0	0	0	0	0	0	-84	-51	33	3792	3826	34
2014	535	535	0	0	0	0	81	81	0	0	0	0	0	0	0	318	349	31	4772	4807	35
2015	547	547	0	0	0	0	78	78	0	0	0	0	0	0	0	234	218	-16	11203	11189	-14
2016	566	566	0	0	0	0	79	79	0	0	0	0	0	0	0	-36	29	65	11580	11650	70
2017	561	561	0	0	0	0	79	79	0	0	0	0	0	0	0	802	791	-11	17180	17171	-9
2018	533	533	0	0	0	0	142	142	0	0	0	0	0	0	0	499	486	-13	28786	28777	-9
2019	476	476	0	0	0	0	165	165	0	0	0	0	0	0	0	443	458	15	31584	31600	16
2020	517	517	0	0	0	0	137	137	0	0	0	0	0	0	0	-1241	-1238	3	16453	16450	-3
2021	458	458	0	0	0	0	107	107	0	0	0	0	0	0	0	451	509	58	17472	17533	61
2022	582	582	0	0	0	0	90	90	0	0	0	0	0	0	0	740	799	59	9568	9631	63
2023	609	609	0	0	0	0	89	89	0	0	0	0	0	0	0	-149	-60	89	3837	3933	96
2024	563	563	0	0	0	0	89	89	0	0	0	0	0	0	0	254	370	116	4792	4914	122
2025	575	575	0	0	0	0	89	89	0	0	0	0	0	0	0	-243	-266	-23	10982	10963	-19
2026	593	593	0	0	0	0	89	89	0	0	0	0	0	0	0	-683	-675	8	11444	11455	11
2027	589	589	0	0	0	0	88	88	0	0	0	0	0	0	0	1216	1199	-17	18065	18050	-15
2028	561	561	0	0	0	0	155	155	0	0	0	0	0	0	0	518	575	57	28990	29050	60
2029	503	503	0	0	0	0	168	168	0	0	0	0	0	0	0	399	407	8	31630	31643	13
2030	544	544	0	0	0	0	139	139	0	0	0	0	0	0	0	-1236	-1223	13	17439	17441	2
2031	484	484	0	0	0	0	109	109	0	0	0	0	0	0	0	236	263	27	17551	17585	34
2032	608	608	0	0	0	0	92	92	0	0	0	0	0	0	0	815	839	24	9794	9821	27
2033	634	634	0	0	0	0	91	91	0	0	0	0	0	0	0	-1002	-73	929	3041	3981	940
2034	589	589	0	0	0	0	95	95	0	0	0	0	0	0	0	471	371	-100	5109	5009	-100
2035	601	601	0	0	0	0	96	96	0	0	0	0	0	0	0	-296	-319	-23	11126	11107	-19
2036	619	619	0	0	0	0	95	95	0	0	0	0	0	0	0	-1868	-1837	31	10551	10592	41
2037	614	614	0	0	0	0	92	92	0	0	0	0	0	0	0	1838	1803	-35	19018	18983	-35
2038	586	586	0	0	0	0	167	167	0	0	0	0	0	0	0	542	575	33	29193	29231	38
2039	528	528	0	0	0	0	169	169	0	0	0	0	0	0	0	376	368	-8	31925	31923	-2
2040	569	569	0	0	0	0	140	140	0	0	0	0	0	0	0	-1255	-1189	66	17295	17370	75
2041	509	509	0	0	0	0	111	111	0	0	0	0	0	0	0	51	86	35	17517	17552	35
2042	632	632	0	0	0	0	94	94	0	0	0	0	0	0	0	601	877	276	9701	9981	280
2043	658	658	0	0	0	0	92	92	0	0	0	0	0	0	0	-1034	-73	961	3069	4057	988
2044	613	613	0	0	0	0	99	99	0	0	0	0	17	0	-17	-455	379	834	4282	5109	827
2045	625	625	0	0	0	0	102	102	0	0	0	0	13	0	-13	-314	-398	-84	11259	11185	-74
2046	643	643	0	0	0	0	100	100	0	0	0	0	0	0	0	-2123	-2047	76	10549	10637	88
2047	638	638	0	0	0	0	101	101	0	0	0	0	0	0	0	2055	1852	-203	19515	19321	-194
2048	609	609	0	0	0	0	177	177	0	0	0	0	0	0	0	616	673	57	29396	29453	57
2049	552	552	0	0	0	0	170	170	0	0	0	0	0	0	0	394	355	-39	32286	32252	-34
2010 2049	567	567	0	0	0	0	111	111	0	0	0	0	0	0	0	45	129	84	15301	15389	88

Table 4. Nebraska Pumping Impacts - NB=No Bonny, CCP=No Bonny, CCP added (acre-feet)

Year	Arikaree			Beaver			Buffalo			Driftwood			Frenchman			North Fork			Above Swanson			Swanson - Harlan			Harlan - Guide Rock			Guide Rock - Hardy			Medicine		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	126	126	0	5309	5309	0	3417	3417	0	1185	1185	0	77748	77748	0	978	978	0	9784	9958	174	35347	35347	0	28926	28926	0	2503	2503	0	20127	20127	0
2011	320	320	0	5116	5116	0	3602	3602	0	1234	1234	0	80533	80533	0	1023	1023	0	11608	11728	120	42669	42669	0	28101	28101	0	2695	2695	0	21311	21311	0
