

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

State of Kansas,

Plaintiff,

v.

State of Nebraska

and

State of Colorado,

Defendants.

Determination of Decree Compliance and
Remedies for Violations by Nebraska

David L. Pope, P. E.

November 18, 2011

Introduction

This report is provided in preparation for trial regarding the enforcement of the Republican River Compact (Compact) and the May 19, 2003 Decree of the U.S. Supreme Court (Decree). It provides background information and a description of Kansas efforts to seek compliance by Nebraska with the Compact. It analyzes Nebraska compliance efforts for consistency with the Final Settlement Stipulation (FSS) and the Decree from my perspective as an engineer and former Chief Engineer and Compact Commissioner. In addition, using my knowledge and experience as former Chief Engineer and member of the Arkansas Compact Administration, it provides information regarding the actions taken by Colorado to comply with the U.S Supreme Court Decree issued to enforce the terms of the Arkansas River Compact and the actions taken by New Mexico to comply with the U.S Supreme Court Decree issued to enforce the terms of the Pecos River Compact, and my opinion that Nebraska will need to take long-term actions to comply with the Compact and Decree. Finally, it provides my views and opinion regarding the need for the appointment of a River Master to assist with the enforcement of the Compact and the Decree.

Qualifications

I served as Chief Engineer and Director of the Division of Water Resources, Kansas Department of Agriculture during the period 1983 through 2007. In that capacity, I had statutory responsibility for the administration of water in Kansas, including the appropriation, regulation and distribution of surface water and groundwater in accordance with the Kansas Water Appropriation Act. I was also responsible for the administration of some 25 other statutes related to the conservation, management, use and control of water and watercourses in Kansas. I served as a member of each of the four interstate river compact administrations or commissions established by the compacts to which Kansas is a party. During this period, I served as the Kansas Commissioner to the Republican River Compact Administration (RRCA).

I was involved in two U.S. Supreme Court cases during my tenure as Chief Engineer: *Kansas v. Colorado*, No. 105, Original (Arkansas River) and *Kansas v. Nebraska and Colorado*, No. 126, Original (Republican River). I testified several times as an expert witness in the fields of water administration and Agricultural Engineering during various phases of the *Kansas v. Colorado* trial. On the Republican River, for many years I directly participated in various attempts to resolve Kansas' concerns about non-compliance with the Republican River Compact. I led the team for Kansas that negotiated the Final Settlement Stipulation (FSS) to resolve the litigation over the

Republican River Compact and was deeply involved in reaching the settlement. Between 2002 and 2007, I monitored compliance with the FSS in my capacity as Chief Engineer and RRCA Commissioner. Since 2007, I have operated a consulting business with major focus on water and natural resources issues. I have testified in two arbitration hearings for Kansas related to disputes under the FSS.

I hold BS and MS degrees in Agricultural Engineering from Oklahoma State University where I specialized in irrigation and water resources engineering. I am a licensed Professional Engineer in Kansas. Prior to my tenure as Chief Engineer, I worked for Kansas State University as an Extension Irrigation Engineer, served as Manager of the Southwest Kansas Groundwater Management District No. 3 and worked as Assistant Chief Engineer of the Kansas Division of Water Resources. These positions involved water management, water administration and water policy issues. My Resume provides additional detail regarding my experience and education.

Background and Kansas efforts to seek Compact compliance

After I became Chief Engineer and the Kansas member of the Republican River Compact Administration (RRCA) in 1983, I became very involved in the administration of the Republican River Compact (Compact) and concerned about Nebraska's consumptive uses in excess of its annual adjusted allocations as determined by the Compact accounting procedures being used at the time. In the mid 1980's, I led the effort by Kansas to raise these concerns with the RRCA, along with related concerns about accounting issues and compliance and enforcement with the Compact. These comments are generally set forth in the Annual Reports of the RRCA from the mid 1980's through the 1990's. In part to help Kansas comply with the Compact, I also took action in the mid 1980's to limit groundwater development in the "upstream" portion of the basin in Northwest Kansas and closed most of the tributary alluvial valley's to new appropriation of water, except for small beneficial uses such as domestic use. Based on Nebraska's history of consumptive uses exceeding its Compact annual adjusted allocations and given its on-going large scale irrigation development in most of the basin at the time, I also called for Nebraska to limit its largely unregulated use of groundwater as a way to keep the problem from getting worse and help protect the Kansas Compact entitlement.

