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Non-binding Arbitrations Before  
Jeffrey C. Fereday, Arbitrator

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Initiated Pursuant to Final Settlement Stipulation  
*Kansas v. Nebraska & Colorado*  
No. 126, Orig., U.S. Supreme Court  
Decree of May 29, 2003, 538 U.S. 720

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Nebraska's Alternative Water Short Year Plan  
(Arbitration Initiated February 8, 2013)

and

Nebraska's Rock Creek Augmentation Plan  
(Arbitration Initiated March 21, 2013)

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**PRE-FILED TESTIMONY OF KANSAS EXPERT  
DAVID W. BARFIELD, P.E., KANSAS CHIEF ENGINEER**

Nebraska's Plan for Alternative Water-Short Year Administration and  
Nebraska Rock Creek Augmentation Plan

**August 21, 2013**

1       **I. Qualifications and Expert reports**

2

3       **Q:     Please state your name, professional position, and address for the record.**

4       A:     David W. Barfield, Chief Engineer, Division of Water Resources, (“DWR”),  
5           Kansas Department of Agriculture, 109 SW 9<sup>th</sup> St., Topeka, Kansas, 66612.

6       **Q:     Please identify this document identified as Barfield Ex. WSY/RC K7.**

7       A:     This is a copy of my curriculum vitae.

8       **Q:     Is Ex. WSY/RC K7 an accurate description of your experience and**  
9           **qualifications?**

10      A:     Yes.

11      **Q:     Please give an overview of your experience and qualifications, particularly**  
12           **with respect to the Republican River Basin (“Basin”) and the issues in this**  
13           **litigation.**

14      A:     I earned a B.S. in civil engineering in 1978, and an M.S. in water resources  
15           engineering in 1991, both from the University of Kansas. I have been a licensed  
16           professional engineer since 1984. After earning my B.S., I spent three years  
17           doing engineering consulting work in Minnesota, and then spent another three  
18           years in South Africa as a water supply engineer in Bophuthatswana, a so-called  
19           “independent” homeland of 300,000 people that relied predominantly on  
20           groundwater. I came to DWR in 1984 and have spent the last twenty-nine years  
21           working in various capacities. I have performed numerous hydrologic analyses to

1 support water management decisions, including closing tributaries to the  
2 Republican River in northwest Kansas to new surface and hydrologically  
3 connected groundwater appropriations. I have also served five years as head of  
4 DWR's dam safety program.

5 From 1992 until 2007, I led the team of technical experts devoted to Kansas'  
6 interstate water interests, focusing on the Republican River Compact, the  
7 Colorado-Kansas Arkansas River Compact, and Missouri River issues.

8 In 2007, I succeeded David Pope as Chief Engineer. In this capacity, I am  
9 responsible for the enforcement and administration of the Kansas Water  
10 Appropriation Act, which governs the use of all water – both surface and  
11 groundwater – within the state of Kansas. I exercise exclusive state regulation of  
12 dams and other water structures, and regulate the state's floodplains for public  
13 safety and to protect public and private property. I represent the state on its four  
14 interstate water compacts. I have numerous duties with respect to special water  
15 districts including Groundwater Management Districts ("GMDs"), Watershed  
16 Districts, and others. I regularly provide legislative testimony and participate in  
17 developing legislation to enhance the set of statutes administered by the  
18 Division.

19 I am the state's lead representative to the Western States Water Council, which  
20 was created by the Western Governors' Association to encourage cooperation  
21 among the western states in conserving and managing the Region's water

1 resources and to maintain and develop helpful and productive working  
2 relationships with federal agencies.

3 **Q: Please provide a summary of your fifteen years' experience as the leader of**  
4 **DWR's interstate water issues technical team and as Chief Engineer.**

5 A: I dedicated nearly all of my work in my fifteen years in interstate water issues to  
6 three interstate basins: the Missouri River, the Colorado-Kansas region of the  
7 Arkansas River, and the Republican River. These matters have also involved a  
8 significant amount of my time as Chief Engineer.

9 First, the Missouri River Basin. From the early 1990's to 2003, the U.S. Army  
10 Corps of Engineers ("Corps") performed an extensive review and revision of its  
11 master manual for Missouri River main stem reservoirs. The master manual  
12 governs the operation of the reservoir system and therefore has extensive  
13 implications to the benefits and impacts to the eight Missouri River Basin states  
14 and numerous basin tribes. I reviewed the proposed revisions for their impacts to  
15 Kansas and advised state officials and the public. I assisted and represented the  
16 Chief Engineer in matters related to the Missouri River Basin Association and  
17 was a member of its technical committee. I participated in negotiations among  
18 the states on recommendations to the Corps on revised navigation rule curves  
19 that the Corps ultimately adopted in their revised master manual. I also acted as  
20 Kansas representative on the Spring Rise Plenary work group and led its  
21 hydrology technical work group during 2005-2006. I currently serve as the

1 Kansas representative to the Missouri River Recovery Implementation  
2 Committee.

3 **Q: Please summarize your involvement in matters related to the Arkansas**  
4 **River Compact between Kansas and Colorado, including Kansas' lawsuit**  
5 **against Colorado concerning the Arkansas River, *Kansas v. Colorado*, No.**  
6 **105 Orig.**

7 A: My work in the Arkansas River Basin over the last nine years has been directed  
8 towards the resolution of numerous, complex, long-standing disputes related to  
9 the water-supply accounting and the operations of John Martin Reservoir,  
10 including the measurement and crediting of water deliveries from that reservoir to  
11 Kansas. To resolve many of these disputes, Colorado and Kansas presented  
12 seven recommendations to the Arkansas River Compact Administration which I  
13 helped to negotiate. The Administration subsequently adopted resolutions based  
14 on those recommendations. This ultimately led to the 2010 amendment of the  
15 *1980 Resolution Concerning an Operating Plan For John Martin Reservoir*.

16 I also participated in finalizing and implementing the decree in that case,  
17 particularly Appendices A and B, which prescribes the Hydrologic-Institutional  
18 Model ("H-I Model") to measure Colorado's compliance with the compact and  
19 how H-I Model data is collected and exchanged. The H-I Model quantifies the  
20 effects of Colorado's post-compact groundwater well development and  
21 replacement.

1 In my tenure as Chief Engineer, Kansas and Colorado have reached agreement  
2 on several contentious issues in the course of Decree implementation. These  
3 include a 2009 agreement on the sufficiency of Colorado's "Use Rules," whereby  
4 Colorado requires its water users to replace certain depletions to river flow.  
5 Kansas also proposed a change to the H-I Model to recognize that groundwater  
6 irrigation efficiency improvements are reducing the percentage of irrigation  
7 diversions that return to the river. This change was approved in a 2011  
8 agreement between the states and resulted in modifications to the decree.

9 **Q: Please describe your experience related to the Republican River Basin.**

10 A: Beginning in 1992, I assisted Chief Engineer Pope as a member of the Kansas  
11 team in Kansas' efforts to secure its entitlement to its allocation of Republican  
12 River waters under the compact, and to resolve Kansas' concerns with  
13 Nebraska's over-development in the Basin and Nebraska's failure to consistently  
14 meet its compact obligations. I was appointed Kansas' representative to the  
15 engineering committee of the Republican River Compact Administration  
16 ("RRCA") and served in that capacity until I became chief engineer. I led Kansas'  
17 technical work in developing proposals for consideration by the RRCA to resolve  
18 Kansas' concerns through 1995.

19 When those efforts failed, I participated in mediated negotiations with Nebraska  
20 from late 1995 to early 1997. These negotiations produced a settlement proposal  
21 co-developed and mutually agreed upon by Nebraska and Kansas. That  
22 settlement proposal was rejected by Nebraska due to opposition by Nebraska  
23 groundwater interests.

1 I was extensively involved in *Kansas v. Nebraska & Colorado*, No. 126 Orig. After  
2 Special Master McKusick’s January, 2000 ruling, Ex. WSY/RC J66, that the  
3 Compact governed depletions to streamflow resulting from groundwater  
4 pumping, the states began settlement discussions. I was involved in all aspects  
5 of these detailed and complex negotiations that dealt with all matters in the Final  
6 Settlement Stipulation (“FSS”). I was co-author of what became the RRCA  
7 Accounting Procedures, with Dr. Ann Bleed of Nebraska and Dr. Ken Knox of  
8 Colorado. I was a member of the modeling committee formed during the  
9 negotiations, and it was my duty to ensure that the RRCA Groundwater Model  
10 (“Model”) and its output were consistent with the Accounting Procedures. After  
11 the states agreed to the FSS, I played a central role in working with Nebraska  
12 and Colorado to implement the FSS including the Accounting Procedures and  
13 the Model. This included working through the RRCA Engineering Committee to  
14 review and clarify the Accounting Procedures, develop the initial accountings and  
15 tools to complete those accountings, and update the Model to correct minor  
16 errors and to facilitate its ease of use.