2012	335	335	0	2946	2946	0	3602	3602	0	1278	1278	0	75799	75799	0	1065	1065	0	10946	11086	140	23475	23475	0	29761	29761	0	2633	2633	0	22160	22160	0
2013	514	515	1	1465	1465	0	3650	3650	0	1397	1397	0	81464	81464	0	1125	1125	0	18151	18508	357	28950	28950	0	31211	31211	0	3346	3346	0	23556	23556	0
2014	423	424	1	1816	1816	0	3675	3675	0	1479	1479	0	85962	85962	0	1177	1177	0	15316	15485	169	35622	35622	0	32675	32675	0	3224	3224	0	23879	23879	0
2015	242	241	-1	3022	3022	0	3741	3741	0	1483	1483	0	80212	80212	0	1219	1219	0	11728	11760	32	40779	40779	0	32616	32616	0	3727	3727	0	23428	23428	0
2016	122	122	0	3710	3710	0	3722	3723	1	1426	1426	0	74594	74594	0	1252	1252	0	9130	9394	264	40091	40091	0	30253	30253	0	3140	3140	0	22523	22523	0
2017	111	110	-1	4964	4964	0	3743	3744	1	1362	1362	0	77253	77253	0	1293	1293	0	10374	10510	136	51226	51226	0	29999	29999	0	3054	3054	0	22848	22848	0
2018	124	124	0	6485	6485	0	3783	3786	3	1299	1299	0	78164	78164	0	1326	1326	0	9832	9909	77	51123	51123	0	28903	28903	0	2409	2409	0	22319	22319	0
2019	154	153	-1	6225	6225	0	3879	3883	4	1218	1218	0	81309	81309	0	1352	1352	0	10875	10866	-9	59639	59639	0	28785	28785	0	2314	2314	0	22165	22165	0
2020	126	125	-1	5277	5277	0	3924	3930	6	1201	1201	0	79293	79294	1	1379	1379	0	8394	8652	258	44029	44029	0	33138	33138	0	2590	2590	0	23251	23251	0
2021	318	318	0	5083	5083	0	3934	3941	7	1251	1251	0	81837	81838	1	1426	1426	0	11439	11584	145	45292	45292	0	32307	32307	0	2805	2805	0	24322	24322	0
2022	336	336	0	2938	2938	0	3887	3895	8	1295	1295	0	75960	75962	2	1468	1468	0	10843	11229	386	26637	26636	-1	33812	33812	0	2711	2711	0	24907	24907	0
2023	510	511	1	1475	1475	0	3899	3909	10	1413	1413	0	81325	81327	2	1532	1532	0	17769	18477	708	31011	31010	-1	35225	35225	0	3421	3420	-1	26279	26279	0
2024	422	423	1	1727	1727	0	3942	3953	11	1495	1495	0	86106	86109	3	1587	1587	0	16057	16452	395	37436	37436	0	36700	36700	0	3316	3316	0	26590	26590	0
2025	246	245	-1	2917	2917	0	4030	4043	13	1500	1500	0	80482	80485	3	1630	1630	0	12166	12155	-11	43193	43193	0	36595	36595	0	3806	3806	0	26141	26141	0
2026	124	123	-1	3613	3613	0	4001	4016	15	1444	1444	0	74580	74585	5	1661	1661	0	8858	9257	399	43064	43064	0	34188	34188	0	3228	3228	0	25131	25131	0
2027	113	112	-1	4861	4861	0	4039	4055	16	1383	1383	0	78234	78239	5	1706	1706	0	10627	10774	147	54381	54381	0	34012	34012	0	3174	3174	0	25652	25652	0
2028	126	126	0	6355	6355	0	4114	4131	17	1325	1325	0	78903	78909	6	1740	1740	0	10015	10137	122	54215	54215	0	32904	32904	0	2523	2523	0	25192	25192	0
2029	157	156	-1	6473	6473	0	4221	4238	17	1245	1245	0	83156	83164	8	1766	1766	0	11587	11523	-64	61289	61288	-1	32621	32621	0	2377	2377	0	24960	24960	0
2030	124	123	-1	5370	5370	0	4226	4246	20	1228	1228	0	79834	79843	9	1791	1791	0	6869	7320	451	46719	46718	-1	36931	36931	0	2675	2675	0	25936	25936	0
2031	316	317	1	5068	5068	0	4186	4209	23	1278	1278	0	82033	82043	10	1840	1840	0	11603	11872	269	48467	48467	0	36084	36084	0	2906	2906	0	26949	26949	0
2032	336	337	1	2930	2930	0	4114	4138	24	1320	1320	0	76035	76047	12	1878	1878	0	10593	12101	1508	29569	29569	0	37409	37410	1	2781	2781	0	27311	27311	0
2033	502	504	2	1498	1498	0	4138	4155	17	1435	1435	0	80541	80553	12	1946	1946	0	16211	18552	2341	33684	33684	0	38806	38806	0	3491	3491	0	28713	28713	0
