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Date: April 3, 2025

Subject: April 2025 Projected Delivery for the Colorado Compact Compliance Pipeline

The RRCA approved the “Resolution by the Republican River Compact Administration Approving Operation and Accounting for the Colorado Compact Compliance Pipeline and Colorado’s Compliance Efforts in the South Fork Republican River Basin” August 24, 2016. Colorado is operating the Compact Compliance Pipeline (CCP) in 2025 under the provisions described in that resolution.

The projected CCP delivery requirement to meet Colorado’s obligation under the Compact in 2025 is approximately 11,000 ac-ft under the approximate delivery obligation of:

Time Period	Amount of CCP Delivery (ac-ft)
January - March	5,320
April	1,152
October - December	4,544
Total	11,016

January 1st through April 2nd values represent actual deliveries. April 3rd through the 20th and October 14th through the end of December are estimated at a delivery rate of 29 cfs per day. Therefore, our recommendation is that the CCP deliveries continue until April 20th after which the CCP deliveries will stop and then start the winter deliveries for the pipeline on October 14th. The attached Tables 1 and 2 summarize the calculations used to derive the delivery amount. The following section briefly describes the data and the estimated data used to develop the projections.

Data Utilized to Determine Delivery Amount

The Republican River Compact Administration (RRCA) Groundwater Model was run to obtain an estimate of the Groundwater Computed Beneficial Consumptive Use (CBCU). For Colorado provisional groundwater pumping data for 2024 was repeated for 2025. For Kansas and Nebraska, the data from 2023 was repeated for 2025. Historical precipitation, reservoir stage, evapotranspiration and streamflow data were utilized when available. Long term average data was

used when historical data was not available. Streamflow records for 2025 were estimated using engineering judgement and historical streamflow records.

The projections were made assuming that water short year administration on Harlan County Reservoir would not be in effect. The 5-run model approach was utilized in these projections.

Table 1 (page 1 of 4)
Operation of the Colorado Compact Compliance Pipeline
(units of ac-ft)

Jan - Dec Calendar Year	North Fork Basin Accounting									Arikaree Basin Accounting					
	North Fork Gaged Flow	Consumptive Use							Virgin Flow	Gaged Flow	Consumptive Use				Virgin Flow
		CCP Deliveries	Net North Fork Gaged Flows for Virgin Flow Calculations	0.40 x Haigler Canal Divs Measured at Stateline	CO SW and Small Res Evap	CO GW Con Use	KS GW Con Use	NE GW and SW Con Use			CO SW	CO GW	KS GW and Non- Fed Res Evap	NE GW	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
2000	19,435	0	19,435	2,368	3,122	13,173	15	4,709	42,822	3,631	0	1,918	128	196	5,873
2001	19,752	0	19,752	2,004	2,809	13,534	18	4,683	42,800	553	0	1,288	190	341	2,372
2002	15,904	0	15,904	2,258	3,172	13,562	14	5,324	40,234	231	0	401	114	351	1,097
2003	17,700	0	17,700	1,986	2,615	14,023	17	4,381	40,722	1,060	0	242	100	507	1,909
2004	19,759	0	19,759	1,493	3,022	14,373	16	3,685	42,348	341	0	353	157	431	1,282
2005	21,060	0	21,060	1,898	3,171	14,359	17	4,290	44,795	1,151	0	811	163	250	2,375
2006	17,608	0	17,608	1,767	3,140	14,301	12	4,017	40,845	404	0	1,116	130	125	1,775
2007	20,333	0	20,333	1,809	3,014	14,790	0	3,612	43,559	1,308	0	1,143	117	112	2,680
2008	21,638	0	21,638	1,998	671	15,004	0	3,925	43,235	1,567	0	1,536	106	124	3,333
2009	24,405	0	24,405	1,677	265	15,783	0	3,468	45,598	779	0	4,011	162	153	5,106
2010	20,418	0	20,418	2,016	325	15,479	0	3,999	42,238	2,358	49	1,446	109	73	4,035
2011	19,722	0	19,722	1,930	354	15,689	0	3,899	41,594	1,074	33	1,830	170	93	3,200
2012	14,376	0	14,376	2,452	583	15,309	0	4,698	37,418	494	63	1,558	116	78	2,309
2013	18,433	0	18,433	1,536	377	15,649	0	3,362	39,357	91	45	458	214	126	934
2014	26,707	7,448	19,259	1,244	285	16,283	0	2,962	40,034	0	21	1,141	236	128	1,526
2015	27,895	10,760	17,135	1,467	512	16,424	0	3,324	38,862	142	23	2,829	192	108	3,294
2016	28,091	10,130	17,961	1,596	419	16,820	0	3,550	40,346	397	37	2,638	196	147	3,415
2017	26,046	11,330	14,716	1,893	297	16,906	0	4,013	37,825	646	12	2,102	168	77	3,005
2018	32,580	13,578	19,002	1,408	325	17,365	0	3,317	41,417	821	0	2,639	190	112	3,762
2019	26,082	8,905	17,177	1,585	182	17,492	0	3,607	40,043	1,113	0	2,084	123	76	3,396
2020	22,984	6,218	16,766	2,115	235	17,390	0	4,419	40,925	1,657	0	1,646	100	73	3,476
2021	25,846	9,390	16,456	2,256	169	17,951	0	4,656	41,488	1,635	0	1,443	131	110	3,319
2022	21,129	8,501	12,628	2,486	258	17,903	0	5,018	38,293	982	0	735	144	105	1,966
2023	28,618	12,259	16,359	1,673	176	19,062	0	3,838	41,108	1,678	0	2,215	287	220	4,400
2024	23,138	9,873	13,265	2,006	170	19,377	0	4,355	39,173	1,283	0	2,686	142	74	4,185
2025	25,000	11,000	14,000	2,000	170	19,454	0	4,363	39,987	1,500	0	2,280	130	69	3,979
2026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 1 (page 2 of 4)
Operation of the Colorado Compact Compliance Pipeline
(units of ac-ft)

