

*Non-Binding Arbitration initiated July 10, 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 N-CORPE Augmentation Plan

Republican River Compact

Response to report prepared by State of Nebraska, dated June 10, 2013

Prepared by

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Chief Engineer

Kansas Department of Agriculture, Division of Water Resources, Topeka, KS

January 24, 2014

## Introduction

Nebraska's proposed N-CORPE augmentation plan is similar to Nebraska's Rock Creek augmentation plan and thus raises many of the same concerns for Kansas. I have therefore attached to this report my July 1, 2013 expert report (without attachments) submitted in the arbitration over Nebraska's Rock Creek Augmentation plan. Except for the second part of my opinion 3.a., the opinions expressed in that report continue to hold for the N-CORPE project.

Based on my independent work and my review of Mr. Larson's and Mr. Book's work, my additional opinions regarding Nebraska's N-CORPE project (Project) are:

1. Nebraska's N-CORPE project will injure Kansas.
  - a. Nebraska seeks 100% credit for Project augmentation deliveries and does not consider the amount and effects of transit loss below the Project outfall.
  - b. As established in Kansas' reports, Nebraska's request for 100% augmentation credit for each acre foot of water discharged at the Project outfall unreasonably ignores transit losses, thereby reducing Kansas allocation and correspondingly and inappropriately inflating Nebraska's compliance balance by the same amount.
2. The Imported Water Supply Credit is the appropriate template from which to develop the Augmentation Water Supply Credit.
3. Experience with Nebraska's 2013 water administration leaves Kansas with great uncertainty regarding the extent to which Kansas water users will benefit from this augmentation supply that is purportedly for Kansas.
4. The Project will facilitate the continued dewatering of the Basin which will lead to increasing transit losses into the future.
5. The N-CORPE proposal is incomplete.
  - a. The proposal lacks the specifics that Kansas needs to monitor and evaluate its long-term impacts.
  - b. The proposal lacks terms and conditions needed to protect Kansas interests.
  - c. The proposal lacks provisions on how storage of augmentation flows will be reflected in the accounting and a clear and binding plan for how the augmentation water will be administered through the basin.
6. The FSS does not prescribe how an augmentation plan should be developed, operated, or accounted for, but it does require that augmentation plans be approved by the RRCA. It would therefore be unreasonable and irresponsible for Kansas to vote in favor of approval of an augmentation plan that injures Kansas either in the short or long term.

### **Transit losses in the determination Imported Water Supply credits**

The determination of the Imported Water Supply Credit involves a quantitative analysis of the benefits to streamflow in the Republican River Basin caused by imports of Platte River water by the RRCA Groundwater Model. In its quantification, the Model determines how the imported water affects or interacts with: 1) returns to the Platte River system, 2) diversions by groundwater pumping, 3) increases to groundwater storage and 4) consumption by ET as a result of additional water in the system.

The Model evaluates these real-world effects ensuring that Nebraska gets appropriate credit for the increases to streamflow caused by Platte River water, but that Nebraska does not get credit for imported water that stays in or is otherwise consumed in Nebraska. This is similar to what Kansas asking for in this proceeding.

### **Nebraska's Compact Call Year water administration concerns**

2013 was the first Compact Call Year under Nebraska's current compliance plan, and Kansas' first experience with the actual implementation of Nebraska's Compact Call Year operations. Nebraska's water administration during 2013 and the negative impacts to Kansas water users add to concerns about Nebraska's Plan.

The Kansas Bostwick Irrigation District (KBID) depends in large part on storage releases from Harlan County Lake (HCL).

Multi-year droughts and resulting shortages to KBID have occurred regularly in the past. To maximize the benefit of its supply, KBID utilizes the storage in HCL over multiple years. In 2013, KBID decided it was most prudent to try to carry over some water to 2014.

However, Nebraska's administration precluded KBID's management of its water. Nebraska issued a series of closing notices and others administrative orders requiring all water entering HCL in 2013 to be released before the end of the year.

Kansas reached out to Nebraska to find a way to allow KBID to carry over water, but Kansas proposals were rebuffed. In an effort to secure its water supply KBID was forced to enter into Warren Act contract and pay the Bureau of Reclamation for water which should have accrued to KBID's storage, and to agree to other terms to prevent the release of waters that had accumulated through April.