2034	422	424	2	1703	1703	0	4186	4202	16	1518	1518	0	86498	86512	14	2002	2002	0	16558	17029	471	38927	38927	0	40303	40303	0	3398	3398	0	29027	29027	0
2035	251	248	-3	2882	2882	0	4262	4288	26	1523	1523	0	80649	80664	15	2045	2045	0	12978	12338	-640	44859	44859	0	40132	40132	0	3876	3876	0	28537	28537	0
2036	126	124	-2	3581	3581	0	4230	4255	25	1468	1468	0	74692	74705	13	2074	2074	0	8456	9439	983	44840	44840	0	37678	37678	0	3308	3308	0	27425	27425	0
2037	116	114	-2	4828	4828	0	4277	4300	23	1409	1409	0	79074	79089	15	2123	2123	0	11165	11009	-156	57545	57545	0	37560	37560	0	3272	3272	0	28062	28062	0
2038	128	127	-1	6315	6315	0	4347	4375	28	1354	1354	0	79299	79315	16	2158	2158	0	10165	9989	-176	57336	57335	-1	36573	36573	0	2610	2610	0	27552	27552	0
2039	162	161	-1	6718	6718	0	4478	4510	32	1279	1279	0	83799	83821	22	2183	2183	0	12419	12349	-70	63842	63842	0	36131	36131	0	2427	2427	0	27263	27263	0
2040	121	120	-1	5495	5495	0	4468	4499	31	1263	1263	0	80469	80490	21	2205	2205	0	5428	8296	2868	48550	48550	0	40344	40344	0	2738	2738	0	28153	28153	0
2041	315	315	0	5066	5066	0	4404	4434	30	1311	1311	0	82249	82267	18	2255	2255	0	11773	11080	-693	51098	51098	0	39527	39527	0	2983	2983	0	29133	29133	0
2042	336	341	5	2957	2957	0	4291	4315	24	1349	1349	0	76127	76146	19	2290	2289	-1	9943	12473	2530	32071	32071	0	40676	40676	0	2833	2833	0	29356	29356	0
2043	494	501	7	1532	1532	0	4275	4303	28	1463	1463	0	80010	80030	20	2360	2360	0	13271	18788	5517	36058	36058	0	41964	41964	0	3548	3547	-1	30796	30796	0
2044	421	427	6	1700	1700	0	4379	4414	35	1546	1546	0	86664	86685	21	2419	2419	0	15583	17073	1490	40516	40516	0	43457	43457	0	3460	3460	0	31088	31088	0
2045	256	255	-1	2857	2857	0	4526	4541	15	1551	1551	0	81164	81184	20	2461	2461	0	14197	12738	-1459	46104	46104	0	43228	43228	0	3931	3931	0	30561	30561	0
2046	127	130	3	3562	3562	0	4445	4470	25	1496	1496	0	74875	74896	21	2488	2487	-1	7779	9652	1873	46411	46411	0	40763	40763	0	3365	3365	0	29379	29379	0
2047	120	121	1	4807	4807	0	4529	4545	16	1438	1438	0	79715	79736	21	2541	2540	-1	11803	11199	-604	60235	60235	0	41005	41005	0	3338	3338	0	30063	30063	0
2048	129	127	-2	6279	6279	0	4588	4605	17	1384	1384	0	79723	79743	20	2577	2576	-1	10310	10089	-221	60060	60060	0	40075	40075	0	2676	2676	0	29513	29513	0
2049	167	164	-3	6935	6935	0	4688	4712	24	1312	1312	0	84145	84164	19	2601	2601	0	13388	12682	-706	66085	66086	1	39451	39451	0	2459	2459	0	29180	29180	0
2010 2049	**247**	**248**	**1**	**4096**	**4096**	**0**	**4096**	**4111**	**15**	**1370**	**1370**	**0**	**80012**	**80022**	**10**	**1798**	**1798**	**0**	**11649**	**12137**	**488**	**45061**	**45061**	**0**	**35770**	**35770**	**0**	**3026**	**3026**	**0**	**26268**	**26268**	**0**

Year	Prairie Dog			Red Willow			Rock			Sappa			South Fork			Hugh Butler			Bonny			Keith Sebelius			Enders			Harlan			Harry Strunk			Swanson			Mainstem			Total		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	0	0	0	6969	6969	0	4362	4362	0	2751	2751	0	718	714	-4	2020	2020	0	0	0	0	0	0	0	4545	4545	0	1022	1022	0	312	312	0	254	254	0	76560	76734	174	208406	208576	170
2011	0	0	0	7422	7422	0	4400	4400	0	2304	2304	0	681	676	-5	2016	2016	0	0	0	0	0	0	0	4703	4703	0	878	878	0	322	322	0	273	272	-1	85072	85192	120	221211	221326	115