After efforts to resolve Kansas complaints through the Compact were unsuccessful, I led a Kansas team that participated in mediated discussions with Nebraska to help find resolution of these issues. However, these negotiations failed

after a preliminary option for settlement was rejected by Nebraska after receiving negative feedback from many of its water users.

Finally, in 1998 Kansas filed suit in the U.S. Supreme Court to enforce the terms of the Compact. After some initial legal decisions in the case, the parties and United States entered into intense negotiations, and the Final Settlement Stipulation (FSS) was developed by the settlement teams and approved by the Governors and Attorneys' General of each state, which led to the May 19, 2003 U.S. Supreme Court Decree.

The Final Settlement Stipulation and Compact Accounting

I led the team for Kansas that negotiated the FSS and participated in all significant discussions of the settlement teams regarding the content of the FSS. The FSS includes several important appendices, including the RRCA Accounting Procedures, and set the stage for the approval of the jointly developed RRCA Groundwater Model, which was submitted to the U.S. Supreme Court with the Final Report of the Special Master on September 17, 2003 in accordance with the terms of the Court's May 19, 2003 Decree. As envisioned by the FSS and Decree, both the RRCA Accounting Procedures and RRCA Groundwater model were approved by the Republican River Compact Administration at its Annual Meeting on August 22, 2003 through adoption of Rules and Regulations pursuant to the Compact (See RRCA Forty-Second Annual Report). These actions can be modified by unanimous action of the RRCA through amendment of its Rules and Regulations, and they have been modified to correct some errors and improve the Accounting Procedures at a special meeting of the RRCA on January 12, 2005 (see Forty-Fourth Annual Report).

On January 6, 2003, Special Master McKusick held a hearing in Denver, Colorado where Counsel and the three "State Engineers", including me, briefed him on the provisions of the FSS. All three states requested that the Special Master recommend the settlement to the U.S. Supreme Court and support entry of the proposed court decree. See transcript of the hearing. During the hearing, the negotiators provided a description of the various provisions of the FSS, including comments regarding the accounting provisions, multi-year compliance periods, the implementation schedule, the give and take of the parties as agreed to in the Settlement, and the provisions related to the adoption of Rules and Regulations by the RRCA as noted above, among other things. In his subsequent report U.S. Supreme Court, Special Master McKusick found the FSS to be consistent with the Compact, noted that it was the kind of action often encouraged by the Court and recommended its

approval to the Court. On May 19, 2003, the Court entered its Decree in *Kansas v. Nebraska and Colorado*, No 126, Orig.

Based on my involvement in the settlement process, experience with the administration of the Compact, and the report of the Special Master, it is my opinion that the FSS and the associated RRCA Groundwater Model and RRCA Accounting Procedures are consistent with the Compact, and are the standards from which Compact compliance should be determined.

The FSS includes many provisions and requirements, including two primary separate compliance tests as described in Sections IV and V of the FSS. Subsection IV.D provides that except as described in Subsection V.B., all Compact accounting shall be done on a five-year running average in accordance with the provisions of the RRCA Accounting Procedures, which include the detail of how this is to be done. Subsection V.B outlines the requirements for Water-Short Year Administration. Among other things, Nebraska's action to comply with Subsection V.B.2 shall include the use of a two-year running average, as computed above Guide Rock, with any Water-Short Year Administration year treated as the second year of the two-year running average and using the prior year as the first year, unless an Alternative Water Short Year Administration Plan is submitted for action by the RRCA (see Subsection V.B.2.e and FSS Appendix M). Based on the Implementation Schedule in FSS Appendix B, the first year of Water-Short Year Administration compliance is 2006, "(if Water-Short Year Administration year, 2-year running average is 2005-2006)," and the first year of normal year compliance is 2007 "(5-year running average from 2003-2007)."