17 I have been the Kansas Commissioner to the RRCA since 2007. At the 2007  
18 annual RRCA meeting, I addressed Nebraska’s failure to meet its first  
19 compliance test since the signing of the FSS—the two-year test for the years  
20 2005 and 2006 that was triggered by the Water Short Year conditions in 2006. In  
21 December, 2007, I wrote Nebraska’s RRCA Commissioner and the head of the  
22 Nebraska Department of Natural Resources (“DNR”), Dr. Ann Bleed, detailing the  
23 need for immediate Nebraska action, Kansas’ proposed remedy for Nebraska’s

1 violation, and the actions that Kansas believed would ensure future compliance.

2 When Nebraska rejected Kansas' proposals, I initiated and directed Kansas'  
3 participation in the RRCA's attempts to resolve them from January to May 2008.

4 I represented Kansas in the 2008-2009 arbitration over Nebraska's 2005-2006  
5 noncompliance with the Compact. I also represented Kansas in the 2009-2010  
6 combined arbitration over Colorado's Compact Compliance Pipeline ("CCCP")  
7 and Nebraska's proposal to credit Nebraska's water overuse in the Compact  
8 accounting based on payment of money or water. In both of these arbitrations I  
9 produced and submitted expert reports.

10 When the dispute resolution process regarding Nebraska's 2005-2006  
11 noncompliance with the Compact was unsuccessful, Kansas filed suit in 2010.  
12 The Supreme Court accepted Kansas' case, appointing as Special Master  
13 William J. Kayatta, Jr. of Portland, Maine. In November 2011, I prepared and  
14 submitted an expert report in that proceeding and during May 2012, I prepared  
15 and submitted an expert rebuttal report. I participated as an expert witness in the  
16 August 2012 trial before Special Master Kayatta.

17 **Q: What experience do you have in groundwater modeling?**

18 A: In addition to graduate coursework, I have more than a decade of experience  
19 developing and utilizing hydrologic models, including my modeling experience in  
20 the Basin. I have supported and contributed to Kansas' successful development  
21 and application of the following Kansas-specific groundwater models: (1) a model  
22 for the mid-Arkansas River basin of south central Kansas; (2) customizing the



1 Model to the specific needs of Northwest Kansas GMD No. 4; (3) the model for  
2 Southwest Kansas GMD No. 3; (4) the model for Big Bend GMD No. 5; (5) the  
3 ongoing development of a model in Equus Beds GMD No. 2; and (6) the model  
4 for the Upper and Lower Solomon Rivers. I have also overseen the process by  
5 which DWR has adopted models built by the U.S. Geological Survey to  
6 determine safe yields for: the Ozark-Springfield Aquifer system, and the lower  
7 Arkansas River alluvium. DWR uses these models routinely, as the technical  
8 foundation for its resource management decisions.

9 **Q: Please describe your experience resolving conflicts created by the over-**  
10 **development of the state's groundwater systems.**

11 A: I have dedicated much of my work at DWR to address the problem of over-  
12 appropriation of groundwater supplies in Kansas—a problem that my fellow state  
13 engineers are facing across the High Plains-Ogallala Aquifer.

14 In surface water systems, protecting the rights of senior appropriators under the  
15 KWAA is relatively straightforward. In groundwater systems, however, it is much  
16 more complicated. As a general rule, pumping rates decline with groundwater  
17 levels. Where neighboring wells are closely hydraulically connected, the decline  
18 in rate, and the attending inability to exercise the full extent of the senior water  
19 right, can rise to the level of impairment. Determining the extent of that  
20 impairment (and its commensurate remedy) requires a detailed understanding of  
21 the hydrogeology of the local setting, including how significant the declines are  
22 during the pumping season, how much the aquifer recovers before the next

1 pumping season begins, and the extent to which long-term declines are affecting  
2 all water rights in the local setting.

3 In 2009, after a multi-season hydrologic investigation, I ordered the first  
4 administration of a junior Ogallala groundwater right for the protection of a senior  
5 groundwater right in Kansas. I also promulgated a significant revision of DWR's  
6 rules for impairment investigations and actions, amending the rules to clearly  
7 address groundwater impairment scenarios. DWR is investigate and acted on  
8 other groundwater right impairment complaints over the Ogallala and the related  
9 High Plains aquifer.

10

11 Since becoming Chief Engineer, I have devoted considerable effort to extending  
12 and conserving Kansas' non-renewable groundwater supplies in the High Plains-  
13 Ogallala Aquifer. I have been active with state's GMDs to encourage and support  
14 groundwater modeling, requiring metering, closing additional areas to new  
15 appropriations, and encouraging other conservation efforts.

16

17 In recent years, I have worked closely with Northwest Kansas GMD No. 4, which  
18 lies above the Ogallala, in this regard. Irrigators in GMD No. 4 sought to reduce  
19 their groundwater use, but were hesitant to concede too much control over their  
20 water rights. In response, I worked with GMD No. 4 and the Kansas Legislature  
21 to develop a new regulatory mechanism, known as Local Enhanced  
22 Management Areas ("LEMAs"), which allow local stakeholders to control the plan  
23 by which they achieve substantial reductions in groundwater use—provided

1 those reductions are substantial. LEMAs combine locally-developed groundwater  
2 conservation plans with the central authority of the Chief Engineer. The Kansas  
3 Legislature passed the statute enabling LEMA's in 2012. During the fall of 2012, I  
4 conducted hearings to establish the first LEMA within GMD No. 4. Other GMDs  
5 are actively exploring use of the tool in other areas.

6  
7 **Offer of Mr. Barfield as an Expert**  
8

9 **To The Arbitrator:** The State of Kansas offers Mr. Barfield as an expert in the fields of  
10 water resources engineering, application of hydrologic modeling, and state and  
11 interstate water rights administration.

12 **Assignment in This Case**  
13

14 **Q: Mr. Barfield, as Chief Engineer, what responsibility was yours with respect**  
15 **to this case?**

16 A: As Chief Engineer and Kansas Commissioner to the RRCA, it is my duty to  
17 ensure that Kansas fulfills its Compact obligations and to ensure that Kansas  
18 receives its share of Republican River waters. I closely monitor Nebraska's and  
19 Colorado's activities related to the Compact, and work cooperatively with them to  
20 improve administration of the Compact. To that end, I prepared expert reports on  
21 the two issues under arbitration in this case.

22 **Q: Please identify the document identified as Barfield Ex. WSY/RC K8.**

1 A: This is my expert report on Nebraska Rock Creek Augmentation Plan.

2 **Q: Please identify the document identified as Barfield Ex. WSY/RC K9.**

3 A: This is my expert report on Nebraska's Plan for Alternative Water-Short Year  
4 Administration.

5 **Q: Do you still agree with everything in those reports?**

6 A: Yes.

7

8 **Tender:** The State of Kansas tenders to the Arbitrator the expert reports of Mr. Barfield,  
9 to be accepted as part of Mr. Barfield's direct testimony.

10

11 **II. The Final Settlement Stipulation, Appendix M and Augmentation Plans**

12 **Q: What does the Compact provide Kansas?**

13 A: The Compact allocates 100% of the Basin's water supplies to the States. It  
14 provides an allocation to Kansas for use in northwest Kansas on the upper Basin  
15 tributaries to the Republican River and an allocation to Kansas for use in the  
16 mainstem reach below Hardy, Nebraska, which includes the Kansas Bostwick  
17 Irrigation District ("KBID"), municipalities, industrial and irrigation users of the  
18 mainstem Republican River. In addition, the Republican River is an important  
19 tributary to the Kansas River, which is provides water to the large population

1 centers in northeast Kansas, including Topeka and the Kansas suburbs of  
2 Kansas City, Missouri.

3 **Q: Why was the Final Settlement Stipulation (“FSS”) necessary?**

4 A: The FSS is a negotiated settlement reached by the States to address concerns  
5 raised in the 1998-2003 litigation regarding Nebraska’s violations of the Compact  
6 prior to that time. The FSS resolved that litigation largely by providing flexibility to  
7 upstream users while protecting Kansas’ allocation, especially during dry periods.