2012	0	0	0	6032	6032	0	4434	4434	0	1313	1313	0	731	725	-6	2169	2169	0	0	0	0	0	0	0	4843	4843	0	956	956	0	333	333	0	311	309	-2	66814	66954	140	195120	195251	131
2013	0	0	0	6842	6842	0	4509	4508	-1	867	867	0	873	861	-12	2175	2175	0	0	0	0	0	0	0	5151	5151	0	959	959	0	470	470	0	510	504	-6	81657	82015	358	217182	217523	341
2014	0	0	0	7180	7180	0	4624	4624	0	853	853	0	664	660	-4	2184	2184	0	0	0	0	0	0	0	5236	5236	0	861	861	0	415	415	0	517	511	-6	86837	87007	170	227784	227944	160
2015	0	0	0	7340	7340	0	4778	4778	0	949	949	0	613	606	-7	2113	2113	0	0	0	0	0	0	0	5346	5346	0	950	950	0	371	371	0	450	448	-2	88850	88882	32	225106	225130	24
2016	0	0	0	6730	6730	0	4827	4827	0	1252	1252	0	583	574	-9	2044	2044	0	0	0	0	0	0	0	5309	5309	0	911	911	0	346	346	0	402	401	-1	82615	82878	263	212370	212623	253
2017	0	0	0	8433	8433	0	4934	4934	0	1975	1975	0	586	582	-4	2054	2054	0	0	0	0	0	0	0	5285	5285	0	888	888	0	341	341	0	358	357	-1	94653	94789	136	231081	231213	132
2018	63	63	0	8636	8636	0	5067	5067	0	3841	3841	0	606	602	-4	2054	2054	0	0	0	0	0	0	0	5261	5261	0	883	883	0	336	336	0	339	338	-1	92268	92344	76	232855	232930	75
2019	27	27	0	9235	9235	0	5267	5267	0	3881	3881	0	1114	1109	-5	2062	2062	0	0	0	0	0	0	0	5178	5178	0	860	860	0	332	332	0	268	267	-1	101612	101603	-9	246138	246127	-11
2020	13	13	0	8280	8280	0	5291	5291	0	2682	2682	0	1424	1412	-12	2393	2393	0	0	0	0	0	0	0	5181	5181	0	1128	1128	0	337	337	0	277	276	-1	88151	88409	258	229606	229857	251
2021	0	0	0	8226	8226	0	5209	5209	0	2471	2471	0	725	720	-5	2382	2382	0	0	0	0	0	0	0	5326	5326	0	984	984	0	348	348	0	296	296	0	91843	91988	145	235980	236129	149
2022	0	0	0	6587	6587	0	5104	5104	0	1448	1448	0	756	749	-7	2529	2529	0	0	0	0	0	0	0	5455	5455	0	1064	1064	0	359	359	0	334	332	-2	74002	74387	385	208430	208814	384
2023	0	0	0	7347	7347	0	5113	5113	0	967	967	0	967	961	-6	2529	2529	0	0	0	0	0	0	0	5752	5752	0	1069	1069	0	497	497	0	536	527	-9	87426	88133	707	228635	229339	704
2024	0	0	0	7695	7695	0	5226	5226	0	950	950	0	713	704	-9	2534	2534	0	0	0	0	0	0	0	5830	5830	0	977	977	0	443	443	0	544	537	-7	93508	93903	395	240291	240685	394
2025	0	0	0	7904	7904	0	5383	5383	0	1040	1040	0	645	633	-12	2457	2457	0	0	0	0	0	0	0	5929	5929	0	1070	1070	0	398	398	0	478	474	-4	95761	95749	-12	238010	237997	-13
2026	0	0	0	7213	7213	0	5425	5425	0	1358	1358	0	649	630	-19	2383	2383	0	0	0	0	0	0	0	5882	5882	0	1030	1030	0	374	374	0	430	426	-4	89337	89737	400	224636	225032	396
2027	0	0	0	9047	9047	0	5537	5538	1	2120	2120	0	616	607	-9	2388	2388	0	0	0	0	0	0	0	5850	5850	0	1006	1006	0	369	369	0	385	382	-3	102194	102341	147	245501	245656	155
2028	45	45	0	9349	9349	0	5672	5672	0	3972	3972	0	636	626	-10	2385	2385	0	0	0	0	0	0	0	5820	5820	0	999	999	0	365	365	0	365	362	-3	99657	99778	121	247020	247153	133
2029	41	41	0	10001	10001	0	5871	5872	1	3785	3785	0	888	874	-14	2387	2387	0	0	0	0	0	0	0	5728	5728	0	977	977	0	361	361	0	292	290	-2	107874	107809	-65	260182	260127	-55
2030	16	16	0	8990	8990	0	5889	5890	1	2699	2699	0	1847	1830	-17	2714	2714	0	0	0	0	0	0	0	5726	5726	0	1244	1244	0	366	366	0	300	298	-2	93195	93645	450	241495	241955	460
2031	0	0	0	8846	8846	0	5797	5798	1	2537	2537	0	754	746	-8	2698	2698	0	0	0	0	0	0	0	5862	5862	0	1100	1100	0	377	377	0	319	317	-2	99060	99329	269	249021	249314	293