The FSS Accounting Procedures require computations each year based on allocations determined from the Computed Water Supply (CWS) and the determination of the Computed Beneficial Consumptive Use (CBCU) of each State and a determination of Compact compliance, as further described below. For Nebraska, an Imported Water Supply (IWS) credit is included in the computations as appropriate. An annual determination is made for each sub-basin and statewide to evaluate whether a State has used more or less than its Compact allocation for that year. This is done by subtracting the CBCU from the sum of CWS and IWS. To determine whether a State is in compliance with the Decree, the FSS includes provisions for rolling multi-year averages. The results from individual year calculations are then averaged with other years to determine the result for a given compliance period and test. Accounting formulas and Tables 3, 4 and 5 from the RRCA Accounting Procedures are used to determine Compact compliance. This includes, for each state, running five-year "normal" compliance periods for each year beginning in 2007 (for the period 2003-2007, then 2004-2008, etc.) and, additional two-year compliance periods during times of reduced water supplies (Water Short Year Administration) potentially for each year

beginning in 2006 (for the period 2005-2006, then 2006-2007, etc.), except that a three-year period can be used under certain circumstances as defined in the FSS. Each multi-year compliance period is a separate period using different years. There are also different computations made for the individual years included in the annual normal five-year compliance periods compared to the same years used in any given Water Short Year Administration (WSYA) compliance period. The WSYA compliance period is based on compliance at Guide Rock, Nebraska, while the annual normal five-year compliance period (Statewide) uses Hardy, Nebraska, which is near the Kansas-Nebraska Stateline. There are also sub-basin tests that use the normal five-year compliance periods.

In accordance with the FSS, 2006 was the first possible WSYA year and it turned out to meet the criteria for WSYA based on the two-year compliance period of 2005-2006. The first normal year compliance period was for the period 2003-2007. In both cases, the compliance tests are made based on the end of the compliance period, but the computations for each individual each year of the compliance period are a part of the total amount used in the computations. This allowed time for each state to offset higher years of beneficial consumptive use with years of less beneficial consumptive use. Reports of progress on actions to comply with the FSS were made by the states at RRCA meetings after the FSS was approved in 2002 and at times questions and concerns about this progress and Compact compliance was expressed by Kansas, especially at the RRCA Annual Meetings in 2006 and thereafter (See the RRCA Forty-Second Annual Report for the Year 2003, as well as the RRCA Annual Reports for each of the later years through at least 2006)

The normal five-year accounting period was also designed to allow some flexibility between years in how water can be used by the states during normal water conditions, but the two-year WSYA provisions were designed to protect Kansas downstream interests during dry conditions or periods of water shortage based on consideration of only the portion of the basin above Guide Rock, Nebraska and criteria at Harlan County Reservoir as set forth in the FSS. The diversion canal for the Kansas Bostwick Irrigation District is at Guide Rock and the District depends significantly on storage in Harlan County Reservoir for irrigation pursuant to its contract with the U.S. Bureau of Reclamation.

Pursuant to the RRCA Accounting Procedures, computations are made for each individual year in the multi-year period to determine if a state's annual allocation is more or less than the sum of its annual Computed Beneficial Consumptive Use and Imported Water Supply Credit, if applicable. These individual year results, including positive and negative values for each year, are totaled and an average is calculated to determine