8 **Q: Why does Kansas need protection from upstream states during dry  
9 periods?**

10 A: The Basin’s water supply consists of groundwater outflows, in the form of  
11 baseflows, and surface runoff from precipitation. The water supply varies  
12 significantly from year-to-year based on variations in precipitation. During wet  
13 periods, water supplies are more plentiful and demands for water are typically  
14 lower, resulting in few, if any, shortages. During dry periods, the opposite occurs;  
15 water supplies are smaller and demands are higher. There have been several  
16 years when water demand far outstripped water supply in the Basin. It is  
17 reasonable to assume that, absent the Compact, during dry periods upstream  
18 states could have and would have used much more than the quantities that were  
19 ultimately allocated to them by the Compact. Increased use in dry periods by  
20 upstream states has resulted in harm to Kansas in the past. The protections  
21 afforded by the Compact are, therefore, most critical to Kansas in dry periods.  
22 Because the Basin’s water supply is a fixed sum, calculated each year, use in

1 excess of allocations by upstream states results in Kansas not receiving its  
2 entitlement. Therefore, Kansas needs the protection of Compact and the FSS to  
3 ensure that Kansas' allocation is available for beneficial use in Kansas.

4 **Q: What is the most prevalent consumptive use in the Basin?**

5 A: Irrigation is the overwhelmingly dominant use in the Basin with groundwater  
6 being the dominant source of water. Irrigation demands are generally higher in  
7 dry periods and lower in wet periods.

8 **Q: How are surface water and groundwater impacts to streamflow different**  
9 **from a water management perspective?**

10 A: Surface water use is relatively simple to account for: diversion immediately  
11 decreases streamflow past the point of diversion by an amount equal to the rate  
12 of diversion. By contrast, the effects of groundwater use in an aquifer system  
13 that is connected to the surface water system are affected by aquifer  
14 characteristics and by the distance from the stream system that pumping occurs.  
15 The timing of groundwater pumping effects on streamflow can range from  
16 relatively immediate when close to the stream to years or decades when  
17 pumping is far from the stream. Likewise, curtailment of surface water use has an  
18 immediate impact on the stream system, whereas the impacts of curtailment of  
19 groundwater use to streams range from relatively immediate to years or decades  
20 depending on the proximity to the stream.

1 In the Basin, groundwater depletions to streamflows have become the dominant  
2 use of the Basin's water supply, especially during dry periods when the Basin's  
3 water supply is low.

4 **Q: How does that matter in relation to Compact compliance?**

5 A: Groundwater pumping impacts to streamflow have become quite profound with  
6 both the growth of groundwater pumping over the decades and the manifestation  
7 of the impacts of pumping at a distance from the streams. Groundwater pumping  
8 is depleting this most dependable part of the Basin's water supply. Due to the  
9 nature of the delayed effects I just described, much of the depleting effect of  
10 groundwater pumping cannot be turned off very quickly.

11 The historical record of groundwater pumping in the Basin, the growth of  
12 groundwater depletions to the Basin's baseflows, and the resulting water  
13 management problems are addressed in the Statement that I prepared for  
14 Kansas' Motion For Leave to File Petition, Petition, and Brief in Support, filed with  
15 the U.S. Supreme Court in May 2010. See Ex. WSY/RC K22. Nebraska's  
16 groundwater depletions were the primary reason for its non-compliance during  
17 the dry periods experienced in the Basin in the early 1990s and mid-2000s.  
18 These concerns are also discussed extensively in my November 2011 expert  
19 report entitled "Ensuring Compliance by Nebraska", Ex. WSY/RC K26. This  
20 report also discusses Kansas' concerns about the potential effects if the  
21 depletions caused by Nebraska's groundwater pumping in the Basin continue on  
22 the historical path of increasing depletions to streamflow. These concerns are the

1 background for Kansas' evaluation of any proposed changes to water  
2 management in the Basin that would require RRCA approval.

3 **Q: In your overview of your qualifications, you noted your role in Republican**  
4 **River matters since 1992. In regard to the FSS negotiations, can you**  
5 **provide more specifics on your role?**

6 A: I was lead technical representative for the Kansas team. It was my role to ensure  
7 that the settlement would protect Kansas' interests, from a quantitative  
8 standpoint, as our team sought to balance upstream users' flexibility with  
9 protection to Kansas' allocation and Kansas' ability to store and beneficially use  
10 that allocation, especially during dry periods. In support of managing greater  
11 flexibility for Colorado and Nebraska, I also worked to ensure that the settlement  
12 would have adequate reporting requirements and that the accounting procedures  
13 and modeling methods would work together appropriately.

14 My work throughout the negotiations involved extensive interactions and  
15 collaboration with my counterparts from the other states and the federal  
16 government. I worked extensively with Deputy Director Ann Bleed of Nebraska  
17 and Colorado Assistant State Engineer Ken Knox to develop the Accounting  
18 Procedures and other portions of the FSS which included reaching agreement on  
19 an extensive list of issues and sub-issues that eventually comprised much of the  
20 FSS and its attachments.

21 **Q: What was the negotiation of the FSS like?**



1 A: Overall the experience was a very satisfying one. The states used a facilitation  
2 firm, CDR Associates, to help the States structure discussions and work through  
3 some of the more difficult issues. I believe the FSS is a testament to the thorough  
4 and professional manner in which everyone fulfilled their role. I think it is  
5 noteworthy that when the Settlement was finally adopted, all three states, the  
6 federal government, and the Special Master hailed the quality of the end product.  
7 See Ex. WSY/RC K26, p. 12.

8 **Q: Please summarize your view of the FSS that was negotiated by the States.**

9 A: I agree with Special Master McKusick and the participants from the other states  
10 that the settlement was comprehensive and fair. Ex. WSY/RC J68. As I just  
11 noted, it was heralded at the time as a victory for all of the states. I believe it was  
12 and is. It provided a clear and flexible implementation of the Compact's  
13 provisions with clearly defined methods of accounting and a jointly-developed  
14 groundwater model for the difficult question of determining each state's  
15 groundwater depletions and determining credits for the effects of Platte River  
16 water seepage from canals in Nebraska. The settlement provided significant  
17 flexibility to use sub-basin allocations governed by multi-year tests of compliance,  
18 in contrast to an interpretation of the Compact that would have required strict  
19 adherence to sub-basin and statewide allocations on an annual basis. This  
20 flexibility was appropriately limited with special tests of compliance in Water-  
21 Short Years to provide certainty that Kansas would receive its share in critical dry  
22 periods.

1 **Q: Were the individual provisions of the FSS the result of give-and-take**  
2 **negotiations and bargaining?**

3 A: Many of them were. I believe that each state negotiated the most favorable  
4 settlement it could within the constraints of the Compact and the needs and  
5 interests of the other states. From Kansas' perspective, waiving the right to  
6 pursue recovery for damages for past violations and the considerable flexibility  
7 afforded to all states to comply over an average of 5 years and sub-basin  
8 flexibility was traded for an agreed-upon method for determining pumping  
9 impacts to streamflow (the RRCA Groundwater Model); the Water-Short Year  
10 protections; detailed reporting requirements; transparency of records; the  
11 requirement of unanimous RRCA approval of changes to the Accounting  
12 Procedures and Model and implementing additional flexibility via such things as  
13 augmentation and Alternative Water-Short Year Administration Plans; and other  
14 terms and conditions. The States bargained for flexibility and protection within  
15 the overarching constraints of the Compact.

16 **Q: Did the FSS provide flexibility for all states?**

17 A: Yes. All states have multi-year tests of compliance counterbalanced with Water-  
18 Short Year provisions to deal with periods of short supply. Each state has certain  
19 flexibility to use more than its compact allocation in tributaries but these  
20 flexibilities were carefully crafted with terms and conditions to ensure that  
21 downstream States would not be harmed.

22 **Q: What does the FSS provide that benefits Kansas?**

1 A: As an upstream state, the FSS provides Kansas a five-year test of compliance  
2 and increased flexibility to use its upper-Basin tributary allocations.

3 As a downstream state, the FSS protects Kansas' downstream share by clearly  
4 defining but limiting the flexibility afforded to the upstream states. The FSS  
5 engages the Model to determine pumping impacts to streamflow; clear and  
6 detailed accounting procedures evaluate each state's compliance, including  
7 Water-Short Year tests to ensure that Kansas gets its allocation in critical dry  
8 periods; and the FSS requires transparency, including clear reporting  
9 requirements and the right to inspect other state's water use operations so that  
10 the Model inputs and other accounting data can be independently verified.