2032	0	0	0	7058	7058	0	5662	5662	0	1534	1534	0	804	807	3	2841	2841	0	0	0	0	0	0	0	5985	5985	0	1179	1179	0	389	389	0	360	354	-6	80352	81860	1508	220087	221628	1541
2033	0	0	0	7811	7811	0	5695	5695	0	1027	1027	0	1038	1013	-25	2837	2837	0	0	0	0	0	0	0	6276	6276	0	1183	1183	0	527	527	0	575	550	-25	92193	94534	2341	237936	240256	2320
2034	0	0	0	8195	8195	0	5790	5790	0	1010	1010	0	818	775	-43	2839	2839	0	0	0	0	0	0	0	6349	6349	0	1094	1094	0	473	473	0	582	559	-23	99186	99657	471	251692	252131	439
2035	0	0	0	8411	8411	0	5907	5909	2	1099	1099	0	680	658	-22	2756	2756	0	0	0	0	0	0	0	6441	6441	0	1188	1188	0	429	429	0	507	495	-12	101845	101205	-640	249414	248780	-634
2036	0	0	0	7674	7674	0	5930	5932	2	1437	1437	0	703	684	-19	2679	2679	0	0	0	0	0	0	0	6390	6390	0	1148	1148	0	404	404	0	457	448	-9	94283	95266	983	234701	235695	994
2037	0	0	0	9602	9602	0	6053	6056	3	2222	2222	0	654	630	-24	2680	2680	0	0	0	0	0	0	0	6354	6354	0	1121	1121	0	399	399	0	414	404	-10	109542	109385	-157	258931	258778	-153
2038	45	45	0	9918	9918	0	6180	6184	4	4053	4053	0	666	648	-18	2673	2673	0	0	0	0	0	0	0	6321	6321	0	1115	1115	0	395	395	0	392	385	-7	106682	106507	-175	259594	259441	-153
2039	77	77	0	10604	10604	0	6373	6377	4	3780	3780	0	783	764	-19	2671	2671	0	0	0	0	0	0	0	6225	6225	0	1093	1093	0	391	391	0	319	314	-5	114820	114749	-71	273018	272979	-39
2040	27	27	0	9545	9545	0	6383	6387	4	2744	2744	0	2038	2049	11	2995	2995	0	0	0	0	0	0	0	6220	6220	0	1359	1359	0	397	397	0	323	320	-3	97061	99929	2868	251266	254197	2931
2041	0	0	0	9346	9346	0	6284	6289	5	2612	2612	0	793	769	-24	2975	2975	0	0	0	0	0	0	0	6351	6351	0	1213	1213	0	408	408	0	346	336	-10	105381	104688	-693	260444	259769	-675
2042	0	0	0	7457	7457	0	6157	6158	1	1601	1601	0	859	891	32	3113	3113	0	0	0	0	0	0	0	6470	6470	0	1292	1292	0	420	420	0	393	374	-19	85523	88053	2530	229991	232581	2590
2043	0	0	0	8250	8250	0	6184	6185	1	1071	1071	0	1098	1037	-61	3106	3106	0	0	0	0	0	0	0	6758	6758	0	1295	1295	0	558	558	0	602	569	-33	94841	100357	5516	244693	250172	5479
2044	0	0	0	8661	8661	0	6253	6256	3	1055	1055	0	925	839	-86	3105	3105	0	0	0	0	0	0	0	6829	6829	0	1207	1207	0	504	504	0	627	579	-48	103016	104505	1489	260400	261819	1419
2045	0	0	0	8857	8857	0	6370	6374	4	1146	1146	0	759	710	-49	3018	3018	0	0	0	0	0	0	0	6918	6918	0	1301	1301	0	460	460	0	545	514	-31	107459	105999	-1460	260208	258707	-1501
2046	0	0	0	8090	8090	0	6362	6365	3	1501	1501	0	751	728	-23	2937	2937	0	0	0	0	0	0	0	6864	6864	0	1259	1259	0	435	435	0	486	468	-18	98318	100191	1873	243378	245261	1883
2047	0	0	0	10095	10095	0	6478	6482	4	2307	2307	0	729	690	-39	2935	2935	0	0	0	0	0	0	0	6826	6826	0	1230	1230	0	430	430	0	442	425	-17	116381	115777	-604	271065	270447	-618
2048	0	0	0	10404	10404	0	6586	6590	4	4112	4112	0	708	670	-38	2925	2925	0	0	0	0	0	0	0	6793	6793	0	1224	1224	0	426	426	0	419	407	-12	113120	112900	-220	270973	270741	-232
2049	62	62	0	11116	11116	0	6790	6798	8	3805	3805	0	774	738	-36	2919	2919	0	0	0	0	0	0	0	6693	6693	0	1208	1208	0	422	422	0	348	336	-12	121383	120677	-706	284593	283886	-707
