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

Nebraska Rock Creek Augmentation Plan

Republican River Compact

Response to report prepared by State of Nebraska, dated February 8, 2013

Prepared by

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Kansas Department of Agriculture

July 1, 2013

I. Qualifications.

From late 1992 until becoming Chief Engineer in 2007, a principal part of my professional work was dedicated to the study and assessment of the hydrology and water infrastructure of the Republican River Basin ("Basin") and administration of the Republican River Compact ("Compact"). This work engaged the many technical challenges of administering the Compact before, during, and after the litigation that produced the Final Settlement Stipulation of 2003 ("FSS"). As part of these duties, I was involved in all of the technical discussions related to the negotiation of the FSS, its Accounting Procedures, the RRCA Groundwater Model ("Model"), and all joint sessions of the various negotiation teams. After the adoption of the FSS, my work focused on implementing that agreement.

Since 2007, I have served as the Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture. In that capacity, I have two principal duties. My first duty is that of a professional engineer specializing in water resources. This duty includes the analysis of water supplies, water resources management, surface water and groundwater hydrology, groundwater modeling, and the assessment of water structures. My second duty is that of the Chief Engineer. As Chief Engineer, I have the duty to administer and enforce the laws relating to water supply for the State of Kansas. These consist principally of the Kansas Water Appropriation Act, the four interstate compacts to which Kansas is a party, and numerous other laws and implementing regulations related to special water districts in Kansas, dams and dams safety, floodplain activities, and more. It is my duty to ensure that my administration of these laws and regulations accords with the realities of the State of Kansas – most importantly, the realities of its water supplies and of its water needs. As the Kansas commissioner to the Republican River Compact Administration ("RRCA"), I am responsible for all Compact-related matters. As a technical expert for Kansas leading up to and during the 1998-2003 litigation and settlement, and now as Chief Engineer, I have served in the administration of the Compact for nearly twenty years.

II. Introduction.

This report summarizes my technical and administrative review of the Nebraska Rock Creek Augmentation Plan ("Rock Creek Plan") as it was submitted to the RRCA in March, 2013, and as it became the subject of this arbitration. This report rests upon my three areas of expertise. First, it rests upon my role as Compact Commissioner for Kansas. Second, it rests upon my expertise in administering the Compact, the FSS, and its Accounting Procedures. I necessarily follow the rules, tests, and procedures set forth by these documents, and apply facts to them, using my own expertise. Finally, it rests upon my expertise in evaluating the hydrology and water resources of the Basin.

My opinions are as follows:

1. The FSS requires RRCA approval of augmentation plans so that the States may fully review them to ensure that such plans are fully integrated into the Accounting Procedures and the Model, and that such plans have sufficient terms and conditions to protect the interests of all the States consistent with the Compact and FSS. (See Section IV, below).

2. The level of detail provided with the Rock Creek Plan and the process pursued by Nebraska for its approval has not provided Kansas and the RRCA with a meaningful opportunity to address Kansas' concerns. *See* Section V, below.

3. As set forth more fully in Section VI below, the Rock Creek Plan requires the following elements, which it presently lacks.

    a. The Rock Creek Plan requires clear limits on the quantity of water to be pumped. These limits should prevent the expansion of use of the Rock Creek Plan beyond the historic consumptive use of its wells.

    b. The Rock Creek Plan requires a full consideration of losses below its outflow, through the use of the Model. The Model must be used to determine the augmentation credit of the Rock Creek Plan.

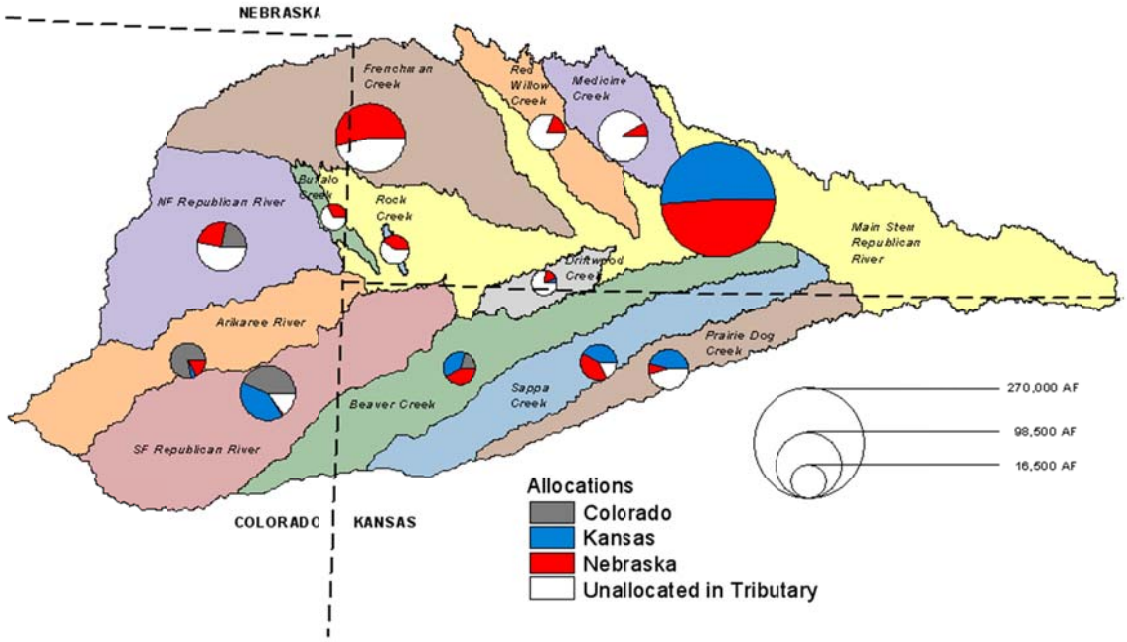
    c. The Rock Creek Plan requires a clear mechanism to demonstrate that augmentation deliveries are required for Compact compliance, with data exchange requirements that are sufficiently specific and complete to allow the States to verify operations.

    d. The Rock Creek Plan requires temporal limits and review by the RRCA for changed conditions.

III. The Compact, Post-Compact Groundwater Development, and the FSS.

The Compact allocates the water supply of the Basin and commits each state to keep its use within its respective allocation. Article III of the Compact determines the Basin's water supply by sub-basin and the main stem Republican River, and Article IV allocates that supply, again by sub-basin and to the main stem in Nebraska and Kansas. Figure 1 illustrates the Compact's allocation framework. For each sub-basin, states are allocated a quantity of water from that sub-basin's total supply. In all but two sub-basins, a portion of the water supply is known as "unallocated water" – a quantity of water that is unallocated to a particular sub-basin. However, this "unallocated water" is in fact allocated – it is reserved for use in the main stem, which flows through Nebraska and Kansas. See Figure 1 below.

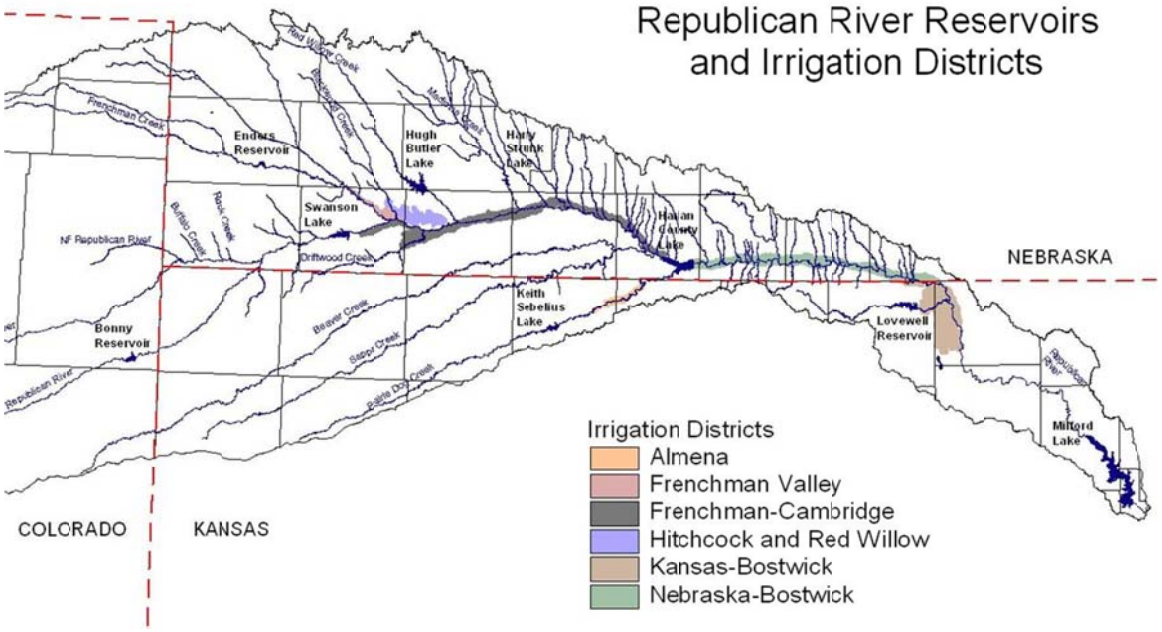
Figure 1 - Republican River Compact Allocations



At the time of its approval in 1943, the Compact's quantification of the water supply of the Basin was based on limited records. The framers of the Compact compensated for this known deficiency by including, in Article III, a provision for adjusting each State's allocations in proportion to the actual water supply that the States determined to be available for any particular year. By this provision, the Compact's allocations are accurately translated into percentages of the annual determined water supply of each sub-basin and of the main stem. Attachment 1 to this report, which is Table 2 from the Republican River Compact Administration's Accounting Procedures, tabulates the original allocations as well as these percentages. (See Attachment 1, "RRCA Accounting Procedures, Table 2").

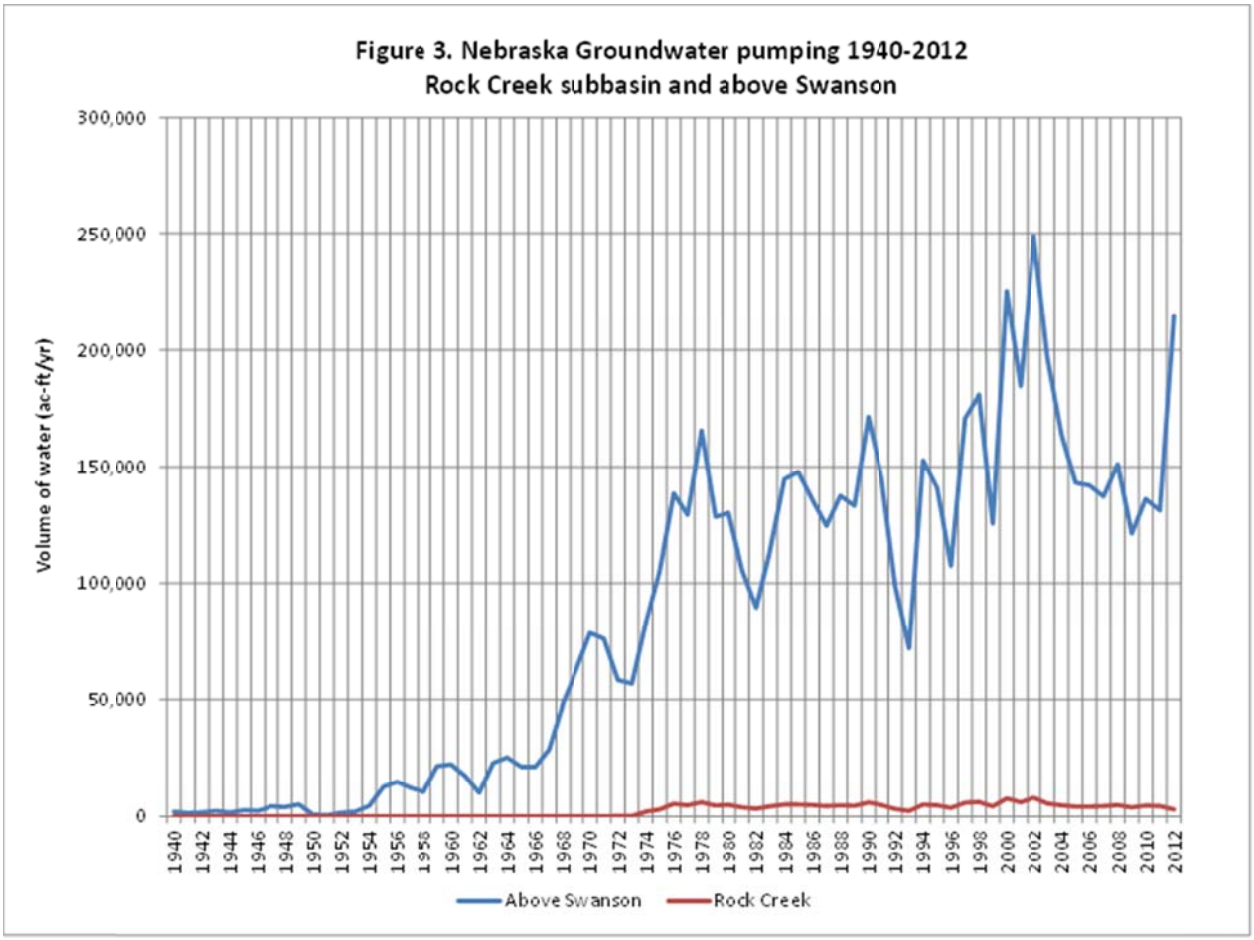
After the ratification of the Compact by the States and Federal government, much of the planned federal system of reservoirs and irrigation districts was developed (see Figure 2 below). The need to protect the federal government's investments in water-supply infrastructure was a principal reason behind the Compact. See Statement of Mr. Robert D. Kutz, Project Manager for the Bureau of Reclamation ("Bureau"), 29th Annual Report of the RRCA, p. 14 (1989). The Compact explicitly provides that federal surface water development in each State be charged to that state's respective allocation. Compact, Art. XI (a).