In addition, under threat from Nebraska to release stored water from HCL at a time when no Kansas irrigators could use it, Kansas accepted a disadvantageous assessment of evaporation charges in order to allow KBID to move the remaining 2013 water to Lovewell Reservoir.

The experience with Nebraska's Compact Call Year administration shows that even if N-CORPE water actually makes it to HCL, it may be released at a time when no Kansas irrigators can use it.

## **Nebraska on-going dewatering of the basin raises significant future concerns**

Nebraska seeks approval of this augmentation plan and its accounting in perpetuity, and therefore Kansas must evaluate its potential impacts over the long term.

Transit losses for the deliveries of water will increase with increasing levels of stream-drying.

In *Kansas v. Nebraska and Colorado*, Kansas examined the likely long-term effects of Nebraska's groundwater pumping under their Integrated Management Plans. Future scenarios examined included both 75% and 80% of the 1998 -2002 baseline pumping, as well as the effect of intermittent and permanent shut down of the Rapid Response Region.

Development of the Rock Creek and N-CORPE augmentation plans appears to be intended to avoid intermittent or permanent shut down of the Rapid Response Region.

If Nebraska's pumping remains at or above 75% of Nebraska's 1998-2002 baseline, the ongoing dewatering of the basin will continue with increasing groundwater depletions and diminishing baseflows over time.

Thus Kansas concerns with transit losses will increase in the future.

### **The N-CORPE proposal is incomplete**

As is noted in the introduction, many of the deficiencies of this augmentation plan are shared with Nebraska's Rock Creek plan and noted in my report for the Rock Creek plan. My additional concerns are:

1. The N-CORPE plan lacks specifics with regard to how the project's waters will be operated and how the augmentation supplies will be administered through the basin and in particular, with respect to storage in Harry Strunk Reservoir and Harlan County Lake.

Unlike the Colorado CCP which targets releases during winter months to minimize transit losses, Nebraska's plan provides no specifics on timing of release. The timing of augmentation deliveries will also have an effect on the usability of such supplies to Kansas.

The plan needs to include terms and conditions on how the water will be operated in terms of timing during the year and plans for administration in the basin.

2. Regarding reporting and monitoring;
  - a. There is a lack of stream data along Medicine Creek.
  - b. The project will supply water to both the Platte River and Republican River.  
Given the significance of this water supply and its augmentation credits, clear and

regularly reporting of deliveries to both Rivers should be required.

3. Nebraska's proposed accounting

- a. Beyond the failure to address transit losses, Nebraska's proposed accounting is unclear with respect to its markup of the accounting procedures.
  - i. The proposal is silent with respect to the effect of the storage of augmentation water on the accounting and the credit that Nebraska would receive in the year. With Nebraska's silence on this matter, storage of augmentation deliveries above Harlan County Lake would provide a full credit to Nebraska, but to the extent so stored would deprive Kansas of any benefit from the augmentation water in that year and would reduce Kansas allocations in that year.
  - ii. It is unclear if Nebraska is proposing that its model runs described in its attachment to the plan be made a part of the accounting procedures. Nebraska has indicated that it may modify its proposal. If so, this will need to be evaluated.

**It would be unreasonable for Kansas to vote to approve the N-CORPE plan**

The FSS does not prescribe how an augmentation plan should be developed, operated, or accounted for, but it does require that augmentation plans be approved by the RRCA. For all the reasons explained above, it would be unreasonable and irresponsible for Kansas to vote in favor of approval of an augmentation plan that injures Kansas either in the short or long term.

**Attachments**

Rock Creek report without Attachments

**References**

Barfield, David, "Ensuring Compliance in Nebraska", November 2011

Stipulation between Colorado and Kansas, Colorado Compact Compliance Pipeline, September 26, 2013

Book, Dale E., "Report on the Nebraska N-CORPE Augmentation Plan", January 24, 2014

Larson, Stephen P., and Perkins, Samuel P., "Report on the Nebraska N-CORPE Augmentation Plan", January 24, 2014

Correspondence between the States regarding Harlan County Lake release and Warren Act contract.