2010 2049	**13**	**13**	**0**	**8384**	**8384**	**0**	**5603**	**5605**	**2**	**2103**	**2103**	**0**	**834**	**817**	**-17**	**2566**	**2566**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5906**	**5906**	**0**	**1088**	**1088**	**0**	**400**	**400**	**0**	**409**	**400**	**-9**	**95508**	**95996**	**488**	**240711**	**241199**	**488**

Table 5. Nebraska Mound Impacts - NB=No Bonny, CCP=No Bonny, CCP added (acre-feet)

Year	Arikaree			Beaver			Buffalo			Driftwood			Frenchman			North Fork			Above Swanson			Swanson - Harlan			Harlan - Guide Rock			Guide Rock - Hardy			Medicine		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7491	7491	0	341	341	0	-10	-10	0	10134	10134	0
2011	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7833	7833	0	335	335	0	0	0	0	10286	10286	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4419	4419	0	331	331	0	-11	-11	0	9101	9101	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342	342	0	-12	-12	0	10112	10112	0
2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	362	362	0	0	0	0	10126	10126	0
2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	702	702	0	393	393	0	-12	-12	0	10230	10230	0
2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	936	936	0	418	418	0	0	0	0	9873	9873	0
2017	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8998	8998	0	457	457	0	0	0	0	11263	11263	0
2018	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14409	14409	0	483	483	0	0	0	0	11257	11257	0
2019	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	11295	11295	0	486	486	0	-16	-16	0	11247	11247	0
2020	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7262	7262	0	514	514	0	-15	-15	0	10690	10690	0
2021	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5826	5826	0	537	537	0	0	0	0	10779	10779	0
2022	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3129	3129	0	513	513	0	-18	-18	0	9384	9384	0
2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	532	532	0	-19	-19	0	10314	10314	0
2024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	567	567	0	-13	-13	0	10302	10302	0
2025	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	604	604	0	-22	-22	0	10419	10419	0
2026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	636	636	0	-10	-11	-1	10001	10001	0
2027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6879	6879	0	687	687	0	0	0	0	11490	11490	0
2028	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13081	13081	0	717	717	0	0	0	0	11715	11715	0
2029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10557	10557	0	707	707	0	-23	-23	0	11802	11802	0
2030	0	0	0	0	0	0	0	0	0	0	0	0	17	17	0	0	0	0	0	0	0	6788	6788	0	719	719	0	-20	-20	0	11005	11005	0
2031	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4419	4419	0	770	770	0	-13	-12	1	11053	11053	0
2032	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2086	2086	0	721	721	0	-26	-26	0	9460	9460	0
2033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	0	-24	-24	0	10395	10395	0
2034	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	790	790	0	-19	-19	0	10378	10378	0
2035	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	812	812	0	-24	-24	0	10502	10502	0
2036	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	869	869	0	-16	-16	0	10050	10050	0
2037	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4823	4824	1	954	953	-1	-10	-10	0	11604	11604	0