Figure 2 - Republican River Reservoirs and Irrigation Districts

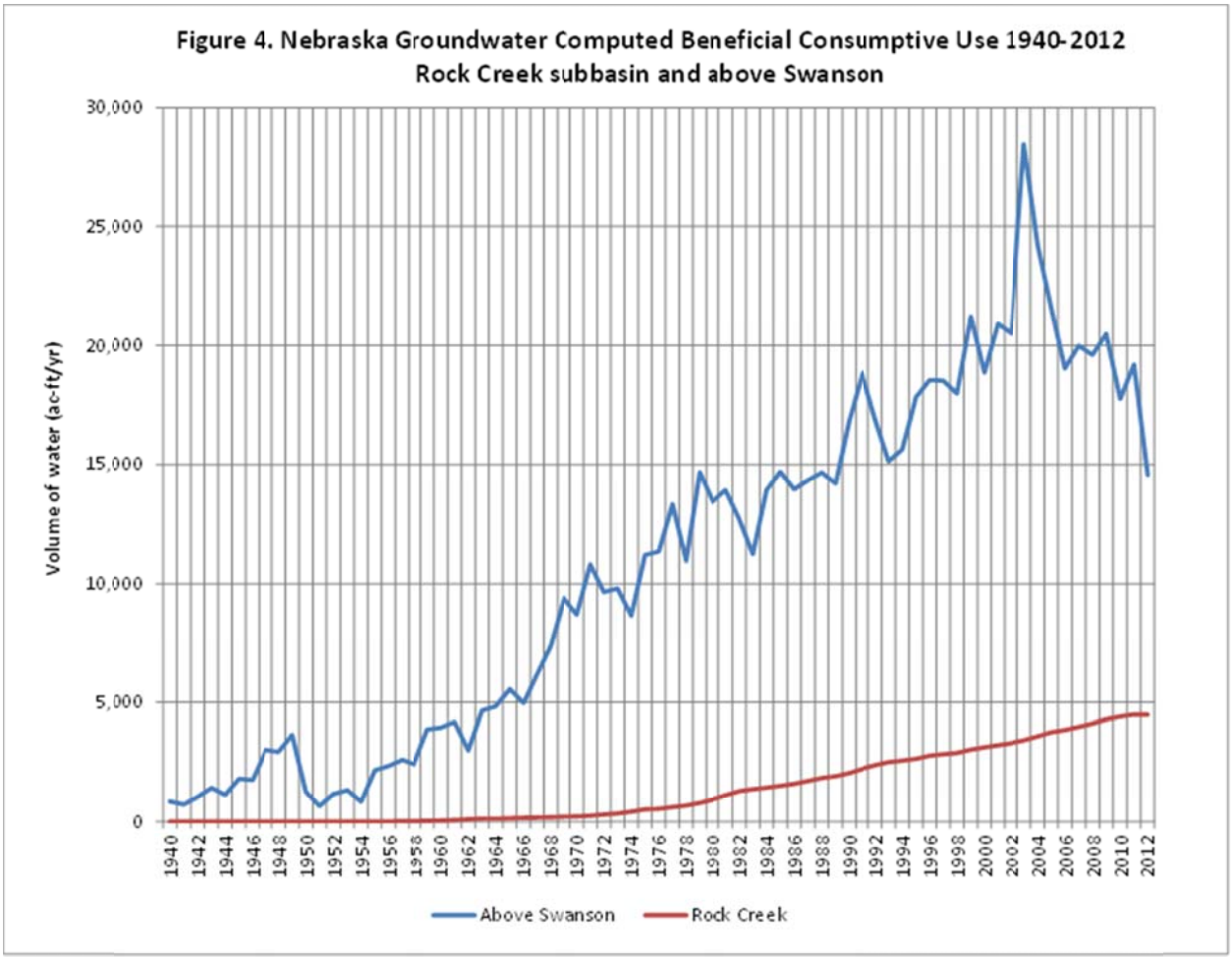


While the limited groundwater use at the time of Compact negotiations was included in the determination and allocation of the original virgin water supply, the extent of groundwater development was not fully anticipated. Shortly after the signing of the Compact, center-pivot groundwater irrigation began to transform the hydrology of the Basin. Groundwater pumping gradually depleted stream flows, threatening the proper functioning of the irrigation and water-supply infrastructure which depended upon the Compact's protections. The litigation of 1998-2003 made it clear that groundwater is part of the "Virgin Water Supply" of the Basin, insofar as it contributes to streamflows. *Kansas v. Nebraska and Colorado,* No. 126 Orig., First Report of the Special Master (Subject: Nebraska Motion to Dismiss); 530 U.S. 1272 (2000); FSS Section I.9. The Compact clearly placed the burden on each State to limit its consumptive use to its Compact allocation, regardless of whether the consumptive use derived from surface waters or groundwater which contributed to surface water flows. The depletion of stream flows caused by groundwater pumping is a physical process that has been well understood for many decades, and has been quantified and applied to the Basin using the methods agreed upon by the States, as is further described below.

Nebraska has permitted significant groundwater development for irrigation within the Republican River basin. Figure 3 below shows historical groundwater pumping in the Rock Creek sub-basin and above Swanson Reservoir for Nebraska based on records used in the development of the Model and as reported to the RRCA since 2001. A tabulation of these values is in Attachment 2.



This groundwater development has led to substantial and growing depletions to streamflow, depletions which are treated by the RRCA's accounting procedures as groundwater computed beneficial consumptive use (CBCU). Figure 4 below is a graph of these groundwater CBCU values. These depletions have grown to the extent that compliance during water-short years (a defined condition in the FSS) requires action by Nebraska to either reduce groundwater CBCU or offset the depletions. These values are as determined in the development of the Model through the year 2000 and as determined by the RRCA since 2001 (some values are provisional). A tabulation of these values is in Attachment 2.



During the course of the 1998-2003 litigation, Kansas accepted Nebraska's invitation to employ the combined technical expertise of all three States, and cooperate to produce a comprehensive settlement of their concerns. This cooperative effort ultimately resulted in the FSS. Through the FSS, the States agreed upon the details of how the Compact would be administered. Special Master McKusick hailed the FSS as a superior resolution of the controversies surrounding the Compact. By pooling their collective expertise to measure and to model the waters of the Basin, and by cooperatively establishing the procedures by which the Compact would be administered, the States, through the FSS, achieved a result that was vastly more comprehensive and more accurate than any resolution that litigation could have produced by itself. (*Kansas v. Nebraska & Colorado*, No. 126 Orig., SECOND REPORT OF THE SPECIAL MASTER, April 15, 2003, pp. 48, 74-77).

The FSS, its Accounting Procedures, and the Model comprise the jointly developed, detailed, and agreed-upon rules and methods for the administration of the Compact. Some of the most important rules address both the unique situations of particular states and their need for flexibility, as long as that flexibility was consistent with the Compact's terms. The FSS

accomplishes such flexibility by rules that apply depending on the result of a particular test of compliance. The general statewide test for compliance, requiring a state's consumptive use to be within its allocation on a 5-year running average basis, is set forth in Section IV.A of the FSS and Table 3 of the Accounting Procedures. The rules governing sub-basin accounting and compliance are set forth in Section IV.B of the FSS and Table 4 of the Accounting Procedures. Finally, the water-short year compliance tests are set forth in Section V of the FSS and Table 5 of the Accounting Procedures.

IV. The Augmentation provisions of the FSS.

The FSS includes few references to augmentation, and the Accounting Procedures remain silent on the matter. Below is a complete recitation of the FSS's provisions on augmentation:

> III. Existing Development ; B. Exceptions to Moratorium on New Wells
>
> III.B.1.k Wells acquired or constructed by a State for the sole purpose of offsetting stream depletions in order to comply with its Compact Allocations. Provided that, such Wells shall not cause any new net depletion to stream flow either annually or long-term. The determination of net depletions from these Wells will be computed by the RRCA Groundwater Model and included in the State's Computed Beneficial Consumptive Use. Augmentation plans and related accounting procedures submitted under this Subsection III.B.1.k. shall be approved by the RRCA prior to implementation.
>
> IV Compact Accounting ; A. RRCA Accounting Procedures
>
> IV. A. The States will determine Virgin Water Supply, Computed Water Supply, Allocations, Imported Water Supply Credit, augmentation credit and Computed Beneficial Consumptive Use based on a methodology set forth in the RRCA Accounting Procedures, attached hereto as Appendix C.
>
> IV Compact Accounting ; H. Augmentation Credit
>
> IV. 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.

Based on my participation in both the development of the FSS and its use in administering the Compact, these subsections concerning augmentation plans make three things clear. First, the express purpose of augmentation plans is "for the sole purpose of offsetting stream depletions in order to comply with its Compact Allocations." FSS, III.B.1.k. Specifically, a State that proposes an augmentation plan may be allowed to use groundwater to obtain an

offset, or credit, which compensates for the overuse of its allocation under the Compact and FSS. Therefore, such augmentation credits must be limited to the State's overuse of its allocations.

Second, augmentation plans are an extraordinary means by which a state could achieve compliance. Without an augmentation plan, additional flows reaching a gage would simply increase the water supply of that subbasin, and the states would share in the increase of allocations accordingly. By contrast, water that is delivered under an approved augmentation plan is treated much differently: principally, the augmenting state receives a credit against its excess depletions. Augmentation plans require RRCA review and approval because they are eligible to receive these credits. As Colorado State Engineer Hal Simpson testified before Special Master McKusick in 2003, approval by the RRCA is required because such plans are "a last resort to come into compliance under the Compact . . . ." *Kansas v. Nebraska & Colorado,* No. 126 Orig., Transcript of Hearing before Special Master Vincent L. McKusick, Denver, Colorado, January 6, 2003, p. 82, attached as Attachment 3.

Finally, the States have the discretion to approve or disapprove, a particular augmentation plan according to its merits.

Neither the RRCA Accounting Procedures nor the Model currently contain methods for calculating augmentation credits. Because the RRCA administers the Compact, the FSS requires that the States agree upon how these credits would function within the Accounting Procedures and the Model, prior to the implementation of any augmentation plan. At minimum, the FSS requires credits for augmentation to be determined using the Model, because these credits relate exclusively to groundwater: they derive solely from the pumping of groundwater, and they are used to offset a state's overuse of its allocations as expressed in terms of depletions to streamflow. Other details of augmentation were left to the negotiation of the states for the particular augmentation plan. In their discussion of this section of the FSS before Special Master McKusick, the state engineers stressed this process to allow for full consideration of the plans prior to implementation. *See Kansas v. Nebraska & Colorado,* No. 126 Orig., Transcript of Hearing before Special Master Vincent L. McKusick, Denver, Colorado, January 6, 2003, pp. 16-18, 80-83, attached as Attachment 3.

V. Background on the Rock Creek Plan and its consideration by the RRCA.

Kansas has been aware of the possibility of augmentation projects in Nebraska since 2007. Nebraska chose not to raise the matter with the RRCA until the latter half of 2012, as the Rock Creek Plan was nearing completion.

In 2009 Kansas raised concerns with Colorado's Compact Compliance Pipeline (CCP). In 2010 the states arbitrated that issue, and Arbitrator Martha O. Pagel ruled that Kansas' concerns were legitimate and that Kansas was justified in withholding its approval of the CCP.

See Attachment 7. Several of Kansas' concerns with the CCP were unique to the CCP plan. However, several of Kansas' concerns were fundamental in the consideration of augmentation plans in general. Kansas continues to have these same concerns about augmentation plans. The Nebraska Plan does not address Kansas' longstanding and fundamental concerns regarding augmentation plans, concerns that were validated by Arbitrator Pagel.

On September 27, 2012, Kansas presented to the engineering committee of the RRCA an outline of its concerns and issues with augmentation plans, and invited further dialogue on the matter. See Attachment 5. The Rock Creek Plan does not appear to respond to these concerns and issues.

On December 10, 2012, Nebraska first presented its general outline for augmentation plans to the RRCA, and asked for expedited review and approval of the general terms and conditions that outline set forth. See Attachment 6. Kansas responded by letter of January 14, 2013, which included a listing of what Kansas believed should be submitted as part of an augmentation plan for the RRCA's consideration. It included Kansas' position that, "Kansas needs to see the specifics of each augmentation plan in order to ensure that it will not reduce the usability of Kansas' allocation under the Compact in quantity, timing, or location." See Attachment 7.

Without further review by the RRCA, on February 8, 2013 Nebraska submitted its Rock Creek Augmentation Proposal to the RRCA as a "Fast Track" issue for arbitration. Despite the 2010 arbitration decision on Colorado's Compact Compliance Pipeline ("CCP"), and despite the list of concerns that Kansas had provided to the States between September, 2012 and January, 2013, Nebraska forced an up-or-down vote on the Plan. Unfortunately, the Plan still does not address Kansas' consistent and longstanding concerns.

VI. The Specific Inadequacies of the Rock Creek Plan.

A. The Rock Creek Plan requires clear limits on the quantity of water to be pumped. These limits should prevent the expansion of use of the Rock Creek Plan beyond the historic consumptive use of its wells.

The Rock Creek Plan's only limit on the amount of water that can be delivered for augmentation credit is the physical limitation of what the pipeline can deliver. I believe this contradicts the definition of an augmentation plan: it must include specific limits and what can be delivered for credit so it can be evaluated and so its impacts can be understood.

Nebraska's Plan proposes to offset the effects of its augmentation pumping through more augmentation pumping. This circular logic clearly contradicts the plain meaning of Section

III.B.1.k of the FSS, which clearly states that the "…wells shall not cause any new net depletion to stream flow either annually or long-term". Nebraska has explained that its interpretation of the FSS' prohibition against any new net depletions is grounded on the following postulate: that "net depletions" consist of the difference between the accretion to streamflow due to the augmentation water and the depletion to the stream due to the augmentation pumping. But this postulate leads to an expansion of use.

As Mr. Book points out in his report, the way to prevent new net depletion is to condition operations to prevent expanded use of wells retired for the project. Nebraska's methods would allow for the enlargement of pumping with circular logic that will ultimately exacerbate the declines in groundwater levels and thus diminish future baseflows.

Given that Nebraska has indicated that the need for augmentation flows is only expected during Compact Call Years, Nebraska needs to propose pumping limitations such that the average use over a period of say, 10 years, does not exceed the existing level of development.

As is noted above, Rock Creek depletions from Nebraska's groundwater pumping is approaching 5,000 acre-feet per year. Streamflow depletions from Nebraska's groundwater pumping above Swanson Reservoir is approx. 20,000 acre-feet.

To the extent that augmentation flows are greater than Rock Creek depletions, the effect of those flows outside of Rock Creek basin need to be considered and there needs to be a demonstration that the replacing of depletions outside of where they occur will not reduce the usability of flows to Kansas.

B. The Rock Creek Plan requires a full consideration of losses below its outflow, through the use of the Model. The Model must be used to determine the augmentation credit of the Rock Creek Plan.

The Rock Creek Plan makes no provision for losses below the project's outflow nor does Nebraska's plan use the Model to evaluate the augmentation credit. These matters are discussed in Mr. Book and Mr. Larson's reports.

C. The Rock Creek Plan requires a clear mechanism to demonstrate that augmentation deliveries are required for Compact compliance, with data exchange requirements that are sufficiently specific and complete to allow the States to verify operations.