11 **Q: Why would certain provisions of the FSS, such as augmentation plans or**  
12 **an Alternative Water Short Year Administration plan, require RRCA**  
13 **approval?**

14 A: At the time the FSS was negotiated, augmentation plans and Alternative Water  
15 Short Year Administration plans represented tools for future flexibility that the  
16 States were willing to consider. Because these tools were not developed with  
17 any specifications or any terms or conditions, the States agreed that their use  
18 would be subject to RRCA approval. From Kansas' perspective, requiring RRCA  
19 approval meant, and still means, that Kansas can reject plans proposed pursuant  
20 to these provisions if Kansas determines that implementing is inconsistent with  
21 the framework of the FSS or such plans would risk harm to Kansas water users,  
22 now or in the future.

1 While the FSS cannot be modified without approval of the States and the Court,  
2 the States may agree to change the Accounting Procedures, the Model, and its  
3 appendices.

4 The requirement for RRCA approval meant and means that, in order to be  
5 adopted, the States would need to find any proposal to be consistent with 1) the  
6 Compact, 2) the principles agreed upon in the FSS, and 3) the right of each state  
7 to protect its interests. The requirement for RRCA approval also implicitly set  
8 forth the Compact and the FSS as completely functional agreements. While one  
9 or two states may desire additional flexibility and other more favorable terms,  
10 such changes may not be forced on an unwilling state that is reasonably acting in  
11 its best interests by relying upon the FSS. I find it difficult to understand how a  
12 State can hold that it is unreasonable to depend upon the FSS, and the  
13 discretion it gives each State.

14 **Q: During the negotiations, what did Kansas expect Nebraska and Colorado to**  
15 **do in implementing the FSS?**

16 A: The FSS negotiations took place during a period when Nebraska was overusing  
17 its allocation and continuing its groundwater development. It was clear to the  
18 States that Nebraska would have to reduce its use in critical periods to achieve  
19 and maintain compliance. The growing pumping depletions to streamflow  
20 illustrated in the draft Model under development during the FSS negotiations  
21 made it clear that Colorado would also need to reduce its use to maintain  
22 compliance.

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Kansas did not expect that Colorado or Nebraska would seek to permanently pump so much of the Basin’s groundwater into the stream as is currently being proposed. As a witness to the negotiations and as documented in the hearing before Special Master McKusick, I do not believe that the Colorado and Nebraska representatives who negotiated the FSS expected their respective states to implement large-scale, permanent augmentation plans and rely on them so heavily as means to compliance.

**Q: What is your understanding of the various tests of compliance and the implementation schedule that was negotiated as part of the FSS?**

A: Accounting and compliance with the Compact are defined in Sections IV and V of the FSS and consist of meeting the requirements of three distinct tests: 1) the statewide normal year test; 2) the tributary non-impairment test; and 3) in certain years, the Water-Short Year test.

Section IV.D states that, except for Water-Short Year tests, all compact accounting will be done on a 5-year running average. Section V.B. describes the Water-Short Year tests of compliance specific to each state.

The accounting and final determination of compliance are defined in the RRCA Accounting Procedures and Reporting Requirements (“Accounting Procedures”) which is Appendix C to the FSS, Ex. WSY/RC J64. This has subsequently been modified by agreement of the states. See Ex. WSY/RC J65.

1 The statewide normal year test procedures are described in Section III.E. of the  
2 Accounting Procedures, which is entitled “Calculation to Determine Compact  
3 Compliance Using Five-Year Running Averages”, and evaluated in Tables 3A,  
4 3B, and 3C for Colorado, Kansas, and Nebraska respectively.

5 The sub-basin non-impairment test procedures are described in Section III.F of  
6 the Accounting Procedures which is entitled, “Calculations To Determine  
7 Colorado’s and Kansas’s Compliance with the Sub-basin Non-Impairment  
8 Requirement”, and are evaluated in Tables 4A and 4B for Colorado and Kansas  
9 respectively. Nebraska has no such test.

10 The Water-Short Year test procedures are described in Section III.J. of the  
11 Accounting Procedures which is entitled, “Calculations of Compact Compliance  
12 in Water-Short Year Administration Years”, and evaluated in Tables 5A-5E.

13 **Q: At issue in this arbitration are two provisions of the FSS. What are they?**

14 A: First, there is the FSS’ provision with respect to Alternative Water-Short Year  
15 Administration Plans and the second is related to augmentation plans and their  
16 accounting and modeling.

17 **Q: With respect to the first issue, please provide a short summary of the FSS’**  
18 **Water-Short Year provisions and their importance to Kansas.**

19 A: The FSS provides for five-year compliance periods under its normal accounting.  
20 However, when the basin is water-short, each state is subject to stricter  
21 requirements to ensure that the limited water supply during these critical periods

1 is shared, consistent with the Compact's allocations. For Nebraska and Kansas,  
2 this means two-year tests of compliance and for Colorado it means a modified  
3 five-year test.

4 **Q: What is your understanding of how Appendix M may be used to modify the**  
5 **Water-Short Year provisions for Nebraska?**

6 A: Appendix M of the FSS provides a process whereby the RRCA can agree to  
7 allow Nebraska a more flexible Water-Short Year test in return for a concrete  
8 commitment to reduce consumptive use in a definite and quantifiable way from  
9 the base condition. Appendix M outlines the procedure for RRCA consideration  
10 of the plan, at Nebraska's option, and for the implementation of a plan, again at  
11 Nebraska's option.

12 **Q: Is it your opinion that both states should benefit from a properly**  
13 **implemented Appendix M plan?**

14 A: Yes; Nebraska would benefit from a more flexible compliance test during water-  
15 short conditions, and Kansas would benefit from being able to plan on a defined  
16 amount of water produced by a reduction of use in Nebraska.

17 **Q: Please describe the augmentation provisions of the FSS.**

18 A: My expert report on Nebraska's Rock Creek Augmentation Plan lists the FSS'  
19 provisions related to augmentation credits and plans and their consideration by  
20 the RRCA. This provision was added at Colorado's request late in the FSS'  
21 negotiation when the preliminary results of the modeling committee showed that

1 Colorado would have difficulty in maintaining compliance over the long-term.  
2 Colorado sought the flexibility to use augmentation, but unequivocally  
3 represented to the States that augmentation would be a means of last resort to  
4 get to compliance, and that a State would not be able to implement an  
5 augmentation plan without the RRCA's advance approval of the plan and how it  
6 would operate. See Ex. WSY/RC J67 p. 81-83.

7 Unlike other major aspects of the accounting, which were carefully negotiated  
8 and whose procedures are clearly laid out in the Accounting Procedures, there  
9 are few provisions related to augmentation plans and credits. The details were  
10 left to future administrations and the specifics of the plan to be considered by the  
11 RRCA. Again, as explained by Colorado State Engineer Hal Simpson at the 2003  
12 hearing seeking the Special Master's approval of the FSS, the States agreed that  
13 these plans would be agreed upon via the RRCA approval process. Based on  
14 this clearly memorialized requirement for approval of the plans and the  
15 modifications to the accounting procedures and Model by the RRCA, and the  
16 assurance that augmentation would be a measure of last resort, Kansas agreed  
17 to add this framework for the use of augmentation to assist with compact  
18 compliance.

19 **Q: What is the process under the FSS for approval of an augmentation plan?**

20 A: In short, the FSS requires that augmentation plans be approved by the RRCA  
21 prior to implementation; that the Accounting Procedures be appropriately



1 amended to reflect the augmentation; and that the Model be used to determine  
2 the appropriate augmentation credit.

3 **III. Implementation of the FSS**

4 **Q: What happened following the signing of the FSS in 2002?**

5 A: The FSS was agreed upon by the State through its Governors and Attorneys  
6 General in December 2002. Through the work of our collaborative groundwater  
7 modeling committee, the States had a clear idea of how the Model's output would  
8 be used in the accounting and the level of depletions that the Model would  
9 indicate. But the final details of the Model and its calibration were not complete.  
10 So the States agreed that the groundwater modeling committee would complete  
11 its work by June 30, 2003, or any remaining dispute related to the Model would  
12 be submitted to non-binding arbitration.

13 The States presented the FSS to Special Master McKusick as our joint  
14 recommendation for the comprehensive resolution of the case. Based on the  
15 statement of the States, and after review of the FSS, the Special Master  
16 recommended it to the Court, once the Model was completed. The final Model  
17 was agreed upon on June 30, 2003.

18 During 2003-2005 and beyond, the States continued to work cooperatively to  
19 implement the provisions of the FSS. I served as the Kansas member of the  
20 RRCA Engineering Committee during this period. At the RRCA's annual meeting  
21 of 2003, the States adopted the Accounting Procedures and Groundwater Model.  
22 During 2004, the States worked together on the first data exchange and first runs

1 of the Model under the FSS. The Engineering Committee worked to develop an  
2 Excel spreadsheet to facilitate the data exchange and integration of this data  
3 including the Model results to initial accounting for the year 2003. This work  
4 extended into early 2005, when the first accounting was developed and approved  
5 under the FSS.