2038	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11897	11897	0	983	983	0	-13	-13	0	11866	11866	0
2039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9724	9724	0	958	958	0	-31	-31	0	12150	12150	0
2040	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6473	6473	0	953	953	0	-26	-26	0	11247	11247	0
2041	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3409	3409	0	1010	1010	0	-16	-16	0	11176	11176	0
2042	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1276	1276	0	927	927	0	-30	-30	0	9462	9462	0
2043	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	939	939	0	-30	-30	0	10452	10452	0
2044	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	983	983	0	-23	-23	0	10429	10429	0
2045	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1014	1014	0	-31	-31	0	10558	10558	0
2046	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1063	1063	0	-18	-18	0	10080	10080	0
2047	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3281	3282	1	1228	1228	0	-16	-16	0	11704	11704	0
2048	0	0	0	0	0	0	0	0	0	0	0	0	14	14	0	0	0	0	0	0	0	10694	10694	0	1271	1271	0	-17	-17	0	11956	11956	0
2049	0	0	0	0	0	0	0	0	0	0	0	0	14	14	0	0	0	0	0	0	0	9051	9051	0	1207	1207	0	-39	-39	0	12258	12258	0
2010 2049	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4418**	**4418**	**0**	**721**	**721**	**0**	**-15**	**-15**	**0**	**10707**	**10707**	**0**

Year	Prairie Dog			Red Willow			Rock			Sappa			South Fork			Hugh Butler			Bonny			Keith Sebelius			Enders			Harlan			Harry Strunk			Swanson			Mainstem			Total		
	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del	NB	CCP	Del
2010	0	0	0	47	47	0	0	0	0	37	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0	0	0	0	0	0	0	7821	7821	0	18069	18069	0
2011	0	0	0	42	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	0	0	0	0	0	0	0	8163	8163	0	18522	18523	1
2012	0	0	0	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	23	0	0	0	0	0	0	0	4739	4739	0	13905	13905	0
2013	0	0	0	27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	25	0	0	0	0	0	0	0	329	329	0	10501	10501	0
2014	0	0	0	29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	27	0	0	0	0	0	0	0	353	353	0	10542	10542	0
2015	0	0	0	39	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	0	0	0	0	0	0	0	1083	1083	0	11390	11390	0
2016	0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	32	0	0	0	0	0	0	0	1346	1346	0	11290	11290	0
2017	0	0	0	46	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	33	0	0	0	0	0	0	0	9450	9450	0	20805	20805	0
2018	0	0	0	67	67	0	0	0	0	22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0	0	14885	14885	0	26279	26279	0
2019	0	0	0	79	79	0	0	0	0	116	116	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	0	0	0	0	0	0	0	11765	11765	0	23260	23260	0
2020	0	0	0	49	49	0	0	0	0	51	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	0	0	0	0	0	0	0	7761	7761	0	18599	18599	0
2021	0	0	0	61	61	0	0	0	0	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	0	0	0	0	0	0	0	6355	6355	0	17257	17256	-1
2022	0	0	0	30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40	0	0	0	0	0	0	0	3624	3624	0	13087	13087	0
2023	0	0	0	37	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	0	0	0	0	0	0	0	512	512	0	10915	10915	0
2024	0	0	0	43	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	0	0	0	0	0	0	0	553	553	0	10952	10952	0