compliance for the multi-year period involved in that compliance period. If the average of these individual year results for that period is negative, that state is not in compliance with that compliance test as its use has exceeded its allocation. The total of these individual year results for the period is also the amount of the shortfall in acre-feet for the period. Another way to determine the total for the period in acre-feet is to multiply the average acre-feet per year times the number of years in the period, which gives the same result. For example, WSYA 2006 includes the individual years of 2005 and 2006. If the accounting computations hypothetically resulted in a negative value (overuse) of 40,000 acre-feet for 2005 and a negative value of 30,000 acre-feet for 2006, the average would be a negative 35,000 acre-feet per year (the sum of negative 40,000 acre-feet and negative 30,000 acre-feet divided by 2 years to get an average of negative 35,000 acre-feet per year of overuse). Likewise, for the two year period, an average of negative 35,000 acre-feet per year times 2 years would equal a negative 70,000 acre-feet of total overuse. In short, the total overuse can be determined by simply adding negative 40,000 acre-feet for 2005 and negative 30,000 acre-feet for 2006 to get negative 70,000 acre feet for the two year period. The same analysis applies to the normal five-year computations, except for the number of years involved. As with any average, it is necessary to sum the negative and positive values correctly and use the proper units to get the correct result.

I understand that Nebraska has advocated a determination of the total amount of overuse during multi-year compliance periods by using an averaging method where it takes the average for the period, which would have units in acre-feet per year, and treats it as if it is a total value for the period with a unit in acre-feet. I disagree with the Nebraska position based on the analysis above, my understanding of the FSS, and based on public comments made by representatives of the parties that were involved in the settlement discussions, at post settlement meetings of the RRCA, as well at other events. For example, at the August 10, 2006 RRCA Annual Meeting, I noted during the Compact Compliance agenda item that:

"Chairman Pope noted that Kansas does appreciate the progress by Colorado and Nebraska toward compliance. A lot of time and money has been put forth. 2005 is the completion of the third year of the five-year compliance period and the first year of the two-year water short compliance period. It is apparent that there is still a problem. Consumptive use still exceeds allocations. In the last three years, consumptive use has exceeded allocations by 104,000 acre-feet for Nebraska and 34,000 acre-feet for Colorado.

Kansas is concerned about the trends showing in these years. There is progress being made, but the numbers don't show a lot of change. In 2005, the first year of the two-year test, there is approximately 43,000 acre-feet of use in excess of

allocation above Guide Rock. A lot of reduction in consumptive use must occur by the end of 2006 to make this up." RRCA, 45th Ann. Rep., p. 11 (2006).

I further explained our concerns and the consequences of water shortages in Kansas and noted that "The message is that we are not at the end of the compliance period, but time is not on our side". Commissioner Bleed stated that Nebraska shared Kansas' concerns and noted actions indicating a desire to comply and that Nebraska continues to be willing to address the issue as best it can. Commissioner Simpson reported on actions being taken by Colorado. Neither Ms. Bleed nor Mr. Simpson, both of whom had been personally involved in the FSS negotiations, noted any disagreement with my use of totals to describe the degree of non-compliance thus far during these compliance periods (the normal five year accounting period for 2003-2007 and the 2006 WSYA for 2005-2006), involving the years 2003 through 2005. (See the RRCA 45th Ann. Rep. (2006)).

At the August 15, 2007 RRCA Annual Meeting, my successor and RRCA Commissioner David Barfield, provided a similar report during the Compact Compliance agenda item. He said that according to Kansas' calculations, for the first four years of the accounting period, Nebraska's consumptive use in excess of its allocations totaled almost 144,000 acre-feet. He noted that for water-short years 2005-2006 (2006 WSYA), Kansas calculations show Nebraska has used a total of 84,000 acre-feet (since corrected to 78,960 acre-feet) more than its allocation above Guide Rock. Again, there was no disagreement expressed by Commissioner Bleed of Nebraska or Colorado's Commissioner Ken Knox (who was also personally involved in the FSS negotiations) with Mr. Barfield's use of totals to describe the degree of non-compliance thus far during these compliance periods (the normal five year accounting period for 2003-2007 and the 2006 WSYA for 2005-2006), involving the years 2003 through 2006. (See the RRCA Forty-Sixth Annual Report for the Year 2006)