Jan - Dec Calendar Year	South Fork Basin Accounting							CO Compact Allocation				
	Consumptive Use							22.4%	78.5%	44.4%	All Basins	
	Gaged Flow at Benkelman	CO SW + CO Small Res Evap	Bonny Res Seepage	CO Bonny Res Evap	KS GW, Non-Fed Res Evap, SW CU	NE GW	Virgin Flow	North Fork	Arikaree	South Fork	Colorado Allocation of Beaver Creek (See Table 5F in Water Short Year)	Total of All Basins
(1)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
2000	4,855	2,732	10,450	5,557	6,333	982	30,909	9,592	4,610	13,723	1,940	29,866
2001	3,097	980	10,964	3,972	7,515	641	27,170	9,587	1,862	12,063	1,500	25,012
2002	1,579	2,288	10,765	5,750	4,933	1,282	26,598	9,012	861	11,809	0	21,683
2003	905	598	12,115	3,375	5,390	1,347	23,730	9,122	1,499	10,536	0	21,156
2004	0	770	12,874	3,158	6,091	1,202	24,094	9,486	1,006	10,698	0	21,190
2005	0	275	14,952	3,430	7,525	1,372	27,553	10,034	1,864	12,233	0	24,131
2006	0	0	11,757	3,031	4,723	1,040	20,551	9,149	1,394	9,124	0	19,667
2007	674	266	12,511	2,428	5,670	1,055	22,605	9,757	2,104	10,036	1,576	23,473
2008	1,397	52	14,707	1,766	5,933	1,021	24,876	9,685	2,617	11,045	3,080	26,426
2009	8,407	101	14,976	1,020	7,856	1,302	33,661	10,214	4,008	14,946	3,100	32,268
2010	12,756	919	11,938	1,921	3,016	625	31,174	9,461	3,167	13,841	2,890	29,360
2011	9,916	177	13,092	1,965	6,164	941	32,256	9,317	2,512	14,322	2,580	28,730
2012	6,441	107	9,321	67	2,568	810	19,314	8,382	1,813	8,575	1,860	20,630
2013	0	52	12,321	0	5,190	473	18,036	8,816	733	8,008	76	17,633
2014	0	150	13,868	0	8,552	1,027	23,597	8,968	1,198	10,477	22	20,665
2015	4,819	408	13,865	0	5,528	918	25,537	8,705	2,586	11,339	724	23,353
2016	3,898	331	13,883	0	5,835	904	24,851	9,037	2,681	11,034	780	23,532
2017	2,385	444	13,537	0	4,733	699	21,798	8,473	2,359	9,678	2,450	22,960
2018	1,970	356	14,602	0	6,736	974	24,638	9,277	2,953	10,939	578	23,748
2019	2,385	0	13,154	0	3,455	607	19,601	8,970	2,666	8,703	2,510	22,848
2020	7,229	0	11,037	0	3,577	717	22,560	9,167	2,729	10,017	2,250	24,163
2021	321	0	13,764	0	5,292	774	20,151	9,293	2,605	8,947	1,940	22,786
2022	0	0	12,347	0	4,496	820	17,663	8,578	1,543	7,842	1,270	19,233
2023	48	0	16,007	0	8,223	1,103	25,381	9,208	3,454	11,269	1,680	25,611
2024	7	0	14,260	0	4,011	617	18,895	8,775	3,285	8,389	2,120	22,569
2025	0	0	14,011	0	3,834	693	18,538	8,957	3,124	8,231	1,910	22,221
2026	0	0	0	0	0	0	0	0	0	0	0	0
2027	0	0	0	0	0	0	0	0	0	0	0	0