2025	0	0	0	41	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47	0	0	0	0	0	0	0	581	580	-1	11098	11097	-1
2026	0	0	0	40	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	0	0	0	0	0	0	0	624	624	0	10726	10725	-1
2027	0	0	0	49	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52	0	0	0	0	0	0	0	7559	7559	0	19164	19164	0
2028	0	0	0	73	73	0	0	0	0	41	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	0	0	0	0	0	0	0	13788	13788	0	25683	25683	0
2029	0	0	0	85	85	0	0	0	0	133	133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54	0	0	0	0	0	0	0	11241	11241	0	23335	23335	0
2030	0	0	0	75	75	0	0	0	0	59	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	0	0	0	0	0	0	0	7487	7487	0	18709	18709	0
2031	0	0	0	71	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	58	0	0	0	0	0	0	0	5176	5176	0	16374	16375	1
2032	0	0	0	39	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	0	0	0	0	0	0	0	2781	2780	-1	12351	12350	-1
2033	0	0	0	49	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	0	0	0	0	0	0	0	703	704	1	11220	11220	0
2034	0	0	0	56	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65	0	0	0	0	0	0	0	768	768	0	11281	11281	0
2035	0	0	0	52	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68	0	0	0	0	0	0	0	786	785	-1	11421	11421	0
2036	0	0	0	51	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	70	0	0	0	0	0	0	0	851	851	0	11035	11035	0
2037	0	0	0	65	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	73	0	0	0	0	0	0	0	5767	5767	0	17527	17526	-1
2038	0	0	0	64	64	0	0	0	0	75	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	75	0	0	0	0	0	0	0	12868	12868	0	24967	24967	0
2039	0	0	0	67	67	0	0	0	0	142	142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	76	0	0	0	0	0	0	0	10651	10651	0	23106	23106	0
2040	0	0	0	100	100	0	0	0	0	63	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	0	0	0	0	0	0	0	7400	7400	0	18905	18905	0
2041	0	0	0	59	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	80	0	0	0	0	0	0	0	4404	4403	-1	15735	15734	-1
2042	0	0	0	47	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82	82	0	11	11	0	0	0	0	2172	2173	1	11779	11780	1
2043	0	0	0	63	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85	0	11	11	0	0	0	0	909	909	0	11522	11522	0
2044	0	0	0	70	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	88	0	10	10	0	0	0	0	960	960	0	11560	11560	0
2045	0	0	0	64	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	0	10	10	0	0	0	0	976	975	-1	11710	11709	-1
2046	0	0	0	61	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	94	0	10	10	0	0	0	0	1041	1040	-1	11294	11292	-2
2047	0	0	0	83	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97	97	0	11	11	0	0	0	0	4494	4494	0	16399	16398	-1
2048	0	0	0	81	81	0	0	0	0	101	101	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	99	0	11	11	0	0	0	0	11949	11948	-1	24215	24215	0
2049	0	0	0	84	84	0	0	0	0	142	142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	0	11	11	0	0	0	0	10219	10219	0	22831	22832	1
2010 2049	**0**	**0**	**0**	**56**	**56**	**0**	**0**	**0**	**0**	**24**	**24**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**57**	**57**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**5122**	**5122**	**0**	**15983**	**15982**	**-1**