Nebraska compliance efforts

While I was Chief Engineer, my role after the settlement included monitoring actions by each state to comply with the Compact. For example, the RRCA Annual Meetings provided an opportunity to hear reports from each state on its compliance efforts, as noted above, as well as to consider the results of the RRCA Groundwater model runs and the computations pursuant to the RRCA Accounting Procedures performed by the Engineering Committee and the individual states. During the settlement process, a detailed understanding of the party's views occurred and considerable trust was developed. The parties had great expectations regarding the

commitment of each state and thought the detailed provisions of the FSS, use of the RRCA Groundwater Model and Accounting Procedures and the existence of the U.S. Supreme Court Decree would result in appropriate action being taken and Compact compliance. Unfortunately, Nebraska and its Natural Resources Districts (NRD's) failed to take adequate action to reduce consumptive use or take other effective action which would allow it to comply with the Compact and Decree for the 2006 WSYA and the first normal five-year accounting compliance periods. They took too long to develop basic restrictions like pumping limits and metering programs in two of the basin's primary NRD's. In addition, while a moratorium on drilling new wells was established by the NRD's as provided in the FSS, two of the NRDs continued to allow new irrigated acres to be developed apparently from wells drilled before the deadline, but that were not completed until as late as the end of 2004. Some new legislation was passed to allow development of Integrated Management Plans for surface water and groundwater by the NRD's in conjunction with the Nebraska Department of Natural Resources, but the incremental progress was not adequate.

Nebraska attempted to lessen its violation of the Decree in 2006 by making surface water from Harlan County Lake and elsewhere available for use in Kansas. In the case of the Nebraska Bostwick Irrigation District, which relies on storage in Harlan County Lake, surface water was purchased by the State of Nebraska, and groundwater pumping was allowed to make up the difference below Guide Rock, pursuant to Section V.B.2.a.i of the FSS. There were problems, however, with how Nebraska attempted to use surface water for Compact compliance during 2006. These problems included short notice and poor coordination compared to the timing needed to allow effective use of the water due to cropping plans, lack of agreed upon accounting and questions about how much benefit really occurred to Kansas from this water. In addition surface water will not be available when needed during dry periods based on the historic declining trends in reservoir inflow together with the already limited irrigation supplies for most of the Reclamation projects in the basin. And the lag effect of the on-going groundwater pumping on streamflow and surface supplies will further decrease the viability of this source of supply and threaten the viability of the projects themselves. The U.S. Bureau of Reclamation (USBR) made reports to the RRCA at almost all of the RRCA Annual Meetings from the 1980's through the current time. These reports were published in most of the RRCA Annual Report and provide narrative and numbers on the amount of irrigation farm delivery, and information on reservoir operations and storage for the current year. Many of these reports include graphs showing long term declining trends for reservoir water elevations for most USBR projects in the Republican River Basin. In short, these reports illustrate a trend of reduced water supply and irrigation deliveries for USBR projects in the basin. (See the RRCA Forty-Sixth Annual Report for the Year 2006 for a typical USBR Report to the RRCA at its Annual Meeting)

I am concerned that lack of Compact compliance by Nebraska, and especially the associated increasing groundwater depletions to streamflow, will further reduce surface water supplies to Kansas during dry periods. Historically, there have been periods of short supply with even less irrigation development than currently exists in the basin in Nebraska. During the dry period of 1989 through 1992, Kansas experienced significant shortages of water for the Kansas Bostwick Irrigation District that serves about 40,000 irrigated acres in North Central Kansas just downstream of the Kansas-Nebraska Stateline. By then, the depleted inflows to Harlan County Reservoir in Nebraska had already resulting in limited storage and reduced irrigation deliveries for the Bostwick project. In later years, such as the 2002-2006 dry period, these shortages to the Bostwick project were especially acute with much of the District getting little or no water some years. Approximately 150 additional surface water and alluvial groundwater rights hydraulically connected to the Republican River downstream of the Stateline in Kansas were curtailed or subjected to large reductions in use for most of this period in order to prevent impairment of senior water rights and the Minimum Desirable Streamflow for the Republican River established under Kansas law. In addition, reduced streamflow adversely impacts inflow and storage at Milford Reservoir located near the confluence of the Republican and Kansas Rivers. In addition to the impact on lake recreation, the State of Kansas contracts with the U.S. Army Corps of Engineers for storage in Milford Reservoir at considerable expense to provide good quality water to various municipal and industrial water users along the Kansas River and future violations of the Compact could have far reaching effects. (See the RRCA Annual Reports, as referred to above)