*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

**David W. Barfield, P.E.**

Chief Engineer, Division of Water Resources

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:

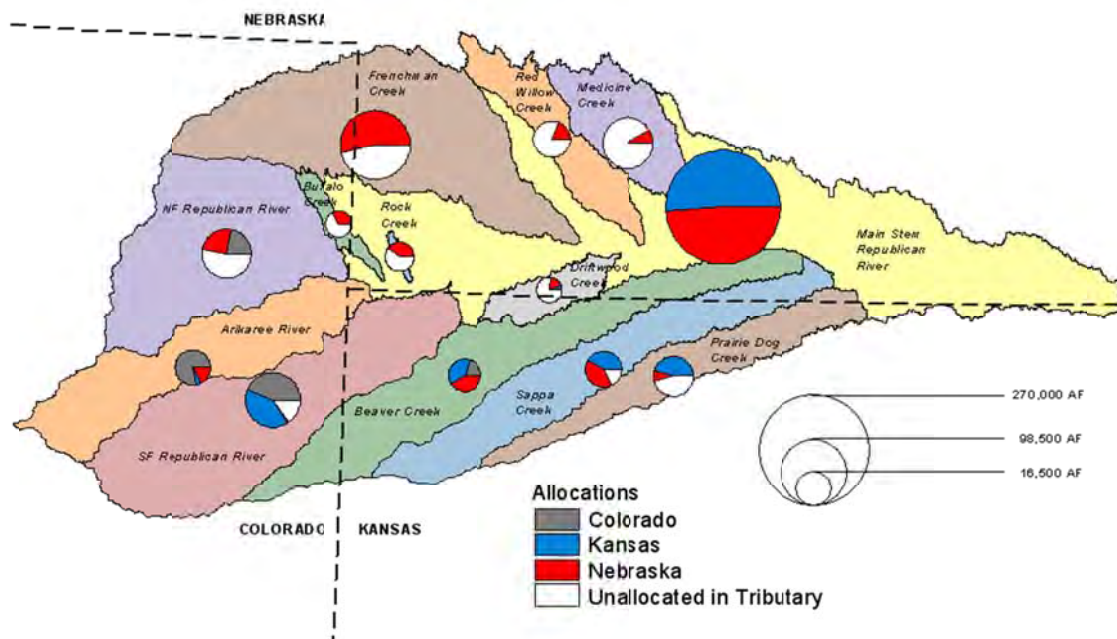
1. The FSS requires RRCA approval of augmentation plans so that the States may fully review them to ensure that such plans are fully integrated into the Accounting Procedures and the Model, and that such plans have sufficient terms and conditions to protect the interests of all the States consistent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



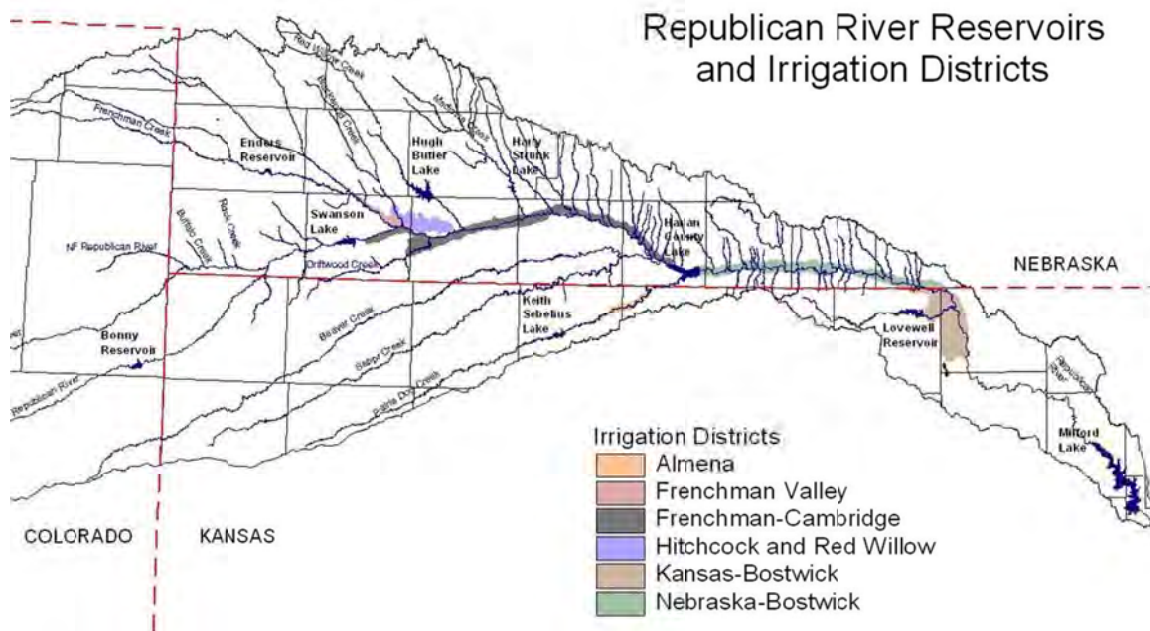
**Figure 1 - Republican River Compact Allocations**



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").