Table 1 (page 3 of 4)
Operation of the Colorado Compact Compliance Pipeline
(units of ac-ft)

	CO Consumptive Use							Colorado Compact Compliance Accounting			
	Instate			GW Con Use in Nebraska							
Jan - Dec Calendar Year								Annual Amount Colorado Exceeded Compact Entitlement BEFORE		Annual Amount Colorado Exceeded Compact Entitlement after Accounting for CCP Delivery	5-year Running Average of the Amount Colorado Exceeded Compact Entitlement after Accounting for CCP Delivery
	North Fork	Arikaree	South Fork	Buffalo and Rock Creek	French- man Creek	Rep River Mainstem	Total Colorado Con Use	CCP Deliveries	CCP Delivery	CCP Delivery	
(1)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)
2000	16,295	1,918	18,739	276	599	-4,242	33,585	3,719	0	3,719	
2001	16,343	1,288	15,917	293	569	-4,166	30,244	5,231	0	5,231	
2002	16,734	401	18,804	298	619	-6,155	30,700	9,017	0	9,017	
2003	16,638	242	16,088	324	37	132	33,460	12,304	0	12,304	
2004	17,395	353	16,802	348	39	-1,269	33,668	12,478	0	12,478	8,550
2005	17,530	811	18,656	367	42	-1,954	35,452	11,321	0	11,321	10,070
2006	17,441	1,116	14,788	383	43	-3,009	30,762	11,094	0	11,094	11,243
2007	17,804	1,143	15,205	406	55	-2,062	32,552	9,079	0	9,079	11,255
2008	15,675	1,536	16,525	429	370	-2,487	32,048	5,621	0	5,621	9,919
2009	16,048	4,011	16,097	451	2,917	-1,549	37,975	5,707	0	5,707	8,564
2010	15,804	1,495	14,777	472	3,030	-2,698	32,880	3,520	0	3,520	7,004
2011	16,043	1,863	15,234	492	2,554	-2,305	33,881	5,151	0	5,151	5,816
2012	15,892	1,621	9,495	513	1,485	-6,712	22,294	1,664	0	1,664	4,333
2013	16,026	503	12,373	531	1,125	-1,919	28,639	11,005	0	11,005	5,410
2014	16,568	1,162	14,018	554	951	-1,162	32,092	11,427	7,448	3,979	5,064
2015	16,936	2,852	14,273	584	1,769	-2,649	33,765	10,411	10,760	-349	4,290
2016	17,239	2,675	14,214	608	1,600	-2,436	33,900	10,368	10,130	238	3,307
2017	17,203	2,114	13,981	614	1,206	-3,316	31,802	8,842	11,330	-2,488	2,477
2018	17,690	2,639	14,958	644	1,162	-1,978	35,116	11,368	13,578	-2,210	-166
2019	17,674	2,084	13,154	671	1,669	-2,522	32,730	9,881	8,905	976	-767
2020	17,625	1,646	11,037	576	1,121	-5,115	26,890	2,728	6,218	-3,491	-1,395
2021	18,120	1,443	13,764	519	183	-3,839	30,190	7,404	9,390	-1,986	-1,840
2022	18,161	735	12,347	482	174	-5,340	26,559	7,325	8,501	-1,176	-1,577
2023	19,238	2,215	16,007	533	166	-43	38,116	12,505	12,259	246	-1,086
2024	19,547	2,686	14,260	581	159	-3,622	33,611	11,042	9,873	1,169	-1,047
2025	19,624	2,280	14,011	588	154	-3,719	32,938	10,717	11,000	-283	-406
2026	0	0	0	0	0	0	0	0	0	0	-9
2027	0	0	0	0	0	0	0	0	0	0	226

Explanation of Columns in Table 1 (page 4 of 4)

(Gaged or RRCA Accounting data used when available, remaining data is estimated)