Arkansas River Compact and Pecos River Compact enforcement cases

The States of Colorado and New Mexico are currently complying with Supreme Court Decrees enforcing interstate river compacts like the Republican River Compact. The Decrees involving Colorado and New Mexico on the Arkansas and Pecos Rivers, respectively, include detailed rules of accounting, like the Decree in this case. Substantial changes have been necessary by each of the States in order to comply with the Supreme Court Decrees on the Arkansas and Pecos Rivers. On the Arkansas River, the upstream State, Colorado, has reduced its pumping by approximately 50% from the levels of pumping that occurred before entry of the Supreme Court Decree. Most of the pumping that occurs even now on the Arkansas River in Colorado must offset its effects on the Arkansas River. On the Pecos River, substantial irrigated lands have been purchased by the State of New Mexico and retired from irrigation in order to comply with the Supreme Court Decree. The Supreme Court appointed a river master to ensure compliance by New Mexico with the Decree. Each State has taken actions

that are intended to, and are likely to, achieve long term compliance. Nebraska will need to take similar substantial long term action to achieve consistent and reliable compliance with the Republican River Compact.

River Master

A River Master should be appointed in the Kansas v. Nebraska and Colorado case to oversee compliance, as was done by the U.S. Supreme Court in the Pecos River case. A River Master is appropriate in situations with a history of conflict among the parties and the failure or inability of a state to comply with a Compact or U.S. Supreme Court Decree. This is especially true if the Court were to allow Nebraska to wait until later to choose the specific actions it will take for purposes of complying in the future, as Nebraska is urging the Court to do. This official should be empowered to take action to enforce the U.S. Supreme Court Decree on a timely basis when Nebraska fails to take the action needed to comply. In this situation, state law in Nebraska has created a series of Natural Resources Districts and largely delegated authority for the management of groundwater to the NRD's, without providing a central state official with authority to ensure Compact compliance. As a result, when actions by the NRD's are not taken or are not adequate, Compact compliance will not occur. Agreement between the Nebraska Department of Natural Resources and the three primary NRD's in the Republican River Basin is needed to implement adequate regulation or other measures to achieve Compact compliance, primarily through approval and implementation of Integrated Management Plans. Unfortunately, with the state ultimately responsible for Compact compliance, it appears there is little motivation by the NRD's to take long term action that they may perceive to be adverse to their economic interests.

Conclusion

The State of Kansas has pursued compliance by the State of Nebraska with the Republican River Compact for many years. Although it was thought that earlier litigation and the entry of the Supreme Court Decree would result in Kansas' being able to enjoy its rights under the Republican River Compact, this has not occurred. Rather, in the first accounting period possible under the Court's Decree, Nebraska has failed to comply with the Decree. As a result, Kansas and its water users have been subject to water shortages during dry periods that have been exacerbated by overuse of Republican River water in Nebraska. The remedies for violation of the Decree that Kansas is requesting, including the appointment of a river master, are reasonable in comparison to other decrees entered under similar circumstances on interstate rivers.

Testimony at trial or depositions during the last four years

1. Testimony during deposition on February 23, 2009 for the 2009 Arbitration pursuant to Final Settlement Stipulation, Kansas v. Nebraska and Colorado, No. 126 Original, U.S. Supreme Court
2. Testimony during trial on March 12, 2009 for the 2009 Arbitration pursuant to Final Settlement Stipulation, Kansas v. Nebraska and Colorado, No. 126 Original, U.S. Supreme Court
3. Testimony during deposition on September 7, 2010 in the case of Bryant v. City of Topeka and State of Kansas
4. Testimony during trial on July 14, 2010 for the 2010 Arbitration pursuant to Final Settlement Stipulation, Kansas v. Nebraska and Colorado, No. 126 Original, U.S. Supreme Court

I expect to be compensated at the rate of \$150 per hour for study, preparation and testimony in this case.