6 As assigned by the RRCA at its annual meeting in 2004, during 2004-2005 the  
7 Engineering Committee completed a comprehensive review of the Accounting  
8 Procedures. This included language negotiated by the Engineering Committee  
9 and agreed upon by the RRCA to deal with how Harlan County evaporation  
10 would be split when no release was made.

11 In addition, the RRCA has agreed upon multiple changes to the Model over the  
12 years to simplify its use and correct errors that have been found.

13 **Q. What is your opinion of the health of the Basin?**

14 A. The Basin is in a highly depleted condition. These depletions are  
15 temporarily masked by periods of abundant precipitation. One example of  
16 this can be clearly seen in the reduction in stream flows of Frenchman  
17 Creek, as I describe more fully in my statement attached to Ex. WSY/RC  
18 K26. While this is the most dramatic example in the Basin, there are  
19 many others. I believe a compelling example for the overall health of the  
20 Basin occurs at Figure 4 of my statement attached to Ex. WSY/RC K26  
21 which shows annual flows at the gage just above Harlan County  
22 Reservoir. That graph shows the dramatic reduction in flows that has

1 occurred over time. Only recent very wet years, like the similarly very wet  
2 years in the mid-1990s, have interrupted the dramatic downward trend.

3 I believe that this wet period, is a normal phenomenon of the long-term cycles of  
4 wet and dry periods that comprise the hydrologic record of the Basin. Dry  
5 periods will return to the Basin, and because of Nebraska's level of pumping,  
6 depletions to streamflow will continue and surface water will become scarcer.  
7 This occurred in 2013.

8 **Q: What was the hydrologic status of the basin during this period of initial**  
9 **implementation?**

10 A: Starting in 2002, the Basin began experiencing a water shortage. The years 2002  
11 and 2003 were particularly dry. The accounting for 2003 showed that Nebraska  
12 used 24,420 acre-feet more than its allocated amount. In 2005, the States'  
13 accounting for 2004 showed that Nebraska used 36,640 acre-feet more than its  
14 allocated amount. See Table 1 in Ex. WSY/RC K26.

15 The States had agreed that the first five-year compliance period would be for  
16 years 2003 to 2007, and the first Water-Short Year period, if applicable, would be  
17 for the 2005-2006 years. See FSS Appendix B – Implementation Schedule.

18 During this period, my predecessor, Chief Engineer David Pope, expressed  
19 concern each year at the RRCA about this disturbing trend of Nebraska's  
20 overuse.

1 While precipitation in Nebraska during 2004-2006 was near or above normal,  
2 water-short conditions continued. See Figure 3 in Ex. WSY/RC K26. Ultimately,  
3 Nebraska violated the first tests of compliance under the FSS—despite the very  
4 flexibility that the FSS had provided.

5 **Q: What actions did Nebraska take towards compliance in 2003-2007?**

6 A: Nebraska reduced some irrigated acres via federal programs (CREP and EQIP),  
7 improved reporting including the installation of meters within the Basin, and  
8 implemented groundwater pumping allocations for the first time in the Middle and  
9 Lower Republican River Natural Resource Districts. As non-compliance problems  
10 grew, there were purchases of surface water from irrigation districts to reduce  
11 Nebraska's consumptive use and make more water available to Kansas.

12 **Q: Were these sufficient to obtain compliance?**

13 A: No.

14 **Q: When was Nebraska first found in non-compliance with the FSS?**

15 A: Because compact year 2006 was a Water-Short Year, at the annual meeting of  
16 2007, when the accounting for 2006 was developed, Nebraska was shown to be  
17 in violation of the two-year Water-Short Year test for 2006 by approximately  
18 79,000 acre-feet.

19 **Q: Who was Compact Commissioner for Kansas when this violation was**  
20 **determined?**

1 A: I succeeded David Pope when he retired as Chief Engineer in June 2007. The  
2 determination of Nebraska's violation was made at the annual meeting during  
3 August 2007.

4 **Q: What have interactions with Nebraska been like at the RRCA?**

5 A: In the early years of implementing the FSS, interactions were cordial and  
6 professional. As Nebraska's negative compliance balances mounted, discussions  
7 became more pointed with Kansas calling for more action and Nebraska seeking  
8 to defend its inadequate efforts to comply. Since 2007, when Nebraska was  
9 found to be out of compliance, and with the start of the dispute resolution process  
10 regarding Nebraska's violations and subsequent Supreme Court litigation, many  
11 matters have languished. Some of this may be the natural result of waiting for  
12 matters to be resolved through the litigation.

13 **Q: What have the interactions with Nebraska been like in the Engineering**  
14 **Committee?**

15 A: I believe the same can be said about the work of the Engineering Committee.  
16 The annual accounting exchanges have occurred, but no accounting has been  
17 approved since 2006, and little work on other matters has been completed.  
18 Kansas has requested backup data from both states, to little or no avail. The  
19 States' technical staffs have made little progress on assignments such as a  
20 building a multi-year accounting spreadsheet, or writing up procedures for  
21 developing their data.

1 **Q: Have you been involved in previous dispute resolution processes under**  
2 **the FSS that have been completed?**

3 A: Yes, I have had a role with each of them.

4 **Q: Can you provide a brief summary of each?**

5 A: Very briefly, they were all brought within the context of noncompliance.

- 6 1. Kansas brought the first dispute in 2008, regarding Nebraska's  
7 noncompliance for water-short year 2006. In that arbitration, Arbitrator Karl  
8 Dreher found that Nebraska had seriously violated the FSS, but declined to  
9 recommend money damages. This arbitration was the basis for the Supreme  
10 Court litigation that began in 2010. See Ex. WSY/RC K13.
- 11 2. Nebraska brought the second dispute, also in 2008, regarding the allegation  
12 that the Accounting Procedures, combined with the Model, do not accurately  
13 measure the Nebraska's compliance. This allegation is the basis for  
14 Nebraska's counterclaim in the Supreme Court litigation. Ex. WSY/RC K13.
- 15 3. Colorado CCP. The States arbitrated Colorado's first proposal for its compact  
16 compliance pipeline on the North Fork in 2009-2010. Arbitrator Martha Pagel  
17 found that Kansas' opposition to that proposal was reasonable, and Colorado  
18 has since brought forth an amended CCP proposal. Ex. WSY/RC K14, Final  
19 Decision on Colorado Compact Compliance Pipeline Dispute.
- 20 4. Nebraska crediting issue. Nebraska sought another change to the accounting  
21 in the 2009-2010 arbitrations, this time to blunt the impact of its

1 noncompliance. Specifically, Nebraska argued that if it were to be held liable  
2 for noncompliance, its payment of damages for that noncompliance (either in  
3 money or in water) should zero out overuse for those years of  
4 noncompliance. Arbitrator Pagel found against Nebraska on this issue and  
5 that Kansas was reasonable in rejecting it, and Nebraska has not revived it.  
6 See Ex. WSY/RC K15, Decision on Nebraska Crediting Dispute.

7 **Q: What are the current disputes?**

8 A: There are currently 5 disputes in different phases of the dispute resolution  
9 provisions of the FSS. In addition to these two, there are two issues from  
10 Colorado regarding its revised Compact Compliance Pipeline (augmentation  
11 plan) and a modeling change related to Bonny Reservoir, and a recently  
12 triggered arbitration process related to a second Nebraska augmentation plan (N-  
13 CORPE).

14 **Q: What are the reasons that Kansas has been unable to agree to proposals**  
15 **put up for a vote during the last several years?**

16 A: Again, very briefly:

17 1. Nebraska's Plan for Alternative Water-Short Year Administration – As set forth  
18 more fully in my report on the AWSY Plan, Nebraska submitted its plan without  
19 any prior coordination and discussion; and the plan does not meet the  
20 requirements of the FSS related to such a plan.

1 2. Nebraska Rock Creek Augmentation Plan – As set forth more fully in my report  
2 on the Rock Creek Augmentation Plan, that plan does not limit the amount  
3 allowed for credit as required by the FSS, does not determine the augmentation  
4 credit using the groundwater model to account for losses, and it lacks needed  
5 details for monitoring and reporting.