To the extent that the Rock Creek Plan is operated to offset CBCU in excess of Nebraska's allocation, the augmentation water it produces is for Kansas. In the three paragraph section of the Plan describing the "operational aspects of the Project", the Plan states that, "The actual amount delivered in any one year will be subject to current conditions affecting

Nebraska's Compact compliance outlook and on ensuing that no new net depletion is associated with the project."

In Kansas' view, as the FSS limits augmentation plans to the purpose of compact compliance, it is fundamental to a plan to have a clear and transparent a methodology to demonstrate the operations are being used for compliance purposes.

Nebraska's proposal relies on the projection methodology of its IMPs and the NRDs decisions on how to meet their obligation under the IMPs. However, these methods are subject to change and to date have been far from transparent. In addition, the IMPs are currently under legal challenge by Nebraska surface water irrigators who believe they are being injured by the plans.

The plan should include a specific process to demonstrate that deliveries are required for compact compliance. The Rock Creek Plan should a specific timetable for providing projected deliveries to the RRCA and the specific data elements that it will provide to support this projection. If the projection is to be updated as the year progresses, Nebraska's plan should include a schedule for these updates, again with the specifics data to support the revised projection. Any changes to these methodologies should be considered by the RRCA.

For Kansas to be able to approve a plan for long-term compliance, it needs to understand the terms of the plan sufficient to determine if it can be operated in a manner that does not unfairly diminish the usability of Kansas' share of its allocation. Clear operational limits and reporting will insure that augmentation water and augmentation credits are reasonably tied to offsetting overuse so that during critical water-short conditions, Kansas gets its share.

D. The Rock Creek Plan requires temporal limits and review by the RRCA for changed conditions.

Except for some test operations conducted by Colorado on the CCP, the Rock Creek Plan is the first augmentation plan that has become operational in the Basin.

The Ogallala aquifer of Western Nebraska is the source of the Rock Creek Plan's augmentation water supply, but that source is finite and exhaustible. Given the extremely low rate of recharge in Nebraska's portion of the Ogallala, the Rock Creek Plan essentially plans to continue the aggressive mining of groundwater from an already regionally declining aquifer.

As expressed elsewhere, de-watering of both the regional Ogallala system and the related alluvium system the augmentation flows pass through can be expected to lead to increasing losses over time.

Given the RRCA's lack of experience with any augmentation plan, and given the potential for conditions in the Basin to change, the Rock Creek Plan must require a periodic review. Based on the findings of Arbitrator Pagel in her 2010 decision, it seems reasonable to require periodic review of the Nebraska Plan by the RRCA twenty years after the plan's implementation. The Nebraska Plan lacks any such opportunities.

VII. It is reasonable and logical for Kansas to withhold its approval of the Rock Creek Plan.

As noted, the FSS has few specifics regarding augmentation plans. It was the understanding at the time that the FSS was agreed upon that augmentation plans were means of last resort to keep a state in compliance. And in order to protect all States' interests, the authors of the FSS clearly made RRCA approval a requirement of any augmentation plan. Nebraska is not entitled to an augmentation plan that does not satisfy Kansas' reasonable concerns regarding the protection of Kansas' allocation and the future of its share of the Republican River Basin's water supply.

The Compact allocates waters of the basin between the States based on the availability of that water and mandates that state stay within their share. As with Colorado and Kansas, Nebraska's primary obligation under the Compact is to keep its CBCU within its allocation. If Nebraska stays within its share and with the re-timing afforded by Harlan County Reservoir, Kansas will be able to make use of its share of the supply for the lower basin. There is no delivery requirement in the FSS. The need for augmentation is evidence of a failure of water management and is a threat to the long-term hydrologic health of the basin as long as augmentation is needed. In her 2010 decision, Arbitrator Pagel made reference to the general undesirability of the circumstances that warrant augmentation when she suggested a reduction to Colorado's augmentation credit to, "…reflect a policy cost for implementing the pipeline as a method of mitigating the effects of other groundwater pumping…"

Far from being a plan of last resort, Nebraska intends to use augmentation as an element of its basin-wide water management strategy. The Rock Creek Plan and the Nebraska Cooperative Republican Platte Enhancement plan (proposed to the RRCA on June 10, 2013) represent, nominally, 15,000 acre-feet and 60,000 acre-feet per year respectively of potential augmentation deliveries. Both of these plans envision an enlargement of groundwater consumption relative to historical consumption. Neither of these plans proposes to discount any flows that are lost to aquifer recharge, evapotranspiration, or other losses. Both of these plans propose to offset, acre-foot for acre-foot, CBCU in excess of Nebraska's allocation anywhere in the Basin.

Kansas remains willing to work with the other states to approve augmentation plans that are consistent with the Compact, the FSS, the Accounting Procedures, and the Model. Kansas

cannot accept the Rock Creek Plan in its current form but if Nebraska addresses Kansas' concerns, Kansas can foresee approving such a plan.

List of attachments:

1. Attachment 1, "RRCA Accounting Procedures, Table 2."
2. Attachment 2, Rock Creek and Above Swanson groundwater pumping and groundwater CBCU
3. Attachment 3, *Kansas v. Nebraska & Colorado,* No. 126 Orig., Excerpts from the Transcript of Hearing before Special Master Vincent L. McKusick, Denver, Colorado, January 6, 2003
4. Attachment 4, Kansas email with attachment to RRCA engineering committee Sept 27, 2012
5. Attachment 5, Nebraska "Outline for Augmentation Plan to RRCA" Dec 10, 2012
6. Attachment 6, Kansas Letter, Jan 14, 2013
7. Attachment 7, Pagel decision, CCP, 2010

References:

- Nebraska Rock Creek Augmentation Plan, March 21, 2013
- Republican River Compact
- Final Settlement Stipulation
- RRCA accounting procedures, August 12, 2010
- *Kansas v. Nebraska & Colorado,* No. 126 Orig., FIRST REPORT OF THE SPECIAL MASTER (SUBJECT: NEBRASKA MOTION TO DISMISS); 530 U.S. 1272 (2000)
- *Kansas v. Nebraska & Colorado,* No. 126 Orig., SECOND REPORT OF THE SPECIAL MASTER, April 15, 2003
- *Kansas v. Nebraska & Colorado,* No. 126 Orig., FINAL REPORT OF THE SPECIAL MASTER WITH CERTIFICATE OF ADOPTION OF RRCA GROUNDWATER MODEL, September 17, 2003.
- Records of the RRCA's Engineering Committee (accounting inputs on groundwater pumping and groundwater CBCU determinations)
- Integrated Management Plans for the Upper, Middle, and Lower Republican River Natural Resource Districts, 2010-2011
- Dale E. Book, Report on the Nebraska Rock Creek Augmentation Plan, July 1, 2013
- Steven P. Larson and Samuel P. Perkins PhD., Report on the Nebraska Rock Creek Augmentation Plan, July 1, 2013

Table 2: Original Compact Virgin Water Supply and Allocations

Designated Drainage Basin	Virgin Water Supply	Colorado Allocation	% of Total Drainage Basin Supply	Kansas Allocation	% of Total Drainage Basin Supply	Nebraska Allocation	% of Total Drainage Basin Supply	Unallo-cated	% of Total Drainage Basin Supply
North Fork - CO	44,700	10,000	22.4			11,000	24.6	23,700	53.0
Arikaree River	19,610	15,400	78.5	1,000	5.1	3,300	16.8	-90	-0.4
Buffalo Creek	7,890					2,600	33.0	5,290	67.0
Rock Creek	11,000					4,400	40.0	6,600	60.0
South Fork	57,200	25,400	44.4	23,000	40.2	800	1.4	8,000	14.0
Frenchman Creek	98,500					52,800	53.6	45,700	46.4
Driftwood Creek	7,300			500	6.9	1,200	16.4	5,600	76.7
Red Willow Creek	21,900					4,200	19.2	17,700	80.8
Medicine Creek	50,800					4,600	9.1	46,200	90.9
Beaver Creek	16,500	3,300	20.0	6,400	38.8	6,700	40.6	100	0.6
Sappa Creek	21,400			8,800	41.1	8,800	41.1	3,800	17.8
Prairie Dog Creek	27,600			12,600	45.7	2,100	7.6	12,900	46.7
Sub-total Tributaries	384,400							175,500	
Main Stem + Blackwood Creek	94,500								
Main Stem + Unallocated	270,000			138,000	51.1	132,000	48.9		
Total	478,900	54,100		190,300		234,500			

Nebraska groundwater irrigation pumping and calculated streamflow depletion for Rock Creek subbasin and above Swanson Reservoir.

	Rock Creek		Above Swanson	
Year	pumping	gw CBCU	pumping	gw CBCU
1940	0	0	1,904	849
1941	0	0	1,387	724
1942	0	0	1,622	1046
1943	0	0	2,328	1422
1944	0	0	1,624	1126
1945	0	0	2,577	1804
1946	0	0	2,298	1755
1947	0	0	4,353	3017
1948	0	0	3,930	2928
1949	0	0	5,137	3642
1950	0	0	767	1260
1951	0	0	452	658
1952	0	0	1,499	1154
1953	0	0	1,993	1318
1954	0	0	4,533	836
1955	0	0	12,757	2163
1956	0	0	14,913	2341
1957	0	16	12,208	2601
1958	0	25	10,476	2383
1959	0	34	21,639	3868
1960	0	45	22,501	3939
1961	0	59	17,418	4179
1962	0	91	10,167	2997
1963	0	112	23,001	4650
1964	0	119	25,427	4831
1965	0	138	21,512	5548
1966	0	158	21,342	4965
1967	0	170	28,930	6184
1968	0	182	48,616	7376
1969	0	198	63,147	9405
1970	0	216	78,674	8687
1971	0	249	76,072	10807
1972	66	295	58,366	9641
1973	59	338	56,762	9799
1974	1,996	421	82,724	8650
1975	2,941	512	105,490	11179
1976	5,368	532	138,660	11327
1977	4,777	610	129,432	13326
1978	6,045	679	165,760	10956
1979	4,661	779	128,579	14680
1980	4,979	923	130,323	13415
1981	3,861	1101	105,688	13935
1982	3,269	1282	89,617	12710
1983	4,246	1364	114,583	11222

1984	5,055	1426	144,844	13937
1985	5,104	1504	147,918	14710
1986	4,803	1590	135,844	13965
1987	4,366	1705	124,692	14356
1988	4,731	1833	137,663	14673
1989	4,489	1915	133,290	14214
1990	5,914	2037	171,700	16854
1991	4,852	2224	145,043	18836
1992	3,167	2373	99,194	16919
1993	2,246	2501	71,993	15141
1994	5,013	2563	152,916	15653
1995	4,758	2642	140,901	17812
1996	3,561	2775	107,681	18528
1997	5,778	2839	170,831	18507
1998	6,209	2894	180,865	17970
1999	4,286	3023	125,613	21207
2000	7,709	3125	225,506	18851
2001	6,004	3216	184,566	20909
2002	8,019	3296	248,825	20495
2003	5,468	3419	196,862	28475
2004	4,718	3581	164,222	24289
2005	4,208	3744	143,228	21579
2006	4,189	3845	142,067	19019
2007	4,344	3971	137,259	19980
2008	4,847	4114	151,260	19597
2009	3,825	4286	121,379	20479
2010	4,559	4404	136,322	17748
2011	4,390	4491	131,289	19184
2012	2,970	4478	214,878	14579

CONFIDENTIAL EXCERPT ATORNEYS' EYES ONLY

SUPREME COURT OF THE UNITED STATES

No. 126, Original

STATE OF KANSAS,

Plaintiff,

vs.

STATE OF NEBRASKA and

STATE OF COLORADO

Defendants.

CONTAINS CONFIDENTIAL INFORMATION

HEARING before SPECIAL MASTER Vincent L. McKusick, held at Division III Appellate Courtroom, U.S. Court of Appeals for the 10th Circuit at the Byron R. White U.S. Courthouse, 1823 Stout Street, Denver, Colorado, on January 6, 2003, commencing at 1:03 p.m., before Amanda L. Maze, RPR, a notary public in and for the State of Colorado.

APPEARANCES:

For the State of Kansas: John Draper, Esq.
Leland E. Rolfs, Esq.
David Pope

For the State of Nebraska: David D. Cookson, Esq.
Bartholomew L. McLeay, Esq.
Roger Patterson

For the State of Colorado: Carol D. Angel, Esq.
Peter J. Ampe, Esq.
Hal D. Simpson

For the United States: Sarah Himmelhoch, Esq.
Jeffrey Minear, Esq.

CERTIFIED COPY

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SPECIAL MASTER MCKUSICK: Will you explain to me what a dewatering well is?

MR. PATTERSON: Dewatering well would generally be associated with construction, perhaps, that you're building in an area that would have a high water table. You may need to go in and put some temporary wells in to pump out, basically dry up that foundation area.

Small wells that pump either 50 gallons per minute or less, or 15 acre feet per year or less are excepted; wells for certain emergency purposes and wells for expansion of municipal or industrial uses; transfers of use from an existing well are also allowed, again, as long as the new well does not consume more well than the old well consumed.

Such transfers are not allowed if they would cause an increase in depletion upstream of Trenton Dam, with special consideration I would add addressed by the United States and Trenton Dam and Swanson Lake.

SPECIAL MASTER MCKUSICK: Clear up for me what an augmentation well meant. Do I understand correctly that that means when a well can pump more water than it will deplete from the stream flow? Is that shorthand?

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MR. PATTERSON: In general. Hal Simpson is the expert on this, and he is going to explain augmentation wells when we get him up here. Those are wells that we did exclude.

I would point out that prior to any State developing that kind of a plan, it would have to come to the Compact Administration, and we would have to review and approve it. But Hal is going to cover that when he gets into his explanation on compact accounting.

We also addressed surface water in that the settlement recognizes that each of the three States has previously taken action that essentially results in a de facto moratorium on new surface water rights or permits. The States have agreed that they will notify the other States and the United States Bureau of Reclamation prior to lifting any surface water moratorium or granting any new surface water rights. The settlement stipulation recognizes the right of each State to grant new rights to surface water if under such rights they could make use of water within the States' compact allocation.

We did bring blow-ups of the maps that are in the settlement stipulation that cover the area of

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the moratorium. But other than if you have additional questions, I think that is my overview of what we called Existing Development, which, for the most part, is the moratorium on groundwater wells.

SPECIAL MASTER MCKUSICK: Would you explain the reasons behind the provision for freezing well development above the Trenton Dam?

MR. PATTERSON: The United States, during the settlement discussions, raised a concern about further depletion to inflow to Swanson Lake, which is the lake behind Trenton Dam. And we recognized that that was a fair concern.