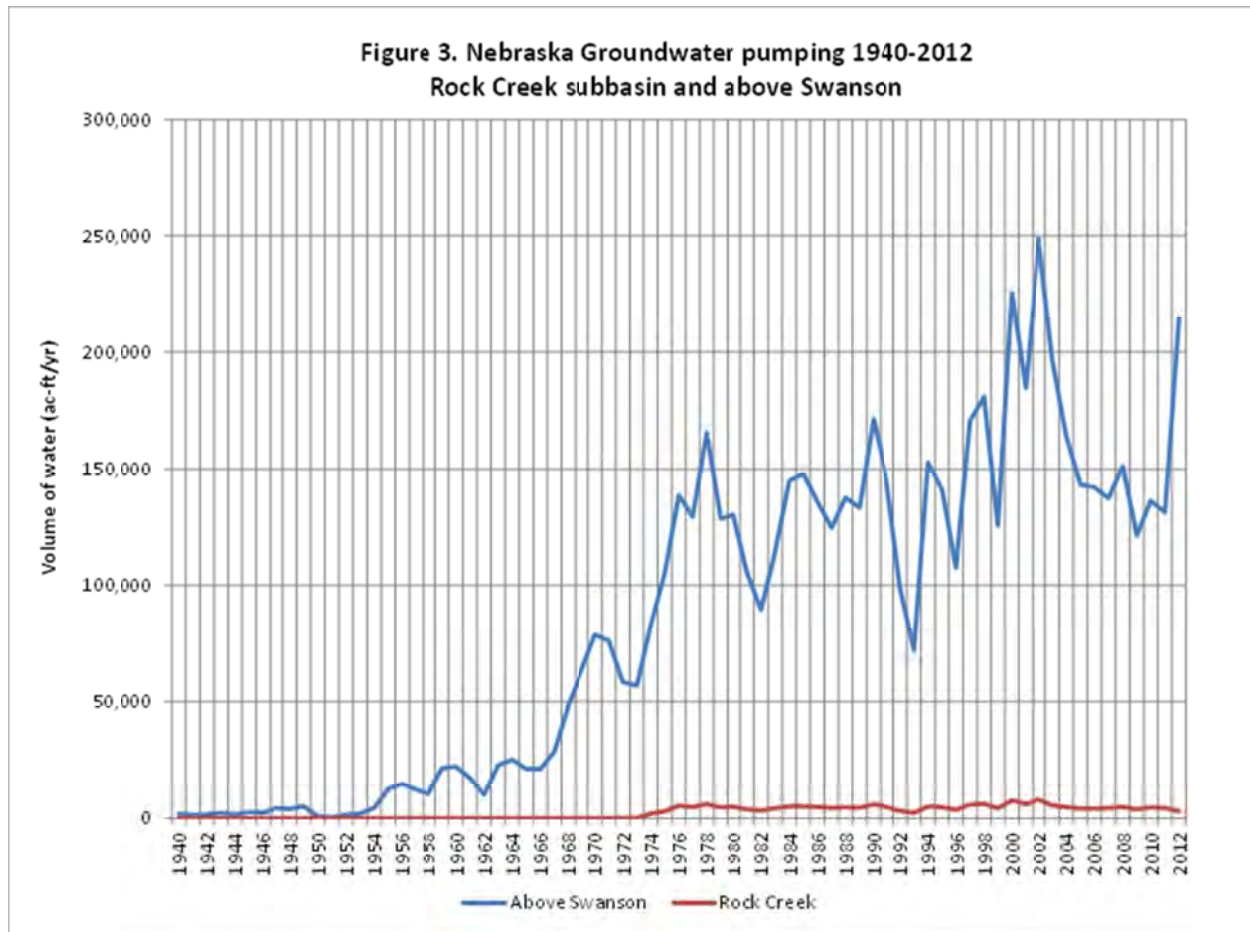
After the ratification of the Compact by the States and Federal government, much of the planned federal system of reservoirs and irrigation districts was developed (see Figure 2 below). The need to protect the federal government's investments in water-supply infrastructure was a principal reason behind the Compact. See Statement of Mr. Robert D. Kutz, Project Manager for the Bureau of Reclamation ("Bureau"), 29<sup>th</sup> 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**