6 3 and 4. Colorado’s Compact Compliance Pipeline, and Bonny Reservoir  
7 Accounting Proposal – As I noted previously, Colorado’s original pipeline plan,  
8 which went to arbitration in 2010, was unacceptable to Kansas for a number of  
9 reasons. Arbitrator Pagel found that Kansas’ objections to that plan were  
10 reasonable and well-founded. Colorado submitted a revised pipeline proposal in  
11 2013, one largely informed by Ms. Pagel’s decision. Colorado also submitted a  
12 fourth issue to Arbitration, its Bonny Reservoir Accounting Proposal. During the  
13 same time as this present arbitration involving Nebraska’s issues, Kansas and  
14 Colorado have devoted considerable time and effort in resolving the  
15 disagreements which remain between the two states on these two issues. At this  
16 time, Kansas and Colorado have partially resolved the CCP dispute by reaching  
17 conceptual agreement on certain sub-issues. It is my hope that all of these  
18 issues can be resolved.

19 5. Nebraska’s N-CORPE Augmentation Project –Nebraska’s plan does not  
20 determine the augmentation credit using the groundwater model to account for  
21 losses; moreover, it lacks needed details for monitoring and reporting. It is too  
22 early to make any other comments regarding this issue.



1 **Q: Regarding the recent disputes, have the dispute resolution provisions of**  
2 **the FSS been used effectively?**

3 A: No. In these instant cases, and yet another (N-CORPE), arbitration has been  
4 triggered without providing for sufficient opportunity to seek resolution of the  
5 issues through the RRCA. I have expressed this in my letters and our  
6 interactions as States. This arbitration is a good example of Nebraska going  
7 straight to arbitration on the presumption that their issues would not be  
8 resolvable by the RRCA. Nebraska does not have the right to unilaterally impose  
9 its will on Kansas. Nebraska does not have a right to flexibilities that Kansas  
10 believes are discretionary and subject to the RRCA's deliberate review and  
11 approval. By triggering three fast-track arbitrations in the midst of Supreme Court  
12 litigation on its own noncompliance, Nebraska has made it even more difficult to  
13 obtain that review. By not giving the RRCA sufficient opportunity to review these  
14 issues, Nebraska has insured the issues would go straight to the arbitration  
15 process.

16 **IV. How Kansas evaluates RRCA proposals generally**

17 **Q: How does Kansas review and evaluate proposals made by Nebraska and**  
18 **Colorado?**

19 A: Kansas has always taken them very seriously. The Republican River is a critical,  
20 renewable, and hopefully perpetual resource for the State of Kansas. As Chief  
21 Engineer, it is my solemn responsibility to the citizens of Kansas to protect and  
22 exercise Kansas' rights and entitlements under the Compact. Therefore,

1 changes to the Compact's or the FSS' methods and implementation are  
2 necessarily subject to a thorough review. And if insufficient time to complete a  
3 satisfactorily thorough review is provided, then, depending on its nature and  
4 perceived risk of harm to Kansas, the proposal may be rejected.

5 The Compact is Kansas' only protection against actions by upstream states that  
6 would reduce the availability and usability of Kansas' share of the water supply.  
7 While Kansas wishes to work cooperatively with its neighboring states and has  
8 reached a great number of agreements with them as I have noted in discussing  
9 my qualifications – the FSS being an excellent example – there is naturally some  
10 tension in the perspectives between upstream and downstream states.

11 Kansas takes a long-term view of proposed changes since such changes may  
12 have enduring implications to its water users.

13 As it had done for decades, Kansas uses a multi-disciplinary team approach to  
14 review proposals by the other states. Typically, such proposals are distributed to  
15 state DWR staff, staff of the Attorney General's office and to appropriate  
16 consulting experts in water rights engineering, hydrology, and groundwater  
17 modeling. The state's key consulting experts have been involved in Compact  
18 issues prior to and during the Settlement of the FSS-- the same experts who  
19 have been advising Kansas on Compact matters for more than twenty years.

20 **Q: Have you read Dr. Schneider's responsive reports?**

21 **A:** Yes.

1 **Q: Do you agree with his general characterization throughout his reports, for**  
2 **example, as stated on the top of page 13 of his Rock Creek report, that**  
3 **Kansas desires to frustrate Nebraska's and Colorado's compliance efforts?**

4 A: No. On the contrary, Kansas strongly desires that Colorado and Nebraska  
5 maintain compliance with the Compact. Kansas has no desire to frustrate  
6 Colorado's or Nebraska's compliance efforts, so long as those efforts are not  
7 harmful to Kansas. Nebraska's proposals involve far-reaching and significant  
8 changes that Kansas would have to live with for decades, and so require careful  
9 consideration of their impacts under both current and future conditions, as well as  
10 the latter can be anticipated. It is important to repeat that through the negotiated  
11 FSS, Kansas conceded significant flexibility to upper basin states. Additional  
12 flexibility carries additional risks to Kansas as the downstream state. Thus, the  
13 significant and enduring impacts of Nebraska's proposals require that the States  
14 work together to protect the balance between flexibility for upstream states and  
15 water security for downstream states. In the cases of its Rock Creek  
16 Augmentation Plan and its Alternative Water-Short Year Administration Plan,  
17 Nebraska seems to be reinterpreting the FSS to afford it more flexibility than was  
18 negotiated between the States. Nebraska has abandoned a cooperative  
19 approach in favor of presenting its proposals for up-down votes, and then fast-  
20 track arbitration.

21 Kansas stands ready to find mutually acceptable solutions.

22 **Q: Does Kansas have an official or any other position seeking to block the**  
23 **other states proposals?**

1 A: No. In the case of these two proposals subject to this arbitration, Kansas  
2 believes it is Nebraska's obligation, not Kansas', to take the lead in defining what  
3 is needed for approval. Kansas has been responsive to Nebraska's requests for  
4 input within the rigid time constraints allowed when Nebraska has requested  
5 such. Kansas has consistently expressed a willingness to continue to work on  
6 these issues.

7 **Q: Have you directed your staff to reject any or all proposals by Nebraska?**

8 A: No. Each project is evaluated separately and on its own merits.

9 **Q: Have you directed your staff to reject any or all proposals by Colorado?**

10 A: No. Each project is evaluated separately and on its own merits.

11 **Q: Do you update the Governor of Kansas about the current disputes**  
12 **regarding the Republican River?**

13 A: I have been involved in multiple briefings with the Governor since he took office  
14 in 2010. I regularly brief my supervisor, Secretary of Agriculture Dale Rodman,  
15 on Republican River matters. I do not know how frequently Secretary Rodman  
16 and Kansas Attorney General Derek Schmidt brief the Governor on these  
17 matters.

18 **Q: Have you ever been instructed to change Kansas' position by the**  
19 **Governor?**

20 A: No.

1 **Q: Have you ever been instructed to change Kansas' position by the Secretary**  
2 **of Agriculture?**

3 A: No.

4 **Q: Does the accusation of bad faith make sense?**

5 A: No. Kansas has responded to Nebraska's specific proposals with honest  
6 evaluations and feedback. I believe Kansas has been clear that it will not  
7 approve a proposal that is a credible risk to Kansas' rights and entitlements  
8 under the Compact and the FSS. That would be irresponsible and negligent.

9 **Q: Does Nebraska mischaracterize Kansas' positions in each of the situations**  
10 **described in Dr. Schneider's report?**

11 A: Yes. Both of his reports contain many such mischaracterizations, which are too  
12 numerous to list or respond to here completely. For example, in his response to  
13 my report on Nebraska's plan for Alternative Water-Short Year Administration he  
14 misstates the following:

- 15 • That I suggested a maximum allowable reduction of 10,000 acre-feet and a  
16 minimum of 5,000 acre-feet. These were clearly illustrative in nature.
- 17 • That Kansas will only approve a plan that has a CBCU reduction plan of  
18 302,000 acres (p. 3). This allegation is unfounded and untrue.
- 19 • Dr. Schneider takes Kansas' statement that Nebraska's Plan lacks the  
20 specificity needed to evaluate it and then equates that statement to an

1 accusation that Kansas made no real effort to understand Nebraska's  
2 Integrated Management Plans ("IMPs") (p.5). This seriously mischaracterizes  
3 Kansas' position. As Dr. Schneider well knows, the IMPs have been  
4 extensively reviewed by Kansas as evident in my expert report to the  
5 Supreme Court, Ex. WSY/RC K26; our concern is that their Plan lacks the  
6 specificity required under Appendix M.