Column Number	Section Title	Column Title	Explanation
(1)		Jan - Dec Calendar Year	Accounting on a calendar year of January through December
(2)	North Fork Basin Accounting	North Fork Gaged Flow	USGS Gage 06823000 North Fork Republican River at Colorado-Nebraska Stateline
(3)		CCP Deliveries	Colorado Compact Compliance Pipeline deliveries to the North Fork as measured by the Parshall flume at the outfall.
(4)		Net North Fork Gaged Flows for Virgin Flow Calculations	Calculated as Col(2) - Col(3). The CCP deliveries are subtracted out of the North Fork Gage flow for purposes of virgin flow calculations.
(5)		0.40 x Haigler Canal Divs Measured at Stateline	Calculated as .40 x Haigler Canal Deliveries at Stateline. Accounts for return flow in Nebraska as the result of a Nebraska diversion in Colorado.
(6)		CO SW and Small Res Evap	Colorado consumptive use from surface water diversions (multiplied by 60%) and reservoir evaporation occurring in the North Fork basin upstream of the stateline. Values from RRCA Accounting.
(7)		CO GW Con Use	Colorado Groundwater Consumptive use in the North Fork Basin upstream of the Stateline. Values from RRCA Accounting.
(8)		KS GW Con Use	Kansas Groundwater Consumptive Use on the North Fork Basin Upstream of the Stateline. Values from RRCA Accounting.
(9)		NE GW and SW Con Use	Nebraska surface water diversions in Colorado times 0.60 (Haigler Canal at Stateline). Plus Nebraska Groundwater Consumptive use on the North Fork Basin Upstream of the Stateline. Values from RRCA Accounting.
(10)		Virgin Flow	Calculated as Col(4) + Col(5) + Col(6) + Col(7) + Col(8) + Col(9)
(11)	Arikaree Basin Accounting	Gaged Flow	USGS Gage 06821500 Arikaree River at Haigler, Nebr.
(12)		CO SW	Colorado consumptive use from surface water diversions (multiplied by 60%) in the Arikaree basin. Values from RRCA Accounting.
(13)		CO GW	Colorado groundwater consumptive use in the Arikaree Basin. Values from RRCA Accounting.
(14)		KS GW and Non-Fed Res Evap	Kansas groundwater consumptive use and reservoir evaporation in the Arikaree Basin. Values from RRCA Accounting.
(15)		NE GW	Nebraska groundwater consumptive use in the Arikaree Basin. Values from RRCA Accounting.
(16)		Virgin Flow	Calculated as Col(11) + Col(12) + Col(13) + Col(14) + Col(15)
(17)	South Fork Basin Accounting	Gaged Flow at Benkelman	USGS Gage 06827500 South Fork Republican River near Benkelman, Nebr.
(18)		CO SW + CO Small Res Evap	Colorado consumptive use from surface water diversions (multiplied by 60%) and reservoir evaporation occurring in the South Fork basin. Values from RRCA Accounting.
(19)		CO GW + Bonny Res Seepage	Colorado Groundwater Consumptive use in the South Fork Basin. Values from RRCA
(20)		CO Bonny Res Evap	Reservoir Evaporation on Bonny Reservoir charged to Colorado.
(21)		KS GW, Non-Fed Res Evap, SW CU	Kansas groundwater consumptive use, reservoir evaporation, and consumptive use of surface water diversions (60%) in the South Fork Basin. Values from RRCA
(22)		NE GW	Nebraska groundwater consumptive use in the South Fork Basin. Values from RRCA Accounting.
(23)		Virgin Flow	Calculated as Col(17) + Col(18) + Col(19) + Col(20) + Col(21) + Col(22)
(24)	CO Compact Allocation	North Fork	Calculated as Col(10) x 22.37%
(25)		Arikaree	Calculated as Col(16) x 78.53%
(26)		South Fork	Calculated as Col(23) x 44.41%
(27)		Colorado Allocation of Beaver Creek (See Table 5F in Water	Values from RRCA Accounting and the BOR designation of water short years.
(28)		Total of All Basins	Calculated as Col(24) + Col(25) + Col(26) + Col(27)
(29)	CO Consumptive Use	North Fork	Calculated as Col(6) + Col(7)
(30)		Arikaree	Calculated as Col(12) + Col(13)
(31)		South Fork	Calculated as Col(18) + Col(19) + Col(20)
(32)		Buffalo and Rock Creek	Values from RRCA Accounting.
(33)		French-man Creek	Values from RRCA Accounting.
(34)		Rep River Mainstem	Values from RRCA Accounting.
(35)		Total Colorado Con Use	Calculated as Col(29) + Col(30) + Col(31) + Col(32) + Col(33) + Col(34)
(36)	Colorado Compact Compliance Accounting	Annual Amount Colorado Exceeded Compact Entitlement BEFORE CCP Delivery	Calculated as Col(35) - Col(28)
(37)		CCP Deliveries	Colorado Compact Compliance Pipeline deliveries to the North Fork as measured by the Parshall flume at the outfall.
(38)		Annual Amount Colorado Exceeded Compact Entitlement after Accounting for CCP Delivery	Calculated as Col(36) - Col(37)
(39)		5-year Running Average of the Amount Colorado Exceeded Compact Entitlement after Accounting for CCP Delivery	Calculated as the average of this year and the four previous years.