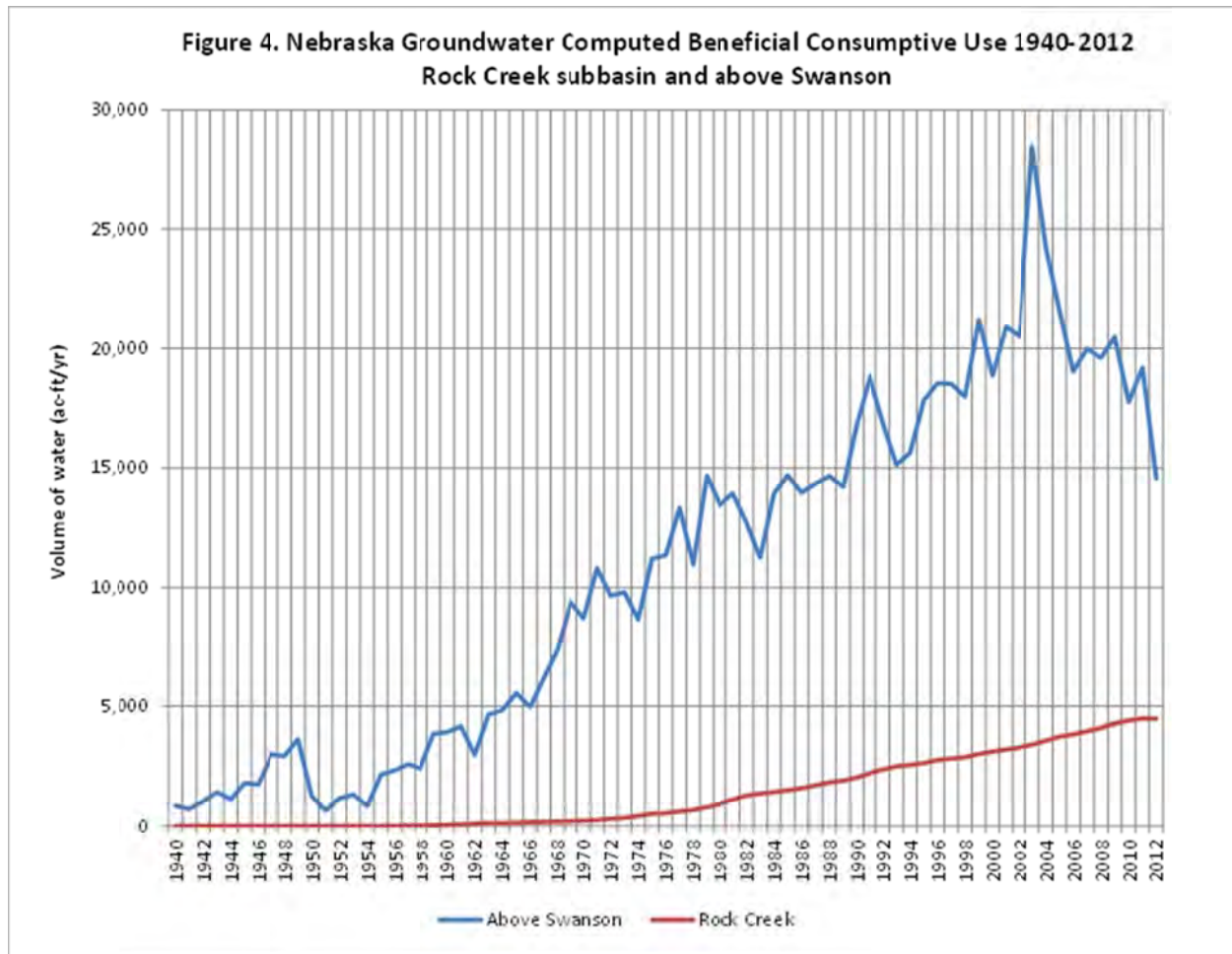


While the limited groundwater use at the time of Compact negotiations was included in the determination and allocation of the original virgin water supply, the extent of groundwater development was not fully anticipated. Shortly after the signing of the Compact, center-pivot groundwater irrigation began 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