- 7 • Dr. Schneider's assertion that I am a detriment to the interests of Kansas  
8 water users (p. 6) is untrue and based on mischaracterizations of the  
9 historical record. KBID has experienced many multi-year droughts. The KBID  
10 board acted as it normally would in the face of such a shortage and made a  
11 rational, water management decision to set an allocation of 9 inches for the  
12 2013 irrigation season, assuming that unused water could be saved for the  
13 next year, 2014, when it would likely be of greater value. The pre-filed direct  
14 testimony of Kansas Water Commissioner Scott Ross explains KBID's  
15 operations in more detail. Nebraska unreasonably rejected two offers by  
16 Kansas to allow additional water to be stored in Harlan County Reservoir  
17 without harming Nebraska's compliance efforts. See Exs. WSY/RC J28, J30,  
18 J32, and J36. As Kansas' letters explained, Nebraska continued to seek  
19 double credit in the accounting for any water it agreed to hold in Harlan  
20 County Reservoir and to attach other unreasonable conditions. When  
21 Nebraska subsequently ordered water released from Harlan County Lake in  
22 May, 2013, before irrigation season so that KBID could not use that water and  
23 would have to call for 2012 stored water, the KBID board entered into a

1 Warren Act Contract with Reclamation to try to make the best use of the  
2 water.

3 **Q: What are examples of other concerns you see in Dr. Schneider's Alternative**  
4 **Water-Short Year Administration Report?**

5 A: On page 5 he complains that Appendix M.'s provision of allowing multiple plans  
6 is too limiting to satisfy Nebraska's need, but that it Nebraska would might need  
7 1000's of plans. This makes it clear that Dr. Schneider is clearly working under  
8 different assumptions than the authors intended.

9 On page 5, Dr. Schneider also interprets Appendix M to stay indicates he  
10 interpretation that Nebraska does not need to provide an exact amount of CBCU  
11 reduction, only an "expected" amount. This ignores Appendix M's provision that  
12 Nebraska's two-year test is reduced by "the amount of Computed Beneficial  
13 Consumptive use that the Plan was designed to reduce above Guide Rock.  
14 (Section 4)."

15 **Q: Dr. Schneider makes many sweeping allegations regarding Kansas' action**  
16 **on several issues outside these two arbitrations, particularly to support his**  
17 **contention that additional discussions with Kansas are futile. What is your**  
18 **view of these allegations generally?**

19 A: At the outset, I think it is revealing that Dr. Schneider's allegations are largely  
20 undocumented, and appear to be motivated by animosity rather than evidence.  
21 He goes to great lengths to misinterpret Kansas' reactions to Nebraska's  
22 demands. I understand why Nebraska wants as much flexibility as it can get to

1 maximize its use. Dr. Schneider seems to be unable to understand why Kansas  
2 views upstream flexibility as a risk that needs to be closely managed. I flatly  
3 reject his assertion that Kansas has acted in bad faith on any of these matters or  
4 that discussions with Kansas would have proved futile on these issues. Indeed, I  
5 believe the Compact and FSS obligates states to work out these issues.  
6 Nebraska's current approach of offering its proposals for up-down votes of the  
7 RRCA and then taking matters to arbitration is not consistent with these  
8 obligations.

9 **Q: What is your response to Dr. Schneider's concerns expressed on page 15**  
10 **of his Rock Creek report where he discusses an "accounting issue**  
11 **discovered by Nebraska"?**

12 A: In the FSS, the States agreed to procedures for determining groundwater CBCU  
13 and as part of the deal, Kansas agreed to allow a credit for baseflows  
14 demonstrated as reaching the Republican River or its tributaries from the Platte  
15 Basin as prescribed in the adopted Accounting Procedures. Nebraska attorney  
16 David Cookson on behalf of states represented before Special Master McKusick  
17 that FSS and its procedures accomplish this purpose consistent with the FSS's  
18 language. See Ex. WSY/RC J67, p. 79-80.

19 Thus Kansas has been skeptical about the need and appropriateness of changes  
20 to the methods the States agreed upon in the FSS.

21 In 2007, Nebraska began asserting that it had identified a problem with the  
22 accounting, and then proceeded to offer several explanations of that problem and



1 potential solutions to it. Among its feedback, during September 2007, Kansas  
2 authored the “virgin water supply (VWS) metric” memo in response to a specific  
3 approach suggested by Nebraska. Kansas asserted then and continues to assert  
4 that meeting the VWS metric is not necessarily required of a proposal. But  
5 Kansas believes that the RRCA should not adopt a method that produces worse  
6 results, i.e. further from the VWS metric. Nebraska then developed a new  
7 proposal which it took to straight to arbitration and added to the Supreme Court  
8 litigation. This arbitration/litigation mode has inhibited meaningful dialogue  
9 between the states on the complex issue.

10 Kansas does not agree with Nebraska’s assessment of the problem, and stands  
11 by its critiques of Nebraska’s proposed solutions at the various stages. Arbitrator  
12 Dreher agreed with Kansas’ and Colorado’s criticisms of Nebraska’s proposal in  
13 the 2009 arbitration. Nebraska switched back to its 2007 proposal late in the  
14 Supreme Court proceeding. Over the last year, Kansas has completed additional  
15 analysis of the complex issue. In response to the Special Master’s order, Kansas  
16 offered its remedy to Nebraska’s concern. See Exs. WSY/RC K34 and K33.

17 While Kansas continues to hold that it is inappropriate to change the Accounting  
18 Procedures based on Nebraska’s proposal, Kansas maintains that if changes are  
19 made, those changes should be equitable and not stray further from the VWS  
20 metric.

21 **Q: What is your response to Dr. Schneider’s concerns on page 15 where he**  
22 **states that your real issue with Nebraska’s Rock Creek Augmentation Plan**  
23 **is a “philosophical opposition to the activity?”**

1 A: I would respond by saying that this is more hostile speculation, without support in  
2 the record of the RRCA and its arbitrations, and, like many of his attacks,  
3 surprising given his duties as a Nebraska official and expert. Kansas is willing to  
4 approve augmentation plans which conform to FSS requirements, and which  
5 contain terms and conditions to mitigate their risk to Kansas' usable entitlement.  
6 Kansas must take a long-term view its analysis of the Rock Creek Plan, since  
7 Nebraska is asking that the plan be approved with no sunset on the  
8 augmentation project. This is in contrast to Nebraska's attitude, in this case with  
9 Colorado support, that Kansas should be required to approve augmentation  
10 plans with little analysis and with very flexible or insufficient terms and conditions.

11 Because Kansas anticipates growing depletions will continue to steadily  
12 decrease the amount of baseflow into the future, Kansas is very concerned that  
13 the frequency, duration, and extent of water shortages will increase in the future.  
14 Kansas believes this will mean that the frequency, duration, and extent of  
15 streambed drying will also increase in the future, resulting in ever greater losses  
16 to augmentation flows.

17 **Q: What is your response to Dr. Schneider's assertion that since the FSS does**  
18 **not charge transit losses to states in its surface water accounting, it is**  
19 **inappropriate to include the consideration of losses in determining the**  
20 **augmentation credit?**

21 A: While it is true that such losses are not explicitly charged in the surface water  
22 accounting, the FSS has separate methods for assessing the impacts of

1 groundwater pumping and mound imports via the Model. With groundwater  
2 diversions, CBCU is computed not as diversions less return flows, as with  
3 surface water use, but as the effect of the well pumping on the basin's water  
4 supply as determined by the Model. The Model considers losses to ET and,  
5 changes in storage, in making these estimates. The FSS appropriately states  
6 that the augmentation credits will be determined using the Model, so that these  
7 losses are considered.

8 In this specific case, losses would be assessed by the Model from the outfall of  
9 the project to Swanson Reservoir. This may be a very conservative estimate of  
10 these losses, because under Nebraska's compliance plan, these flows would be  
11 transmitted through the reservoir and would suffer additional losses below  
12 Swanson.

13 **Q: On the top of page 3 of Dr. Schneider's Rock Creek Report he states that**  
14 **the purpose of Nebraska's augmentation activities is to "help ensure**  
15 **Kansas water users can use their water in a timely fashion." Do you have**  
16 **any concerns with this statement?**

17 **A:** The statement is inconsistent with Nebraska's recent orders to release water  
18 from Harlan County Lake at a time that KBID could not use it. Kansas has  
19 Harlan County Lake to re-time the majority of its allocation, helping ensure that  
20 Kansas water users can use their water in a timely fashion. But Nebraska, in  
21 2013, prohibited the storage of inflows to the federal reservoirs on the  
22 Republican River and ordered the release of water from Harlan County Lake

1 before irrigation season, in an attempt to achieve compact compliance by  
2 artificially increasing the water supply instead of limiting its use to its allocation.  
3 This threatened to seriously compromise Kansas' ability to use Harlan County  
4 Lake to re-regulate its share of inflows. Furthermore, the water that Nebraska  
5 released from storage for its compliance efforts will reduce the water supply for  
6 next year. Nebraska's drastic actions over this spring and summer directly  
7 contradict Dr. Schneider's statement.