And the way we addressed it here is essentially to do two things. One, make permanent, if you will, the moratorium on well construction upstream of Trenton Dam. And secondly, we put in a limitation on transfers of existing wells, so you couldn't transfer a well that was depleting the stream below Trenton and replace that with a well that would now deplete upstream of Trenton. So we have those two considerations that were to address the concern about inflow to Swanson Lake.

SPECIAL MASTER MCKUSICK: A very small drafting point, there are some places, particularly on Page 12 where it says, the States will not

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bit of detail in Section Roman numeral V on Page 32 of the accounting procedures manual.

And, again, Mr. Pope has discussed that when he provided his explanation of the accounting procedures. We thought it was important to very clearly lay out what we would report, when we would report it, and all the details so that there would not be future disagreement.

Finally, moving to Subsection H, also on Page 25, we talk about augmentation credit. And in particular, the States have agreed that a State could acquire existing wells, eliminate the consumptive use of water by these wells, and pump groundwater from these wells or even a new well to a stream to be used as an offset to depletions caused by other consumptive uses or wells in the basin. The purpose of this is to bring about compliance with the Compact.

We have agreed that the use of these augmentation wells shall not cause any new net depletions to the stream system either annually or long term. And the basis, again, for determining the net effect of this pumping is the Republican River Compact Administration's groundwater model.

And you asked how these wells would work.

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Let's say you had a series of wells 3 miles from the north fork of the Republican River in Colorado. Part of the water that is pumped by these wells and has been used, say, to irrigate crops comes from storage and a part comes from the impact upon the north fork of the Republican River. Let's say that ratio is 80 percent from storage, 20 percent from stream flow. I'm just picking numbers.

We stop that irrigation, no longer irrigate, turn those pump wells on, and pump that water in a pipe to the stream. We get all the water that is pumped into the stream above a gauge and, therefore, we view that we are offsetting the long-term effect of 20 percent depletion as well as an additional amount of water that's being pumped from storage, the 80 percent, that will help offset depletions.

It's something we would not want to do unless a last resort to come into compliance under the Compact based on the five-year average. Colorado brought this idea up. We thought it was something that should be considered. We do it in other parts of the state as a way to offset the effect of other well depletions. It's usually a short-term, interim pumping, not a permanent

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long-term pumping, but we felt we should be able to do that. And we did get concurrence from the United States and the other States. But I want to make it clear, we just can't do it without first having the Compact Administration's approval in advance of the plan and how it would operate.

That concludes my comments on this.

SPECIAL MASTER MCKUSICK: I have one question on accounting.

MR. SIMPSON: Sure.

SPECIAL MASTER MCKUSICK: On Page 36 in the accounting procedures. There's a word, "kriging."

MR. SIMPSON: Kriging.

SPECIAL MASTER MCKUSICK: K-r-i-g-i-n-g. It says, Potentially evapotranspiration rate is set at a uniform rate for all classes and so on. The amount is X at Y claimant stations and is interpolated specially using kriging.

MR. SIMPSON: You're pronouncing it kriging. But it could be kriging.

SPECIAL MASTER MCKUSICK: I didn't know how to pronounce it.

MR. SIMPSON: It's a statistical technique to interpolate data from different points where you

Beightel, Chris

From: Erickson, Chelsea
Sent: Thursday, January 03, 2013 4:30 PM
To: Beightel, Chris
Cc: Ross, Scott
Subject: FW: Discussion of RRCA considerations of Nebraska Augmentation Plans
Attachments: Discussion of RRCA considerations of Nebraska Augmentation Plans.docx

Here's the Aug Plan outline we sent the EC on Sept 27th.

From: Ross, Scott
Sent: Thursday, September 27, 2012 11:56 AM
To: jim.schneider@nebraska.gov; Ivan <> Franco (Ivan.Franco@state.co.us); Juricek, Chelsea
Subject: Discussion of RRCA considerations of Nebraska Augmentation Plans

Jim and Ivan,

These are some initial questions Kansas would like to discuss. The intent is to open a discussion on the concept of augmentation and how it might be most efficiently be implemented. This document will hopefully facilitate a dialog to answer the questions raised and undoubtedly identify others.

Let me know if you would like to schedule further discussion on this topic.

Scott

Discussion of RRCA considerations of Nebraska Augmentation Plans
September 27, 2012

Basic information that should be provided with the plan

- Basics of plan:
  - Quantity requested to be authorized
  - Source locations to be converted to augmentation
  - Augmentation delivery point
  - Computations to substantiate no increase in consumptive use.
  - What depletions are augmentation flows under the plan meant to replace?
  - Basics of envisioned operations.
    - When will the augmentation be used? Will it be operated only during Compact Call Years?
    - How the amount of water that will be allowed for augmentation credit in any year be determined (limited).
    - Operating season envisioned:

- Proposed Groundwater modeling
  - Of groundwater pumping
  - Of augmentation flows
- Proposed accounting
  - How will the RRCA accounting reflect the operations?
    - Surface water leases
    - Rock Creek calculations
    - Mainstem calculations
    - Tables 3, 4, 5
    - Examples would be helpful to work through.
- Proposed reported and monitoring data
- Accounting for deliveries made beyond those allowed under the plan (or before approval)?

Questions for discussion (Rock Creek focus)

1. To what extent does this "non-native water" need to be tracked separately from native flows in the accounting? How does the storage of these waters in federal reservoirs effect VWS, CVS calculations?
2. What are the potential fates of the water delivered? (Storage and NE use from Swanson; pass through Swanson to HC; reserve for Kansa use, groundwater depletions; unaccounted for loss, etc).
3. If NE surface water users divert the flows, will this receive any specific treatment in the accounting?
4. If there are unaccounted losses in the mainstem of e.g. 20%, will that not reduce the mainstem allocations of both KS and NE (as the entire amount will be subtracted in the determination of the mainstem).
   a. Will NE factor this into its IMP credit to the project sponsor?
5. Will water be passed through to Harlan County and reserved for Kansas use during CCYs?

   a. How does NE propose for these augmentation flows to affect the Harlan County evaporation split?
   b. What if these waters are retained in HC beyond the year? Will there be any special accounting?
6. Long-term viability of the source of augmentation water?
7. Percent of water pumped the manifests itself in stream depletions after: 1 year, 2 years, 5 years, 10 years, 20 years.

Outline for Augmentation Plan to RRCA

I. Background on Augmentation in the FSS

The Final Settlement Stipulation (FSS) expressly recognizes augmentation as a management tool to facilitate Republican River Compact compliance. Augmentation is mentioned in three locations throughout the FSS. The first, Subsection III.B.1.k, states that the moratorium on new wells shall not apply to the following:

> *Wells acquired or constructed by a State for the sole purpose of offsetting stream depletions in order to comply with its Compact Allocations. Provided that, such Wells shall not cause any new net depletion to stream flow either annually or long-term. The determination of net depletions from these Wells will be computed by the RRCA Groundwater Model and included in the State's Computed Beneficial Consumptive Use.* ***Augmentation plans*** *and related accounting procedures submitted under this Subsection III.B.1.k. shall be approved by the RRCA prior to implementation.*

The second and third references to augmentation occur in Section IV. Subsection IV.A. states:

> *The States will determine Virgin Water Supply, Computed Water Supply, Allocations, Imported Water Supply Credit,* ***augmentation credit*** *and Computed Beneficial Consumptive Use based on a methodology set forth in the RRCA Accounting Procedures, attached hereto as Appendix C.*

There presently are no "methodologies" set forth in the RRCA Accounting Procedures to determine the augmentation credit referenced in Subsection IV.A. However, Subsection IV.H. states:

> ***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.*

Taken together, these references suggest the following minimal requirements:

1. If the project involves the acquisition or construction of augmentation wells in the moratorium area, those wells may not cause a "new" net depletion either annually or over the "long-term".

2. The RRCA Groundwater Model will be used to determine the extent of any net depletion and whether such net depletion is "new".

3. The RRCA Accounting Procedures will be revised to reflect the appropriate methodology for calculating the augmentation credit.

4. The RRCA Groundwater Model will be used to calculate the credit, assuming, of course, that the project involves an activity that influences groundwater CBCU or the IWS Credit.

5. The RRCA must approve any augmentation plan and related accounting procedures before a state may receive "augmentation credit" for the project, beyond the effect of simply increasing water supply, which will manifest itself in the current RRCA Accounting Procedures.

The States elaborated on these concepts before Special Master McKusick in 2003. See Transcript at 81-3; id. at 16-17. Using the example there provided, a State would be entitled to claim as an "augmentation credit" all water over and above the historic depletion to streamflow, which must be offset first as part of an augmentation project.

II. Baseline Conditions of the Project Area

This section describes the current conditions of the project area.

A. Current Uses of the Project Area

Current acreage

Current number of wells

Map of the area

B. Groundwater Pumping Under Baseline Operations

Meter data

Consumptive use estimates/Recharge

III. Operational Aspects of the Project

This section describes the expected operations of the project once implemented.

A. Conceptual Description of Project Operations

Period of operation

Augmentation delivery point

B. Groundwater Pumping Under Project Operations

Pumping schedule and volumes under the project

Recharge modifications

IV. Groundwater Modeling Analysis of the Project

This section describes the evaluation of the groundwater CBCU to assess the net impact of the project operations on streamflows of the Republican River Basin.

A. Groundwater Depletions Under Baseline Conditions

Depletions under baseline operations historically and projected into the future

B. Groundwater Depletions Under Project Operations

Depletions under the new project operations

C. Net Groundwater Depletions Under Project Operation

No new net depletions either annually or long-term (FSS III.B.1.k)

V. Accounting Procedures Modifications for Crediting the Project

This section describes the modifications to the RRCA Accounting Procedures needed to determine the augmentation credit to be provided in conjunction with the augmentation project.

A. Modifications to the Accounting and Reporting Procedures

Draft of strike-through edits to accounting procedures

Modifications to reporting requirements to include data related to project operations pumping

Kansas
Department of Agriculture
Division of Water Resources

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Dale A. Rodman, Secretary
David W. Barfield, Chief Engineer

Sam Brownback, Governor

January 14, 2013

Brian P. Dunnigan, P.E.
Nebraska Commissioner
Republican River Compact Administration
Nebraska Department of Natural Resources
301 Centennial Mall South
PO Box 94676
Lincoln NE 68509-4676

RE: Republican River Compact, Nebraska augmentation plans

Dear Commissioner Dunnigan:

On the evening before the December 11, 2012 Special Meeting of the Republican River Compact Administration (RRCA) requested by Nebraska, Nebraska provided to Colorado and Kansas, via email, three documents related to possible augmentation plans by Nebraska to offset consumptive use by Nebraska in excess of its allocation, that Nebraska wished to discuss. One of those documents is entitled "Inclusion of Imports of Platte River Basin Water Supplies into the RRCA Accounting," ("Imports Document") dated December 10, 2012. The Imports Document outlines a concept by Nebraska to "enhance" the "Imported Water Supply Credit" that is calculated under the current RRCA Accounting Procedures. The Imports document refers to a map, labeled "Project Area Map," which was also one of the three documents provided on December 10. The third document was entitled "Outline for Augmentation Plan to RRCA" ("Augmentation Outline") and offered Nebraska's vision of the topics and issues that need to be addressed in order for the RRCA to agree upon an augmentation plan.

At the special meeting of the RRCA, Nebraska asked that Kansas and Colorado evaluate the Imports Document and the Augmentation Outline and provide Nebraska with their initial responses. Kansas also asked that Nebraska provide the calculations and backup for Nebraska's preliminary and final Republican River Basin Forecast. Although Nebraska initially agreed to this request, I now understand from your letter of January 7, 2013, that Nebraska is declining to do so. Also, I note that no response to Nebraska's request has been forthcoming from Colorado. Nevertheless, Kansas is responding to Nebraska's request as fully as practicable given the shortness of time, the lack of specifics provided by Nebraska, and the fact that Nebraska's documents raise issues that are presently before the Special Master or likely to be affected by rulings of the Special Master and the Supreme Court in the pending litigation. With those substantial caveats, Kansas now provides an initial response to Nebraska in order to alert Nebraska to Kansas' initial reactions to Nebraska's submittals.

With regard to the Imports Document's new proposal to convert some 62 wells shown on the Project Area Map from irrigation to augmentation purposes, it may be helpful to note the following. The proposed pumping would be mostly from wells in the Republican River Basin, not the Platte River Basin (55 of the 62 wells shown on the Project Area Map are in the Republican River Basin). There is no evidence that these wells pump water that was recharged from the Platte River canals.

The Imported Water Supply Credit established in the Final Settlement Stipulation (FSS) was a result of negotiations regarding Nebraska's assertion that the irrigation projects in the Platte River Basin have artificially created additional water supplies within the Republican River Basin. This specific credit was designed to address the uncontrolled effects of these irrigation projects on the groundwater levels in the area straddling the two basins and on stream baseflows. The FSS contains no provisions addressing the artificial "enhancement" of these baseflows to produce an altered IWS credit.

The concept described by Nebraska's Imports document appears to be a proposal for an augmentation project, i.e., a plan to pump groundwater and deliver it as surface flow for the sole purpose of offsetting stream depletions in order to comply with the Compact. Based only on an initial review of the concept, it appears to Kansas that it would be a poor fit to combine the proposed augmentation pumping concept with the existing Imported Water Supply Credit calculation of uncontrolled irrigation effects. As an augmentation project that pumps groundwater, we believe that Nebraska must show that pumping from these wells will not cause any new net depletions to streamflow either annually or long-term. Kansas is interested in discussing further with Nebraska how best to accomplish Nebraska's desire to augment streamflow in a way that protects the interests of Kansas.

Nebraska's Augmentation Outline seems to be a general characterization of a generic proposal for an augmentation plan and includes many of the broad topics about which Kansas would be concerned.

Of course, any specific augmentation plan will need to include sufficient detail to allow identification of all relevant issues and concerns and a thorough review by the technical staff of each state. For example, an augmentation project downstream of the storage afforded by Harlan County Reservoir would have different considerations than projects above that storage.

Moreover, Kansas needs to see the specifics of each augmentation plan in order to ensure that it will not reduce the usability of Kansas' allocation under the Compact in quantity, timing, or location. In addition, given the lack of experience the states have with augmentation plans under the FSS and the complexity of operations, periodic review and a limited term of approval would be appropriate.