Table 2
Surface Water Data Used in Accounting
(units of acre-feet)

Calendar Year	Streamflow Gages					Colo Surface Water Diversions			Reservoir Evaporation					Beaver Creek		
	North Fork at CO-KS Stateline Gage	Measured Compact Compliance Pipeline Delivery	Haigler Canal Stateline Flume	Arikaree at Haigler, NE Gage	South Fork at Benkelman Gage	Total North Fork Divs including CO Pioneer	Colorado Arikaree Divs	Colorado South Fork Divs	Colorado Non-Fed Res Evap in North Fork	Colorado Non-Fed Res Evap in South Fork	Kansas Non-Fed Res Evap in Arikaree	Kansas Non-Fed Res Evap and Small SW Div Con Use in South Fork	Bonny Res Evap	Colorado Compact Entitlement in non-water short years	Colorado Beaver Creek Reduced Allocation' Water Short Years	Water Short Year (Yes/No) CO receives no Beaver Creek Allocation in Water Short Year
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2000	19,435	0	5,921	3,631	4,855	5,203	0	4,554	0	0	0	13	5,557	1,940	0	
2001	19,752	0	5,011	553	3,097	4,682	0	1,634	0	0	0	65	3,972	1,500	0	
2002	15,904	0	5,646	231	1,579	5,286	0	3,814	0	0	0	41	5,750	770	770	Yes
2003	17,700	0	4,965	1,060	905	4,358	0	996	0	0	0	39	3,375	260	260	Yes
2004	19,759	0	3,732	341	0	4,960	0	1,283	46	0	41	310	3,158	360	360	Yes
2005	21,060	0	4,745	1,151	0	5,213	0	458	43	0	41	298	3,430	910	910	Yes
2006	17,608	0	4,418	404	0	5,150	0	0	50	0	46	325	3,031	1,420	1,420	Yes
2007	20,333	0	4,522	1,308	674	4,961	0	444	38	0	18	143	2,428	2,320	744	Yes
2008	21,638	0	4,995	1,567	1,397	1,056	0	87	37	0	14	121	1,766	3,080	0	No
2009	24,405	0	4,193	779	8,407	394	0	169	28	0	7	65	1,020	3,100	0	No
2010	20,418	0	5,041	2,358	12,756	474	81	1,336	41	117	11	98	1,921	2,890	0	No
2011	19,722	0	4,826	1,074	9,916	530	55	39	36	154	14	119	1,965	2,580	0	No
2012	14,376	0	6,129	494	6,441	886	105	0	51	107	24	213	67	1,860	0	No
2013	18,433	0	3,839	91	0	553	75	0	45	52	17	147	0	1,130	1,054	Yes
2014	26,707	7,448	3,110	0	0	412	35	184	38	40	11	100	0	1,250	1,228	Yes
2015	27,895	10,760	3,668	142	4,819	792	38	616	37	38	14	124	0	2,130	1,406	Yes
2016	28,091	10,130	3,991	397	3,898	636	62	510	37	25	13	118	0	2,430	1,650	Yes
2017	26,046	11,330	4,732	646	2,385	432	20	716	38	14	11	96	0	2,450	0	No
2018	32,580	13,578	3,520	821	1,970	479	0	594	38	0	12	106	0	2,430	1,852	Yes
2019	26,082	8,905	3,963	1,113	2,385	236	0	0	40	0	12	107	0	2,510	0	No
2020	22,984	6,218	5,288	1,657	7,229	325	0	0	40	0	19	107	0	2,250	0	No
2021	25,846	9,390	5,640	1,635	321	217	0	0	39	0	16	137	0	1,940	0	No
2022	21,129	8,501	6,216	982	0	356	0	0	44	0	16	137	0	1,270	0	No
2023	28,618	12,259	4,182	1,678	48	192	0	0	61	0	16	137	0	1,680	0	No
2024	23,138	9,873	5,014	1,283	7	200	0	0	50	0	16	137	0	2,120	0	No
2025	25,000	11,000	5,000	1,500	0	200	0	0	50	0	16	137	0	1,910	0	No
2026																
2027																

USGS, BOR, and RRCA Accounting records used when available. Missing data estimated from historical values using engineering judgement.