To begin addressing the issues identified above, the following topics should be included in the outline:

- Location and extent of the stream depletions that the project is intended to offset;
- Records and analysis of the historical use of the wells to be used for augmentation;
- Proposed operational limits and proposed project accounting to ensure that the usability to Kansas will not be impaired by planned operations. Supporting analysis should accompany the proposed limits and accounting;
- Other operational details should include but not be limited to: Seasonal operating plans, considerations for water short and normal years, flow rates, and location of discharge;
- Plan for periodic review and evaluation of the project; and
- Consumptive use of the augmentation water and how it will be modeled.

More meaningful comments by Kansas would be facilitated by a more detailed presentation by Nebraska of its specific plans, including operational aspects and proposed accounting changes.

Kansas recognizes Nebraska's efforts in these documents to raise issues that are important to all the states. Nebraska should recognize that this brief response was prepared in a compressed time frame to accommodate Nebraska's request.

Sincerely,

David Barfield

David Barfield, P.E.
Kansas Chief Engineer

pc: Dick Wolfe

IN RE: NON-BINDING ARBITRATION PURSUANT TO THE FINAL SETTLEMENT STIPULATION, *KANSAS v. NEBRASKA and COLORADO*, NO. 126 COLORADO

BEFORE MARTHA O. PAGEL, ARBITRATOR

Colorado Compact Compliance Pipeline Dispute

ARBITRATOR'S FINAL DECISION

October 7, 2010

I. History of the Case

This non-binding arbitration arises pursuant to Section VII (Dispute Resolution) of the Final Settlement Stipulation ("FSS"), executed on December 15, 2002 by the states of Colorado, Kansas and Nebraska (the "States"), and approved by the United States Supreme Court. *Kansas v. Nebraska & Colorado,* 538 U.S. 720, 123 S. Ct. 1898 (2003). The FSS was negotiated among the States to resolve litigation then pending before the Supreme Court relating to ground water use under the Republican River Compact ("Compact").

Section VII.A.1 of the FSS provides that any matter relating to Compact administration, including administration and enforcement of the FSS, in which a State has an "Actual Interest" (as defined in Section II of the FSS), shall first be submitted to the Republican River Compact Administration ("RRCA"). Section VII.A.7 provides that if such a dispute cannot be resolved by the RRCA, and the State raising the dispute desires to proceed, the dispute shall be submitted to non-binding arbitration unless otherwise agreed to by the States with an Actual Interest.

The subject matter of the arbitration is referred to by the States as the Colorado Compact Compliance Pipeline ("CCP") Issue. The issue relates to a request by the State of Colorado for approval of a specific proposal to construct and utilize the CCP as a means of achieving future Compact compliance. The CCP Issue was joined with a separate issue, referred to as the "Nebraska Crediting Issue" for purposes of joint arbitration hearings. However, the States have requested that the Arbitrator provide separate final decisions for the two issues under review.

This is the second arbitration proceeding convened pursuant to the FSS. The first was conducted by Arbitratator Karl J. Dreher and was completed in mid-2009. Following briefing and hearings, Mr. Dreher issued two decisions: The Arbitrator's Final Decision on Legal Issues, dated January 22, 2009, and the Arbitrator's Final Decision, dated June 30, 2009.

On March 22-24, 2010, the three States issued a Joint Notice of Arbitration and entered into a contract for this second arbitration proceeding with the selected Arbitrator, Martha O. Pagel. The issues presented for arbitration at this time are identified by the States as Colorado's Compact Compliance Pipeline ("CCP") Issue and Nebraska's Crediting Issue ("Crediting Issue").

On April 8, 2010, the Arbitrator issued a Scheduling and Procedural Order and revised Time Frame Designation for the joint arbitration proceedings, including a timeline for submission of legal motions and briefs, responsive briefs, reply briefs and oral argument on the motions.

On April 9, 2010, the States completed execution of an Arbitration Agreement regarding the Colorado Compact Compliance Pipeline Dispute ("CCP Arbitration Agreement"), and on May 5, 2010, the States completed execution of a similar Arbitration Agreement for the Nebraska Crediting Issue Dispute ("The Crediting Issue Arbitration Agreement"; collectively, the "Arbitration Agreements"). The Arbitration Agreements authorize the States to file legal motions in accordance with the Scheduling and Procedural Order, including motions relating to whether the issues presented are properly the subject of arbitration under the FSS, and direct the Arbitrator to rule on such motions.

Pursuant to the Arbitration Agreements and Scheduling and Procedural Order, the States filed motions on legal issues, along with opening, responsive and reply briefs. Kansas filed Motions to Dismiss both the CCP Issue and the Nebraska Crediting Issue in their entirety; Colorado filed a Motion to Dismiss additional issues raised by Nebraska and Kansas in connection with the CCP Issue and a Motion to Strike certain testimony submitted by Kansas in support of its Motion to Dismiss the CCP Issue. As provided in the Scheduling and Procedural Order, briefing concluded on May 3, 2010.

On May 5, 2010, the States presented oral argument in a joint hearing on the CCP Issue and Nebraska Crediting Issue held in Portland, Oregon. At the outset of the hearing, Colorado and Nebraska (the "Stipulating States") submitted a Joint Notice of Stipulation to the Arbitrator and the State of Kansas confirming that that the Stipulating States had fully resolved all issues in the Arbitration as between them pursuant to the terms of the Stipulation. Accordingly, no further action was taken on Colorado's Motion to Dismiss with respect to the Nebraska issues.

On May 17, 2010, the Arbitrator issued a Joint Decision on Legal Issues with rulings on motions in both the CCP Issue and Nebraska Crediting Issue, denying the motions to dismiss and finding that both issues were properly the subject of arbitration under the FSS.

On July 12-14, the Arbitrator conducted a joint evidentiary hearing in Kansas City, Kansas, at which the States addressed both the CCP Issue and the Nebraska Crediting issue.

At the trial, Colorado presented the oral testimony and written reports of four witnesses: Dennis Coryell, President of the Board of Directors of the Republic River Water Conservation District; and experts James E. Slattery, P.E.; Willem A. Schreüder, Ph.D., and Dick Wolfe, P.E., State Engineer, along with other documentary evidence.

Kansas presented the oral testimony and written reports of three experts: David Barfield, P.E., Kansas Chief Engineer; Steve Larson, M.S., a computer modeling consultant for the State of Kansas; and Dale Book, P.E..

This Decision includes the Arbitrator's overview of key issues and evidence, findings of ultimate fact and conclusions of law, along supporting analysis and recommendations, as appropriate, on the CCP Issue. A separate decision, issued this date, addresses the Nebraska Crediting Issue.

II. Nature of the Arbitration Proceeding

The arbitration addresses a request by Colorado for approval of an "augmentation plan," as permitted under the FSS. As described in further detail below, Colorado submitted a "Compact Compliance Pipeline Proposal" ("CCP Proposal") to the RRCA for approval. Kansas and Nebraska voted to reject the CCP Proposal and thereafter Colorado initiated non-binding arbitration in accordance with the FSS procedures.

The FSS does not provide further explanation of the nature and scope of "non-binding arbitration." However, based on the limited track record of prior experience with FSS arbitration, and the direction contained in the Arbitration Agreements entered into among the States, it appears the process has two key purposes: First, to provide findings of facts, analysis

and conclusions that may inform further action by the States; and second, to provide for a neutral, third-party assessment, including recommendations, that may help promote resolution of the issues without further legal proceedings.

As described below, Colorado presented evidence to demonstrate the objectives of the pipeline proposal, the manner in which the pipeline would be operated to meet the objectives, and the basis for its proposed methods of calculating augmentation credit under the plan. Colorado notes that the states are already in agreement regarding key aspects of the proposed augmentation plan. Colorado's Post-Trial Brief, Colorado Compact Compliance Pipeline Dispute ("Colo. Post-Trial Brief") at 17. Colorado asks the Arbitrator to find that it has complied with the FSS in designing and proposing the augmentation pipeline; that the specific objections raised by the State of Kansas are without merit; that Kansas therefore may not unreasonably withhold its approval of the CCP Proposal and finally that the Arbitrator should issue a recommendation that the RRCA approve the CCP Proposal as contained in the Colorado Resolution. Colo. Post-Trial Brief at 47.

Kansas identified a total of eight factual or legal deficiencies in the CCP Proposal that it asserts demonstrate the CCP Proposal does not meet the requirements of the FSS or does not adequately address its concerns. Accordingly, Kansas argues it has not unreasonably withheld its approval and therefore the Arbitrator should not recommend approval of the pipeline. Kansas' Post-Trial Brief, Colorado Compact Compliance Pipeline Dispute/ Nebraska Crediting Issue ("Kan. Post-Trial Brief") at 30.

In rendering a decision on facts and the law, the Arbitrator is guided by the same standards and rules applicable to a court. In recommending a proposed remedy, the Arbitrator offers the opinion of a third-party neutral, applying general background and experience in the field of water law and administration to the facts at hand.

III. Applicable Standards/Rules of Law

Section III. A of the FSS imposes a general moratorium on the construction of new wells and ground water development, except as expressly provided in Section III. B. That section includes an exception for wells associated with an augmentation plan to offset stream depletions:

> "Wells acquired or constructed by a State for the sole purpose of offsetting stream depletions in order to comply with its Compact Allocations. Provided that, such Wells shall not cause any new net depletion to stream flow either annually or long-term. The determination of net depletions from these Wells will be computed by the RRCA Groundwater Model and included in the State's Computed Beneficial Consumptive Use. Augmentation plans and related accounting procedures submitted under this Subsection III.B.1.k. shall be approved by the RRCA prior to implementation."
>
> FSS Section III.B.1.k.

The term "augmentation plans" is not further defined in the FSS, however Section IV.H provides additional direction regarding the determination of "augmentation credit" as part of an augmentation plan: "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." FSS Section IV.H.

Under the terms of the Compact, decisions by the RRCA, as the administering body of the Compact, must be unanimous and consistent with the provisions of the Compact. (Compact, Article IX.)

In making such decisions, as members of the RRCA, the States are subject to general rules of contract law, including an implied duty of good faith and fair dealing. The U.S. Supreme Court has determined the terms of an interstate compact are not subject to these same general rules because of the unique character of a compact as not only an agreement among the affected states, but also as a federal statute enacted by Congress. As such, the Court has determined it cannot be altered by courts. *See Alabama v. North Carolina,* 130 S. Ct. 2295, 2212-2213, 176 L. Ed. 2d 1070 (2010). In contrast, the FSS is a stipulated consent decree, separately negotiated by the three States and not enacted into federal or state law. Accordingly, actions by the individual States under authority of the FSS would appear to be subject to contract law. *See, e.g. United States v. ITT Cont'l Baking Co.*, 420 U.S. 223, 236 (1975). Since the concept of an "augmentation plan" is addressed only in the FSS, and not in the underlying Compact, decisions relating to approval or rejection of a proposed augmentation plan are subject to the law of contracts.

When a contract includes provisions for approval by the parties, such as Section IV.B.k of the FSS relating to augmentation plans, general principles of contract law require that the parties must exercise discretion reasonably, and may not do so arbitrarily, capriciously, or in a manner inconsistent with the reasonable expectations of the parties." *Behara v. Baxter Health Care,* 956 F.2d 1436, 1443 (7th Cir. 1992).

IV. Summary of Decision

Under the FSS, an augmentation plan must be approved by the RRCA, which action must occur by unanimous consent. The Colorado CCP Proposal was submitted to the RRCA for approval and initially rejected by both Kansas and Nebraska. Nebraska and Colorado later reached an agreement under which Nebraska withdrew its opposition to the proposal. Kansas continues to withhold its consent on the basis of three major issues that were identified in early stages of the proposal review process, and four additional fact questions articulated during the arbitration process. Kansas also raises a legal question relating to a confidential stipulation entered into by Colorado and Nebraska. Colorado asserts that, as a matter of law, one state may not unreasonably withhold its consent under an agreement such as the stipulated settlement, and that Kansas has, in fact, unreasonably withheld its consent in this matter.

As set forth below, the Arbitrator concludes Kansas did not unreasonably withhold consent to the CCP Proposal with respect to five of the seven fact questions. However, with certain clarifications and revisions as recommended herein, the CCP Proposal represents an appropriate and necessary augmentation plan that should be approved by the RRCA.

The Decision is in favor of the state of Kansas and against the state of Colorado, with recommendations for further action by the States.

V. Opinion

A. Overview of CCP Proposal

Colorado proposes construction of the CCP as a means of offsetting stream depletions in order to comply with its Compact Allocations. The CCP Proposal was presented to the RRCA for approval in the form of a resolution and related exhibits, hereinafter referred to as the "CCP Plan" or "CCP Proposal." A detailed description of the CCP Proposal is provided in the report of James Slattery, which includes a detailed description of the background, purpose, and proposed operations of the project. Colo. Exh. C 14 ("Slattery Report") at 1.

To date, Colorado has expended approximately $51 million to acquire existing ground water rights and easements for the project and to proceed with engineering design. *Id.* at 4. Colorado expects to spend another $20 million to complete the project, for total costs of about $71 million. *Id.*

The CCP will be initially capable of delivering up to 15,000 acre-feet per year, but can be increased to 25,000 acre-feet in the future if additional wells are connected to the system as further described in the Slattery Report and the proposal submitted to the RRCA. *Id.* Pumping from the CCP wells will be metered and included in the RRCA Groundwater Model. *Id.* at 5.

The CCP Proposal includes a minimum annual delivery of 4,000 acre-feet and a maximum limit on the amount of Augmentation Water Supply Credit ("AWS") as set forth in the resolution submitted to the RRCA.. *Id.* at 6.

Groundwater pumped by the CCP wells will be delivered through collector pipelines into a storage tank and then by a main pipeline to the North Fork Republican River a short distance upstream from the streamflow gage at the Colorado-Nebraska state line. Slattery Report at 6. This is the same stream gage location where the annual Virgin Water Supply ("VWS") of the North Fork and Colorado stream depletions on the North Fork are calculated under current RRCA Accounting Procedures. *Id.* at 7. The Arikaree sub-basin joins the North Fork of the Republican River a short distance downstream of this gage location and the South Fork joins the river further downstream at Benkelman, Nebraska. *Id.*

Proposed revisions to the RRCA Accounting Procedures under the CCP Plan provide that the discharge will be measured and subtracted from gaged flow at the point of discharge to calculate the AWS. Slattery Report at 7. As described by Mr. Slattery, the AWS will be credited against depletions in the North Fork Sub-basin for purposes of demonstrating sub-basin compliance with Compact Allocation. *Id.* The projected annual CCP deliveries will be substantially less than the projected North Fork stream depletions for at least the next 20 years, as shown on Figure 5 of the Slattery Report. However, Colorado proposes that CCP deliveries to the North Fork could also be used to demonstrate statewide compliance under provisions of the FSS that allow use of un-allocated waters within a sub-basin so long as the use of such water does not cause the State using such water to exceed its total statewide allocation (and when other conditions are met.) *Id.*

Colorado deliberately chose not to construct the CCP to the South Fork Republican River sub-basin because the stream gage used for Compact accounting on that tributary is located at Benkelman, Nebraska, approximately 40 miles downstream of where the South Fork crosses the Colorado-Kansas state line in a reach that would result in very large transit losses en route. *Id.*

According to the Resolution submitted to the RRCA for approval, the steps to determine the Projected Delivery and the limit on the Augmentation Water Supply Credit are as follows:

> "A. Step 1. By March 31st of each year, Colorado will calculate Colorado's total Allocation and Colorado's Computed Beneficial Consumptive Use ("CBCU") for the previous accounting year using the procedures described in the revised RRCA Accounting Procedures, but using preliminary data where necessary.
>
> B. Step 2. Colorado will determine the Projected Delivery, which shall be the largest annual deficit or difference between Colorado's total annual Allocation and Colorado's CBCU during the 10 accounting years immediately preceding the subject accounting year; provided, however, that accounting years in which Colorado's total annual Allocation exceeds Colorado's CBCU shall not be used in determining the Projected Delivery.
>
> C. Step 3. The Colorado RRCA Member shall provide notice of the Projected Delivery determination to the Kansas and Nebraska RRCA Members by April 1 of each year.
>
> D. Step 4. The Augmentation Water Supply Credit for the subject accounting year shall be limited to the Projected Delivery plus 4,000 acre-feet, or 140% of the Projected Delivery, whichever is greater."
>
> Colo. Exh. C 15 (RRCA Resolution at 3-4).

The Slattery Report provides the following more detailed description of the process:

> "Based on Colorado's resolution [to the RRCA] *and the delivery schedule agreed to with Nebraska,* the CCP will be operated as follows:
>
> 1. Accounting for deliveries will start January 1 of each year.
>
> 2. Colorado will begin deliveries on January 1 and will make the minimum annual delivery of 4,000 acre-feet provided for in the Colorado resolution during the months of January through March.
>
> 3. Colorado will calculate and provide notice of the Projected Delivery, as defined in the Colorado resolution, to the Kansas and Nebraska RRCA Members by April 1 as provided in the Colorado resolution. Unless Colorado determines by April 1 that it will not be able to deliver any remaining Projected Delivery in the months of October through

December, Colorado shall stop deliveries at the end of March. If Colorado anticipates that deliveries in the months of November and December will not be sufficient for Compact compliance, Colorado will maximize deliveries first in January, then sequentially in February, March and April. Only if there is reason to believe that additional deliveries in the months of October through December will not be sufficient for Compact compliance will deliveries extend into the month of May.

4. By September 1st, Colorado will gather provisional hydrologic data for the months of January through August of the year and will estimate the amount of deliveries needed for Compact compliance for the remainder of the year after accounting for the deliveries earlier in the year. Colorado will then maximize any additional water deliveries first in the month of December, then sequentially in November and October."

Slattery Report at 8, emphasis added.

(Colorado does not provide further clarification of the difference between the determination made under the fourth step described in the Slattery Report, and "Step 4" as described in the RRCA Resolution. Similarly, Colorado does not give further details regarding the rationale for the delivery schedule Mr. Slattery indicates was "agreed to with Nebraska.")

Colorado has determined that the CCP is needed in order for Colorado to meet its Compact obligations in the reasonably foreseeable future. Colo. Exh. C 20 at 5 (Wolfe Report). Absent a dramatic change in the hydrology of the basin in Colorado, the only way for Colorado to achieve compliance for decades is to build the CCP. Slattery Report at 9. Even if Colorado eliminated all beneficial consumptive uses in the basin, including all groundwater pumping, Colorado would not be in compliance with the Compact for approximately 25 years. *Id.* at 8-9; Figures 7-9.

B. Disputed Issues

The States appear to agree on many aspects of the CCP Proposal (Colo. Post-Trial Brief at 17); however, Kansas has articulated eight disputed issues, as identified and addressed below. The evaluation of each issue necessarily includes a determination as to whether the issue presented, if found to be true, provides a reasonable basis upon which Kansas may elect to withhold its approval of the CCP Proposal.

1. Whether the CCP Proposal meets the requirements of the FSS regarding use of the Groundwater Model

Ultimate Findings and Conclusions

The CCP Proposal does not meet the requirements of the FSS because it does not propose use of the Groundwater Model to calculate the amount of augmentation credit. Therefore, it is not unreasonable for Kansas to withhold its consent to the CCP Proposal on this basis.

Summary of Issue and Key Evidence

Colorado proposes using the Groundwater Model to determine net depletion from the augmentation wells, but does not propose to use the Model to calculate the amount of augmentation credit. Instead, Colorado intends to use a direct measurement of outflow from the pipeline discharge into the North Fork of the Republican River. Kansas asserts the FSS requires the Groundwater Model to be used in determining both net depletions from the augmentation wells pursuant to Section III.B.1.k, and the amount of augmentation credit pursuant to Section IV.H.

There is no factual dispute regarding Colorado's proposed use of the Model to determine the net depletions. Colo. Exh. C 24 at 3; Tr. Vol. 2, p. 411, ln. 1-2 (Book). The States strongly disagree, however, as to whether the model should also be used to calculate the amount of augmentation credit. Under Colorado's proposed approach – using a stream gage measurement rather than the model – Colorado would receive 100% credit for the amount of flow discharged from the pipeline into the North Fork. If the Model is used as Kansas proposes, Colorado will receive less credit for the augmentation water, with an expected reduction of 10% to 20%, or more, depending on seasonal timing of CCP deliveries. Tr. Vol. 1, p. 181, ln. 17 – p. 183, ln. 3 (Schreüder); Colo. Exh. C 19 at 8-9 (Schreüder Report).

Colorado contends that use of the Model would be incorrect and inconsistent with the way other surface water is accounted for in the RRCA Accounting Procedures; that adding augmentation water to the Model would effectively move Colorado's Compact accounting point from the Colorado-Nebraska State Line to Swanson Reservoir – thereby causing Colorado to pay the price of transit losses; that the existence of "negative credits" or "negative pumping impacts" does not require the augmentation water to be added to the Model; and that use of the Model could result in double accounting losses to Colorado and a windfall to Kansas. Colo. Post-Trial Brief at 17-26.

Kansas fundamentally asserts that the FSS requires the calculation of augmentation credit to be done by using the Model, and the CCP Proposal must be rejected because it fails to use the Model. Kansas also maintains there are good reasons for using the Model: that the origin of the augmentation water distinguishes it from other surface water that might be in the stream system and creates the foundation for using the Model instead of direct measurement from the pipe; that because of negative pumping impacts, Colorado will receive an undue benefit over time as a result of the CCP operation, to the detriment of Kansas' interests; and that failure to use the model will result in a decrease in the Virgin Water Supply ("VWS") in the mainstem of the Republican River, causing a reduction in the amount of water available under Kansas' Allocation. Kan. Post-Trial Brief at 15-18.

The differences of opinion expressed at trial and in the written reports in support of the States' respective positions resulted in a classic battle of the experts.

Colorado presented evidence demonstrating reasonable and practical reasons for using the stream gage measurement as the basis for determining the amount of augmentation credit. Dr. Schreüder, an expert on mathematic modeling in general, as well as on the specifics for the RRCA Groundwater Model, stated an unequivocal opinion that outflow from the CCP to the

North Fork of the Republican River above the stream flow gage at the Colorado-Nebraska state line should not be represented in the Model. Colo. Exh. C 19 at 4 (Schreüder Report). As the basis for his opinion, Dr. Schreüder explained that the Model is appropriately used to determine amounts that cannot be specifically measured, such as stream depletions from well pumping. The Model was developed for this purpose and provides reasonable estimates of such depletions for Compact accounting. *Id.* Dr. Schreüder and James Slattery, an engineering consultant, both testified that water discharged into or diverted from surface streams that can be actually measured is accounted for in the RRCA Accounting Procedures for surface water and that it would be wrong and inconsistent with the way other surface water is handled to include the CCP water in the Model. Tr. Vol. 1, p. 148, ln. 15 – p. 149, ln. 13 (Schreüder); Tr. Vol. 2, p. 450, ln. 23 – p. 452, ln. 16 (Slattery). Mr. Slattery testified that there are circumstances in which it would be appropriate to use the Model to calculate the augmentation credit for water delivered from Compact Compliance Wells; but such circumstances are limited to those similar to Nebraska's Imported Water Supply Credit and are not applicable to Colorado's proposed augmentation plan. Tr. Vol. 2, p. 451, ln. 3 – p. 452, ln. 16 (Slattery), Colo. Exh. C 24 at 4 (Slattery Rebuttal Report).

Mr. Slattery also stated that the effect of including the CCP water in the Model would be to charge Colorado with the transit loss to move water from Colorado's current point of compliance accounting – a stream gage just above the state line – to a point 50 miles downstream at Swanson Reservoir. Tr. Vol. 2, p. 464, ln. 22 – p. 465, ln. 22 (Slattery). Colo. Exh. C 24 at 5 (Slattery Rebuttal Report). Dr. Schreüder also addressed this issue, stating that Kansas is essentially asking that the model be used to determine transit losses, which would then be deducted from the amount of credit given for the augmentation water. In his report, Dr. Schreüder states, "In no instance is the RRCA Groundwater Model used to calculate transit losses on surface water as proposed by Kansas and, in my opinion, it would not be appropriate to use the model for that purpose and would be inconsistent with the way other surface water is accounted for in the RRCA Accounting Procedures." Colo. Exh. C 22 at 7 (Schreüder Rebuttal Report).

Kansas presented expert testimony and reports concluding that the Groundwater Model can and should be used to compute augmentation credit for the CCP Plan. A primary concern to Kansas is that the "negative pumping impacts" associated with the CCP Proposal will result in an undue benefit to Colorado to the detriment of Kansas if the Model is not used.

Kansas' modeling expert, Steven P. Larson, stated that negative pumping impacts are, in effect, negative stream depletions caused by pumping. C. Kan. Exh. 4 at 4 (Larson Report). This effect occurs in losing stream reaches, such as the reach between the Colorado-Nebraska state line and Swanson Reservoir. *Id.* Mr. Larson explained that under the accounting procedures in the FSS, Colorado receives a reduction, or offset for such negative impacts in the losing reach against the overall determination of stream base flow depletions caused by pumping. *Id.* at 4-5. Kansas contends Colorado wants to receive full credit for augmentation water delivered at the state line and, at the same time, receive increases in offsets to stream base flow depletion below the state line that will be the result of the continuation of irrigation pumping that the augmentation water is intended to address. *Id.* He states that the Kansas approach treats the overall accounting of Colorado's actions in a more balanced manner that is straightforward and

easy to apply, and consistent with the requirement of the FSS that augmentation credit be determined by using the Groundwater Model. *Id.* at 6.

In summary, Colorado's experts conclude that use of the Groundwater Model to determine augmentation credit is inappropriate and would result in a double accounting that would be unfair to Colorado and result in an added benefit to Kansas. Kansas' experts conclude that failure to use the Groundwater Model would result in a double benefit to Colorado as a result of giving 100% credit for pipeline discharges and providing increased offsets over time due to increases in negative pumping impacts.

Analysis and Recommendations

Regardless of whether there is a right or wrong answer on this highly disputed fact question, the legal question remains as to whether the FSS permits Colorado's proposed approach under any circumstances. The FSS appears to establish two separate requirements for use of the Model in connection with a proposed augmentation plan. First, Section III.B.1.K states the Model must be used to determine the net depletion from the wells used in an augmentation plan. Second, Section IV.H of the FSS requires that "augmentation credit, as further described in Subsection II.B.1.k, shall be calculated in accordance with the RRCA Accounting Procedures and by using the RRCA Groundwater Model." The CCP Proposal clearly does not use the Model for determining augmentation credit.

The issue of compliance with Section IV.H was raised squarely in the record by Kansas. However, Colorado did not directly respond in its rebuttal reports, expert testimony or in post-trial briefing. Neither Kansas nor Colorado submitted evidence into the record to explain the original intent of the provision in question or to shed light on how it should be interpreted in the present case. Colorado argues only that use of the Model is not appropriate for determining the amount of augmentation credit in connection with this particular proposal that relies on a direct and measurable discharge from the pipeline. Accordingly, the door is wide open for Kansas to deny its approval to the Colorado Proposal.

Absent the express requirement of the FSS, the States would be confronted with the underlying policy and factual determination as to whether the Model offers the most useful tool for computing augmentation credit for the pipeline concept. The answer to that question is probably not. The expert evidence provided by Colorado is convincing in demonstrating that discharge from the pipeline to the North Fork can and should be measured, rather than modeled. However, this determination alone does not fully address the issue of how much augmentation credit should be awarded for the measured delivery. That issue, in turn, triggers factual and policy concerns. The expert evidence provided by Kansas demonstrates use of the pipeline will result in an increase in negative pumping impacts, and thereby provide a long-term additional benefit to Colorado to the detriment of Kansas. Kansas raises a related issue regarding the treatment of transit losses between the point of discharge and Swanson Reservoir for purposes of determining augmentation credit. It is reasonable for Kansas to insist that such impacts be considered in calculating the amount of augmentation credit, whether by use of the Model, or through some other approach agreed to by the States and incorporated into the FSS through stipulated agreement.

For example, the States could agree to use measured discharge data for the purposes of determining the raw quantity of pipeline deliveries, but elect to apply additional factors in computing the amount of augmentation credit associated with the delivery. One such option may be to agree upon an automatic reduction of the raw quantity amount to offset the asserted negative pumping impacts and reflect a policy cost for implementing the pipeline as a method of mitigating the effects of other groundwater pumping by Colorado. A 10% reduction is recommended as a reasonable reflection of the potential impact based on seasonal deliveries, but an amount likely to be within the range of reasonable economic cost to Colorado.

Alternatively, Colorado could amend the CCP Proposal to include a method for utilizing the model to determine augmentation credit, and resubmit the proposal for approval by the RRCA.

In its present form, the CCP Proposal does not meet the requirement of Section IV.H. Therefore, it is not unreasonable for Kansas to withhold its consent to the Proposal.

2. Whether the CCP Proposal would allow Colorado to replace South Fork overuse with augmentation flow delivered to the North Fork.

Ultimate Findings and Conclusions

The CCP Proposal is not intended to allow Colorado to replace South Fork overuse with augmentation flow delivered to the North Fork for purposes of determining Compact compliance with sub-basin allocations; however, the intention should be more clearly reflected in the Proposal and related modifications to the RRCA Accounting Procedures. The CCP Proposal would allow for use of North Fork augmentation in computing Colorado's statewide compliance; however, Kansas raises a legitimate policy question as to whether an augmentation plan may be used to artificially create a surplus in one sub-basin in order to meet the statewide compliance test. Therefore, it was not unreasonable for Kansas to withhold its consent to the CCP Proposal on this basis.

Summary of Issue and Key Evidence

Kansas raises two objections with respect to the potential impacts of the CCP Proposal on South Fork compliance. First, Kansas asserts that the Proposal unreasonably allows Colorado to offset overuse on the South Fork with augmentation flow supplied only to the North Fork. C. Kan. Exh. 2 at 10 (Barfield Report); Tr. Vol.2, p. 471, ln. 25 – p. 472, ln. 7 (Barfield). Second, Kansas argues Colorado's pipeline plan, if approved, would allow it to achieve statewide compliance through crediting and not as a result of reducing its beneficial consumptive use. Kan. Post-Trial Brief at 19-20. Kansas explains that even if augmentation credit is limited to the North Fork basin for purposes of determining compliance with the sub-basin impairment test, the CCP Proposal will allow Colorado to offset overuse in the South Fork with excess water delivered into the North Fork sub-basin for purposes of demonstrating statewide compliance. This, in turn, would give Colorado access to un-allocated water in the South Fork sub-basin to which it would not otherwise be entitled in the absence of the augmentation effort. *Id.* at 21. According to Kansas, this approach offers too much flexibility to Colorado, allowing Colorado

to "dry up" the South Fork to the detriment of the citizens of Kansas. *Id.* at 20, citing C. Kan. Exh. 2 at 11 (Barfield Report).

The objections relate to two separate tests, or requirements, of the FSS. The "sub-basin non-impairment test" and the "statewide test." The sub-basin non-impairment test addresses compliance with each State's Allocation in each sub-basin of the Republic River system. Table 4A of the RRCA Accounting Procedures and Reporting Requirements provides a summary of the 5-year running averages of the Colorado Sub-Basin Allocations, the Unallocated Supply, and credits from Imported Water Supply, as provided under the FSS, to determine the total water supply available, then subtracts the Colorado Computed Beneficial Consumptive Use ("CBCU") from the total available supply for each Sub-basin. The result demonstrates whether Colorado water use in any given year, and on the five-year rolling average, is within the specified Allocation for each sub-basin. The CCP Proposal includes proposed changes to the table to include the "Augmentation Water Supply" in determining total available water supply. Colo. Exh. C 20 at 8 (Wolfe Report). The statewide test is demonstrated in Tables 3A (Five-Year) and 5A (Water-Short Year). These tables calculate overall statewide compliance without differentiating sub-basin deliveries. *Id.*

Kansas raises the concern that CCP water will be delivered to the North Fork of the Republican River but will be "credited" against stream depletions in the South Fork for the purpose of the sub-basin non-impairment requirement; however, Colorado maintains this is not intended and would not be the case under the CCP Proposal. *Id.* By its proposed changes to Table 4A, Colorado explains that the augmentation water would be placed in the "cell" designated for the North Fork sub-basin. *Id.*; Tr. Vol. 1, p. 207, ln. 8-16 (Wolfe).

Regarding the statewide test, Colorado responds that CCP deliveries can and should be considered in determining statewide compliance, because the assessment of statewide compliance does not differentiate individual sub-basins and specifically contemplates that overuse in one sub-basin may be offset by underuse in another. Colo. Exh. C 20 at 8-10 (Wolfe Report). Additionally, Colorado asserts the CCP deliveries will be less than the North Fork stream depletions – at least for a period of about the next 30 years. Colo. Exh. C 14 (Slattery Report) at 20 and Figure 5; Tr. Vol 1, p. 249, ln. 3-14 (Wolfe).

Kansas acknowledges the FSS permits any State that is currently in statewide compliance some flexibility with respect to consumption in the various sub-basins, but argues Colorado is not now in statewide compliance and seeks to artificially alter the statewide test, thereby gaining access to the flexibility afforded only to compliant states. Kan. Post-Trial Brief at 22.

Analysis and Recommendations

The FSS allows use of un-allocated supply within a sub-basin so long as the use does not "cause the State using such water to exceed its total statewide Allocation" (along with other factors). FSS Section IV.B.3. The States generally agree that this provision allows a State access to the unallocated water in one sub-basin so long as the state under-uses its allocation in another basin such that the state does not exceed its total statewide Allocation. Here, Colorado is exceeding its statewide Allocation on a regular basis in both the North Fork and South Fork (and under the statewide test), but the proposed augmentation plan will provide flow benefits only in

the North Fork system. Colorado agrees that sub-basin credit should be given only in the North Fork sub-basin but asserts that if it then does not exceed the statewide Allocation, it would be entitled to not only continue its overuse in the South Fork sub-basin, but to also use the un-allocated flow that is physically available in that sub-basin. Kansas argues this will result in harm to Kansas by creating an incentive for Colorado to "over-deliver" pipeline water into the North Fork sub-basin in order to build a surplus, and a disincentive for Colorado to implement separate compliance measures in the South Fork sub-basin.

Indeed, nothing seems to prohibit this situation from occurring in the future, if the augmentation plan is approved as Colorado proposes. Although the CCP Proposal includes provisions for minimum and maximum deliveries, the Resolution does clearly provide for "banking" of groundwater in accordance with Colorado rules and regulations (*see* Colo. Exh. C 15 (RRCA Resolution at 3)) and it is unclear whether the proposed methods for making minimum and maximum annual deliveries and related "catch up" provisions will be sufficient to prevent the type of surplus over time that Kansas fears.

The arguments presented by Kansas are not unreasonable. The FSS does not give clear guidance as to whether an augmentation plan may be used to artificially create a surplus in one sub-basin in order to meet the statewide compliance test. Although Colorado's interpretation of the flexibility provided under the FSS may also be reasonable, the disputed understanding of the FSS suggests the need for further negotiation within the RRCA process. No evidence was presented at the trial to indicate whether or to what extent these specific policy considerations have previously been addressed by the RRCA Members or in related prior negotiations.

At a minimum, as presented for Arbitration, the CCP Proposal does not clearly describe the specific limitation Colorado acknowledges is intended with respect to providing sub-basin credit only in the North Fork. Therefore, the Proposal should be clarified. While some amount of flexibility is necessary and desirable for CCP operations, the current plan leaves key questions unanswered with respect to the potential for developing a surplus, over time. These concerns could be addressed by modifying the Proposal to include a limit on the amount of augmentation credit applied to the North Fork. Specifically, the amount of augmentation credit approved for the North Fork, and subsequently applied to the determination of statewide compliance, should be reasonably tied to the amount of estimated overuse in the North Fork. The plan should not allow Colorado to substantially over-replace depletions in the North Fork when to do so will set the stage for Colorado's use of the un-allocated portion of the South Fork flows without first coming into compliance in the South Fork.

3. Whether Additional Operational Limits are Needed.

Ultimate Findings and Conclusions

Additional operational limits and details are needed in the CCP Proposal to adequately incorporate Colorado's stated intentions for dealing with minimum and maximum annual deliveries. Without such changes, the CCP Proposal does not reflect changes resulting from the Stipulated Agreement entered into between Colorado and Nebraska.

Summary of Issue and Key Evidence

The CCP Proposal submitted to the RRCA in August, 2009, is comprised of several documents: a "Resolution" dated August 12, 2009, an "Application for Approval of an Augmentation Plan and Related Accounting Procedures" dated March 2008; "Proposed Changes to the Accounting Procedures and Reporting Requirements" dated January 26, 2009, a listing of "Rights to Designated Groundwater"(Exhibit 3), and a table of "Hypothetical Calculations of the Projected Delivery and the Limit on Augmentation Water Supply" (Exhibit 4), dated August 5, 2009. Colo. Exh. C 15 (CCP Proposal). Additional details and explanation of the proposed operations were provided at trial by the written reports and testimony of Mr. Slattery and Mr. Wolfe. *See,* Section V. A., *supra.*

As described in the CCP Proposal, the pipeline will be initially capable of delivering up to 15,000 acre-feet per year, but can be increased to 25,000 acre-feet in the future if additional wells are connected to the system as further described in the Slattery Report and the proposal submitted to the RRCA. Slattery Report at 4; Colo. Exh. C 15. The proposed RRCA Resolution specifies a minimum annual delivery of 4,000 acre feet. Colo. Exh. C 15 (RRCA Resolution at 3). The maximum annual delivery, or Augmentation Water Supply ("AWS") Credit, is based on a more complicated formula that begins with determination of the annual "Projected Delivery." *Id.* The term Projected Delivery is defined as:

> "...the largest annual deficit or difference between Colorado's total annual Allocation and Colorado's CBCU during the 10 accounting years immediately preceding the subject accounting year; provided, however, that accounting years in which Colorado's total annual Allocation exceeds Colorado's CBCU shall not be used in determining the Projected Delivery."
>
> *Id.* at 3.

The maximum AWS for the subject accounting year is the Projected Delivery plus 4,000 acre-feet, or 140% of the Projected Delivery, whichever is greater. Colo. Exh. C 15 (RRCA Resolution at 4).

Kansas asserts additional "operational limitations" are needed to ensure that the augmentation plan fully incorporates and reflects the stated intentions for dealing with minimum and maximum annual deliveries under the CCP, and to ensure that such operations adequately protect Kansas' interests. Kan. Post-Trial Brief at at 23-25. Kansas also argues that it is difficult to determine exactly what constitutes the "plan" because specific operating provisions are embodied in several different documents, and because Colorado has added details and made changes to the plan since it was originally submitted to the RRCA that have not been adequately and appropriately incorporated into the proposal in order to be made binding. C. Kan. Exh. 6 at 8-12 (Book Report); C. Kan. Exh. 2 at 1-2 (Barfield Report).

Kansas' primary concern regarding operational limits relates to the maximum amount of water that could be delivered through the pipeline in any given year. Similar to the arguments raised in connection with the South Fork sub-basin compliance issue (*see* Section V.B.2 (Issue 2), *supra)*, Kansas asserts the proposed maximum annual delivery amount is too high and not

adequately tied to the actual need for compliance within the North Fork sub-basin. C. Kan. Exh. 6 at 6-8 (Book Report). Kansas argues that further limits are needed in order to avoid a situation where Colorado might substantially "over-deliver" water during a relatively wet year in order to minimize its obligations in dry or drought years. *Id.* at 8.

Colorado explains that the proposed maximum AWS was intended to address the concern regarding substantial over- or under-deliveries. Colo. Exh C 20 at 8-9 (Wolfe Report). However, Kansas counters that the maximum delivery under Colorado's proposal could be as high as 20,300 acre-feet per year, well in excess of Colorado's average statewide compliance deficiency of approximately 10,500 acre-feet per year. C. Kan. Exh. 6 at 4, 7 (Book Report). The report also identifies other apparent discrepancies between Colorado's average compliance deficiencies and the amount of water that could be delivered through the CCP system. *Id.* at 6-7. For example, Mr. Book states that the pipeline delivery amounts shown in Figure 5 of Mr. Slattery's report comparing the projected amount of augmentation pumping with projected groundwater depletions are significantly less than the amounts requested under the CCP Proposal. *Id.* at 6. Although the figure shows pumping will not exceed the amount of projected stream depletions/non-compliance in the North Fork sub-basin, the proposed Projected Delivery determination is based on Colorado's statewide deficit. *Id.* at 6-7.

Analysis and Recommendations

From a purely procedural and administrative standpoint, the CCP Proposal, as presented to the RRCA for approval, does not include the same level of operational details included in the Slattery Report. It is also not clear whether the detailed steps described in the Slattery report are fully consistent with the more general steps described in the RRCA. For example, Step 4 in the Slattery report describes a process for determining the amount of water needed for "Compact compliance" that is different from the determination of water for the Projected Delivery under Step 2 of the RRCA Resolution, and the determination of Augmentation Water Supply Credit under Step 4 of the Resolution. It is clear from the record that the additional details described by Mr. Slattery are tied to specific operating provisions included in the Stipulation negotiated and agreed to by Colorado and Nebraska after the CCP Proposal was first rejected by the RRCA, and presumably after commencement of the Arbitration process. At a minimum, these highly specific additional operational details should be integrated into a single, unified CCP Proposal. Without these changes, there is no clear "augmentation plan" under consideration.

Further clarification is also needed regarding substantive standards and operational limits, in response to the questions presented by Kansas. Generally, the concerns Kansas has expressed relating to operational limits for maximum annual deliveries are similar to those raised in Issue 2, above, relating to the amount and location of augmentation credit associated with pipeline deliveries. Kansas raises reasonable objections as to the use of a Projected Delivery based on a 10-year period of record, rather than on projected overuse within the system of five-year rolling averages (or two-year drought periods). Although Colorado provides a practical explanation for its proposed approach, there is nothing that indicates a compelling reason to use the 10-year projection period in the face of objections by an RRCA member.

It is not clear from the record whether and to what extent the States may have already attempted to reach agreement on this issue. Even assuming the States have previously

considered and exhausted their ability to reach agreement, it is unlikely the U.S. Supreme Court would assert its original jurisdiction to compel acceptance of the CCP in its current form over the objections of Kansas. As previously discussed in the Arbitrator's Joint Decision on Legal Issues, the Court has expressed only a limited willingness to compel changes in a Compact or related decree when the affected States cannot otherwise agree. *See*, Joint Decision on Legal Issues, at 4-6. Regardless of whether the States elect to engage in or successfully complete further negotiations, the CCP Proposal in its current form is deficient because it does not adequately incorporate all of the operation details and limits Colorado described and relied upon at the trial. As a result, it is not unreasonable for Kansas to withhold its approval of the proposal. Use of a five-year period of record for determining the Project Delivery is therefore recommended to promote agreement.

4. Whether temporal limits are needed in the CCP Proposal.

Ultimate Findings and Conclusions

The CCP Proposal should be amended to include temporal limits. Although such limits are not specifically required under the FSS, the unique nature of the CCP Proposal as the first augmentation plan considered by the RRCA, and the complexity of operational questions raised support the need for time limits and periodic review.

Summary of Issue and Key Evidence

Colorado seeks approval of the CCP Proposal as a permanent plan for Compact compliance into the future. Kansas argues the proposal should have "temporal limits" to provide for periodic review of the augmentation plan or time limits on the term of operation. C. Kan. Exh. 2 at 12 (Barfield Report).

Kansas asserts such limits are needed because of its concern for potential long-term impacts of the plan on the Ogallala aquifer. Kansas contends the aquifer is not capable of sustaining the plan at current rates of water level declines. Tr. Vol. 2, p. 274, ln.16 – p. 275, ln. 3 (Barfield); C. Kan. Exh. 2 at 12 (Barfield Report). Mr. Larson stated the aquifer in this area would be exhausted in about 150 years. C. Kan. Exh. 4 at 7 (Larson Report). Kansas also asserts that time limits are appropriate given the RRCA's lack of experience with any previous augmentation plan, and the potential for conditions in the basin to change. C. Kan. Exh. 2 at 12 (Barfield Report). Kansas suggests a 20-year period for periodic review, based on the term of surface water leases and loans Colorado has obtained in connection with the CCP Proposal. *Id.*

Colorado responds that the aquifer is capable of providing augmentation water indefinitely due to the characteristics of the aquifer as well as changes in water use practices expected to occur over time. Colo. Exh. C 24 at 9-11 (Slattery Rebuttal Report). Colorado also states that it is relying on the CCP as a permanent, long-term solution to assist it in coming into Compact compliance. *Id.* at 10. The state and RRWCD will expend over $70 million to purchase groundwater rights, acquire easements, and construct the CCP project; and a period of 20 years is needed to repay the loans. *Id.* at 10-11. Mr. Slattery further states that Colorado and the RRWCD WAE are entitled to certainty in making such large financial expenditures and responds that if the RRCA conducts a periodic review of the augmentation plan, Colorado should

not have to file a new application and the burden should be on the other States to demonstrate the need for any change to the plan. *Id.*

Analysis and Recommendations

Kansas and Colorado appear to be in agreement that Ogallala aquifer should be capable of providing a reliable water supply for the augmentation plan for at least the next 150 years; however, the current Proposal has no time limit whatsoever. Additionally, Kansas' arguments regarding the RRCA's lack of experience with augmentation plans in general, and the potential for other conditions in the basin to change over time that may affect this particular proposal, are persuasive to support a finding that some type of time limit or periodic review process should be included.

It is equally reasonable for Colorado to request an approval period sufficient to allow for amortization of the initial project costs and to provide for continuation of the augmentation program in the absence of evidence showing the plan is not sustainable. Colorado has already invested substantial funds in developing the proposal and acquiring the water rights and easements necessary for implementation. These actions and expenditures were reasonable in light of the fact that the FSS clearly contemplates the use of augmentation plans as a mechanism for achieving Compact compliance, and in reliance on the duty of good faith and fair dealing by the States in administering the FSS. Accordingly, initial approval of the CCP Proposal should be for a time period sufficient to allow Colorado to repay its anticipated debt. The evidence at trial indicates an initial approval for period of 20 years is appropriate for this purpose. The plan should include provisions for on-going periodic review with assurances that the pipeline project may continue in operation unless there is a substantial change in basin conditions demonstrating the augmentation plan is not sustainable.

5. Whether the changes proposed for the RRCA Accounting Procedures in the CCP Proposal are complete.

Ultimate Findings and Conclusions

The specific changes Colorado proposes to the RRCA Accounting Procedures are complete for purposes of implementing the CCP Plan as currently proposed; however, further changes would be needed to incorporate and address recommended changes in order to allow for final approval.

Summary of Issue and Key Evidence

The CCP Proposal submitted by Colorado to the RRCA included specific proposed changes to the RRCA Accounting Procedures. Colo. Exh. C 15 (RRCA Resolution and "Proposed Changes to the Accounting Procedures and Reporting Requirements" dated January 26, 2009).

Kansas questions whether the changes are complete and adequate to fully implement the proposed plan. Kan. Post-Trial Brief at 26-27. Kansas asserts the States have not conducted a detailed review of the proposed changes to Accounting Procedures. C. Kan. Exh. 2 at 12 (Barfield Report). The Barfied Report states there is a need for significant additional work in

identifying detailed changes to the Accounting Procedures that would be needed to implement the proposed plan. *Id.* Kansas asks that accounting terms and other changes be specific and limited to the provisions of the augmentation plan set forth in the CCP Proposal alone, and not reach beyond it to describe more generic provisions that could be applicable to other plans in the future. *Id.* at 13. For example, Kansas argues the proposed definition for the term "augmentation water supply" or "AWS" should be more specific to reflect the way it is used in the CCP Proposal, such as "Colorado North Fork augmentation water supply." *Id.* Other examples listed by Kansas include: more details regarding how the Groundwater Model must be run to implement the proposal; details on how limits on deliveries for augmentation credit will be determined and documented; and an additional table in the Accounting Procedures to address the augmentation water. *Id.*

Colorado argues that the States have had adequate time to review proposed changes in the Accounting Procedures since the CCP application was first submitted in 2008. Colo. Exh. C 24 at 12 (Slattery Rebuttal Report). With regard to other specific changes suggested by Kansas, Colorado responds that it would not necessarily be opposed to the changes, but questions whether they are necessary in light of the provisions that are currently proposed for the Accounting Procedures. *Id.* at 12-13. Finally, Colorado responds that Kansas has not proposed specific changes to the RRCA Accounting Procedures and the points of disagreement raised by Kansas address more general concerns about whether Kansas will approve the CCP project in any form. *Id.* at 13.

Analysis and Recommendations

The record shows that Colorado provided notice of specific proposed changes to the RRCA Accounting Procedures in the application submitted in March 2008, and revised Resolution submitted in August, 2009. Kansas has had ample time to review the sufficiency of those specific changes, but has not identified specific further changes would be needed to the Accounting Procedures to implement the CCP plan, as proposed by Colorado. In this regard, the objection by Kansas lacks merit.

However, the findings and conclusions reached in connection with other issues in the arbitration indicate that the plan, as proposed, cannot be recommended for approval. If the states are able to reach agreement on a modified plan, the RRCA Accounting Procedures will need to be reviewed to assure consistency with a revised proposal and to make any changes needed to accommodate the final terms of the plan.

6. Whether Colorado's proposed "catch up" provisions are unreasonable.

Ultimate Findings and Conclusions

The proposed "catch up" provisions offer a reasonable mechanism to implement the CCP Proposal as envisioned by Colorado. However, the objections raised by Kansas are equally reasonable when the "catch up" plan is considered in the context of the CCP Proposal's overall approach for determining minimum and maximum deliveries and providing for "catch up" as needed. Accordingly, it is not unreasonable for Kansas to withhold approval of the Proposal on this basis.

Summary of Issue and Key Evidence

Colorado's proposed augmentation plan includes a process for estimating augmentation requirements for purposes of scheduling pipeline deliveries throughout the year. *See,* Sections V.A, and V.B.3, *supra.* The plan includes procedures for making adjustments during the calendar year of delivery in reaction to precipitation events, and for making "catch-up" deliveries in the following year, if needed, to ensure Compact compliance on a five-year running average. Colo. Exh. C 20, at 8-9 (Wolfe Report). According to Mr. Wolfe, these provisions were added to the CCP Proposal submitted in August, 2009 in response to concerns previously expressed by Kansas and Nebraska that Colorado would over-deliver water in one year and deliver little or no water in succeeding years in the five-year running average used for Compact accounting. *Id.* at 8. The concepts of a minimum delivery and a maximum limit on AWS credit were designed to limit Colorado's ability to "pre-load" augmentation water by delivering a large amount in one year and then little or none in subsequent years in the five-year running average, but to still allow Colorado to "catch-up" in it deliveries when necessary to comply with Compact Allocations based on the variance in Virgin Water Supply and CBCU. *Id.* at 9.

Colorado points to Exhibit 4 of the CCP Proposal as an illustration of how it will operate the pipeline to try to make deliveries as close as possible to the needed amount in any given year. Mr. Wolfe explains that because basin hydrology is dominated by precipitation events rather than snowmelt, Colorado must react to hydrologic changes during the calendar year rather than after the calendar year. Since the RRCA accounting is done almost a year after the fact, Colorado must forecast basin needs each year to estimate the amount of deliveries required. *Id.* at 10.

Kansas asserts the "catch-up" provision has not been the subject of any sustained discussion among the States prior to the arbitration. Tr. Vol. 2., p. 276, ln. 6 – p. 277, ln. 3 (Barfield); C. Kan. Exh. 2 at 13 (Barfield Report). Mr. Barfield also stated that Colorado did not include sufficient details regarding the "catch-up" process in the Colorado Resolution presented to the RRCA, and that such provisions must be clearly articulated in the augmentation plan and related documents. *Id.* Additionally, Kansas argues that the need for a "catch-up" provision does not justify the permanent upper limit proposed by Colorado based on a 10-year period of accounting multiplied by 140% in light of the five-year period used for Compact accounting under the FSS. Kan. Post-Trial Brief at 27.

Colorado responds that the reason the "catch-up" provision was not previously the subject of sustained discussion is that Kansas did not raise this concern prior to the arbitration process. Instead, Kansas raised more specific issues relating to the concern that Colorado would over-deliver water in wet years and then under-deliver in dry years, to which Colorado responded in preparing a revised proposal for RRCA consideration. Tr. Vol. 1, p. 216, ln. 21-25 (Wolfe); Colo. Exh. C 24 at 14 (Slattery Rebuttal Report).

Analysis and Recommendations

Once again, in terms of compliance with the FSS and general Compact obligations, there is nothing inherently wrong with the methodology Colorado has developed for determining projected deliveries and for making subsequent adjustments in the following year to reflect its

actual compliance obligations. Nevertheless, Kansas disagrees with the proposed methodology, and the objection does not rise to the level of bad faith.

The essence of Kansas' objection to the so-called "catch up" provisions is its underlying concern about the potential for under- or over-deliveries under the augmentation plan. To help better manage deliveries and minimize the need to "catch up" Kansas contends the projected delivery should be based on a five-year period, rather than on ten years. This is a reasonable proposal in light of the five-year rolling averages typically used for determining Compact compliance and consistent with the analysis and recommendations provided in addressing Issue 3, above. Ultimately, the "catch-up" process cannot be divorced from the concepts of minimum and maximum deliveries and the determination of augmentation credit that are addressed in Issue 3, and therefore the same recommendations will apply.

At a minimum, the CCP Proposal is deficient in its current form because it does not adequately incorporate all of the operational details and limits Colorado described and relied upon at the trial – including the "catch-up" provision – into a single, integrated, CCP Proposal.

7. Whether it is unreasonable for Colorado to propose an expansion of its augmentation plan without a requirement of further RRCA approval.

Ultimate Findings and Conclusions

The process Colorado proposes for authorizing possible future expansion of the pipeline is not unreasonable and does include provisions for RRCA approval. Therefore, this objection lacks merit.

Summary of Issue and Key Evidence

Paragraph 6 of the Colorado Resolution provides that Colorado may acquire additional groundwater rights to be pumped through the CCP wells upon the terms and conditions of the resolution; however, it further requires Colorado to provide 60 days advance notice to the other RRCA members of its intent to do so. Colo. Exh. C 15 (RRCA Resolution at 4). Upon objection from any member, the notice will be treated as an application for approval of a new augmentation plan. *Id.*; Colo. Exh. C 24 at 15 (Slattery Rebuttal Report).

Kansas asserts this provision of the CCP is unreasonable, arguing that Colorado should be required to seek approval of a new augmentation plan application before proceeding with any expansion. Kan. Post-Trial Brief at 28.

Analysis and Recommendations

The approach proposed by Colorado offers essentially the same procedural safeguard that Kansas asserts is lacking. Therefore, the objection by Kansas lacks merit and is not reasonable. The Colorado plan is sufficient in this regard and no further changes are needed.

8. **Whether the refusal by Colorado and Nebraska to disclose the terms of a separate stipulated agreement is unreasonable and requires that the CCP be rejected.**

Ultimate Findings and Conclusions

The refusal by Colorado and Nebraska to disclose the terms of their stipulated agreement does not mandate that the CCP Proposal be rejected. In the absence of a motion to compel production of the documents, it is not necessary to deal directly with this issue in the Arbitration proceedings.

Summary of Issue and Key Evidence

Kansas raises the legal argument that Colorado should not be granted the relief it seeks in this arbitration proceeding when it has refused to divulge information that Kansas deems necessary to a full evaluation of the CCP Plan; specifically, a copy of the Stipulation entered into between the States of Nebraska and Colorado that resulted in Nebraska withdrawing its previous opposition to the CCP proposal and stating its willingness to support the plan. Kan. Post-Trial Brief at 28-30; C. Kan. Exh. 7 (Letter from Colo. Asst. Atty. Gen. Peter Ampe, dated July 7, 2010); Tr. Vol 3, p. 568, ln. 15-25 – p. 569, ln. 1 (Schneider).

Kansas speculates the Stipulation is likely to contain information relevant to the determination of reasonableness, suggesting it may contain concessions Colorado made to Nebraska in order to obtain Nebraska's acquiescence in the CCP. Kansas argues the CCP should be rejected until Colorado removes the alleged taint from its proposal by divulging the complete agreement with Nebraska.

Colorado did not directly respond to the issue raised by Kansas during the trial or in its closing argument; however, the record does include a copy of the letter Colorado provided to Kansas stating the basis for its refusal to disclose the documents. C. Kan. Exh. 7. Colorado asserts the Attorney/Client Privilege, Attorney Work Product Privilege and Joint Defense Privilege as the bases for its decision.

The parties did not otherwise brief the legal issue of whether the Stipulation may be legitimately withheld in the proceedings, and no motion was made to compel production of the documents.

Analysis and Recommendations

It is not necessary to deal directly with this issue because other findings and conclusions support a decision not to grant Colorado its requested relief regarding recommendation of the CCP Proposal. Because of the limited briefing and lack of a motion to compel, the Arbitrator makes no further findings and offers no further recommendations on this issue.

VI. Conclusion

The CCP Proposal, in general, provides a reasonable and necessary approach for meeting Colorado's Compact obligations. With changes as recommended herein, the revised CCP

Proposal should be approved. However, the facts presented in this Arbitration proceeding do not support a conclusion that Kansas has acted in bad faith or has breached a duty of fair dealing in questioning and challenging key aspects of the proposed augmentation plan. To be sure there is a risk that, at some point in the future, continuing objections by Kansas may suggest there is nothing that Colorado can do to develop a plan that would meet with approval by Kansas. At this stage, however, there is no basis for concluding that Kansas has acted unreasonably or that Colorado is entitled to a recommendation from the Arbitrator that the CCP Proposal should be approved.

Dated: October 7, 2010

Martha O. Pagel
Arbitrator

CERTIFICATE OF SERVICE

I hereby certify that on this 7th day of October, 2010, I served a copy of the foregoing **ARBITRATOR'S FINAL DECISION** by e-mail and by sending a true and correct copy thereof by overnight courier on:

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