8 **Q: Does the example of Nebraska agreeing to support Colorado's CCP, which**  
9 **Dr. Schneider refers to on page 15 of his Rock Creek report support the**  
10 **idea that Kansas is being unreasonable?**

11 A: No. During the 2009-2010 combined arbitration on Colorado's CCP and  
12 Nebraska's crediting proposal, Colorado and Nebraska signed an agreement to  
13 support each other's proposals. See Ex. WSY/RC K27, Stipulation Between  
14 Colorado and Nebraska.

15 **Q: Is the forgoing discussion an exhaustive review of Dr. Schneider's**  
16 **mischaracterizations in his reports?**

17 A: No. There are many more in each report. These are just some of the more  
18 significant ones.

## 19 **V. History of Nebraska's proposals and Kansas Consideration**

### 20 **A. Nebraska's Plan for Alternative Water-Short Year Administration**

21

1 **Q: When did you first hear of Nebraska's plans to pursue Alternative Water-**  
2 **Short Year Administration?**

3 A: When Nebraska's proposed plan arrived at our office on or about July 31, 2012.

4 **Q: What does Appendix M require of the States with respect to consideration**  
5 **of such a plan?**

6 A: The FSS requires that such plans be submitted no later than August 1 and that  
7 the RRCA must review and act on the proposed plan no later than November 1  
8 of that same year.

9 **Q: Had there been any discussion of Appendix M in the RRCA or its**  
10 **engineering committee regarding implementation an Appendix M plan?**

11 A: No.

12 **Q: Do you find that surprising?**

13 A: Very much so. While Appendix M provides a solid procedural and substantive  
14 framework for the consideration of Alternative Water-Short Year Administration  
15 Plans, it also leaves some details to be worked out by the States. This would  
16 include such things as agreeing on what management actions would qualify for a  
17 Plan and methodologies to define base conditions and to quantitatively evaluate  
18 such plans. It is likely that methods of evaluation will vary according to the  
19 particular method proposed to reduce CBCU. The FSS allows Appendix M to be  
20 modified by agreement to allow the Administration to work these details out

1 further, if needed. I would have expected Nebraska to bring the matter to the  
2 RRCA for discussion and to its engineering committee for evaluation.

3 **Q: Were you able to attend to Nebraska's plan when you first received it?**

4 A: No. During the month of August, the Kansas team was fully occupied with  
5 preparation for and participation in trial in *Kansas v. Nebraska and Colorado*.  
6 During the weeks that followed trial, the Kansas team continued to be occupied  
7 with post-trial work. Indeed, the states had postponed the annual meeting of the  
8 RRCA until October 15-16, 2013, because of the trial.

9 **Q: When were you able to review the plan?**

10 A: The Kansas team began its consideration of Nebraska's plan during the latter  
11 half of September and into early October.

12 **Q: Was that sufficient time for the RRCA to evaluate it?**

13 A: Given the trial and annual meeting preparation workload, a workload borne by all  
14 the States' teams, I question whether this would have been sufficient time, even  
15 if the plan had complied with Appendix M requirements, to agree on methodology  
16 and evaluate the plan. It is surprising to me that Nebraska waited almost 10  
17 years to bring the issue to the RRCA for even an initial discussion. Ultimately, no,  
18 this was not sufficient time because it was raised for the first time on July 30 and  
19 was provided to the States during a time when the States' technical and legal  
20 staff were occupied with the previously scheduled trial.

21 **B. Nebraska Rock Creek Augmentation Plan**

1 **Q: Please provide a brief overview of the consideration of the Rock Creek**  
2 **Augmentation Plan by the RRCA.**

3 A: Kansas had been hearing about potential augmentation projects within Nebraska  
4 since prior to 2007. See, for example David Pope's letter of January 24, 2007 to  
5 Nebraska DNR Director Ann Bleed noting this fact and reminding Nebraska that  
6 these matters would require RRCA consideration and approval. Ex. WSY/RC  
7 K16.

8 Despite the purchases of land and construction over the intervening years,  
9 Nebraska did not bring to the RRCA any details about its projects.

10 At the August 31, 2011 Annual Meeting, Nebraska did request an assignment to  
11 the engineering committee to develop a framework for augmentation plans. But  
12 despite its obligation as the project sponsor to move the issue forward, Nebraska  
13 took no initiative in this matter for the coming year.

14 As is detailed in Section V of my report expert and its attachments, Kansas  
15 repeatedly provided input to the engineering committee on Nebraska's  
16 framework request.

17 No specifics on the completed Rock Creek project were provided until  
18 Nebraska's February 8, 2013 formal submittal of the matter to the RRCA.  
19 Included with the Proposal was a request for fast-track consideration of the  
20 matter of under the FSS' dispute resolution provisions if Kansas did not approve  
21 the project.

1 **Q: How was the Rock Creek Augmentation Plan considered by the RRCA?**

2 A: As chairman of the RRCA, I convened a working session of the RRCA to allow  
3 Nebraska to present its plan and to answer questions. Because the plan did not  
4 address several of the issues that Kansas had included in our January, 2013  
5 letter regarding an augmentation plan approval framework, I suggested an  
6 agenda that included discussion of these matters. On February 28, I received a  
7 letter from Commissioner Dunnigan rejecting my suggestion and asserting that  
8 Nebraska would be willing to answer questions about their plan but would not  
9 discuss amending its plan to address Kansas concerns. See Ex. WSY/RC J18.

10 **Q: Was that sufficient time for the RRCA to evaluate it?**

11 A: Nebraska made it clear that it was not interested in complying with the FSS'  
12 requirement that the States, prior to submitting matters to arbitration, to attempt  
13 to resolve the dispute. Because Nebraska refused to discuss Kansas'  
14 reasonable concerns much less address them, Kansas had no choice to but to  
15 vote not to approve Nebraska's plan at the special meeting of the RRCA on  
16 March 8, 2013. More details on Kansas substantial and procedural concerns are  
17 contained in my March 8, 2013 letter. Ex. WSY/RC J20.

18 **VI. Why Kansas could not approve the proposals**

19 **A. Nebraska's Plan for Alternative Water-Short Year Administration**

20 **Q: Earlier you mentioned Kansas' review of Nebraska's Plan for Alternative**  
21 **Water-Short year Administration. What were Kansas' conclusions with**



1       **respect to the Plan and its compliance with the requirements of Appendix**  
2       **M?**

3    A:    Our team’s conclusions regarding the Plan are contained in my letter of October  
4       4, 2012 to Nebraska on the issue. As stated in more detail in both that letter and  
5       my expert report, Kansas believes the Plan failed to meet the requirements of  
6       Appendix M in the following ways:

7               1. The proposed action under Nebraska’s plan was not definite, but  
8       included a suite of potential options, none of which were specifically committed to  
9       in the Plan.

10              2. Thus Nebraska’s plan proposed water savings that were not definite  
11       and instead offered only a potential range of water savings, based on a list of  
12       possible actions.

13              3. With indefinite actions and thus indefinite water savings, the Nebraska  
14       plan had no means for the RRCA to conduct its evaluation and reach agreement  
15       on the Plan’s actions and its water savings by November 1.

16              4. In its Plan, Nebraska suggested that the base conditions be the  
17       condition of the basin as of 2002. The RRCA had not discussed or agreed upon  
18       this definition.

19              5. Some of the specific potential actions in the IMPs would not qualify as  
20       actions under Appendix M, since they were not reductions in CBCU or could not  
21       be quantified in advance.

1 **Q: Why did you choose to document your concerns in this manner?**

2 A: The FSS requires that the RRCA act on Nebraska's proposed plan no later than  
3 November 1. In view of trial in *Kansas v. Nebraska and Colorado* during August,  
4 the RRCA's traditional time to meet, we had agreed to postpone the work  
5 session and annual meeting until October 15-16, 2013. In view of this, it seemed  
6 prudent and efficient to discuss the matter at the RRCA work session and act on  
7 the matter at the RRCA's annual meeting rather than holding a special meeting  
8 within two weeks of these meetings.

9 As this was the first discussion of an Alternative Water Short Year plan by the  
10 RRCA, our letter was meant to provide a clear understanding of Kansas' view of  
11 Appendix M's requirements for such a Plan and the reasons why Nebraska's July  
12 30, 2013 plan did not meet those requirements. We believed this would provide  
13 a basis for discussions with Nebraska on how it could develop a plan or plans  
14 pursuant to Appendix M.

15 **Q: Has Nebraska shown any interest in modifying its Plan in response to**  
16 **Kansas' suggestions?**

17 A: No. Nebraska ultimately chose to submit the Plan as developed to the RRCA for  
18 action and fast-track dispute resolution.

19 **Q: Why did Kansas not seek to work with Nebraska to reform its Plan within**  
20 **the time period allowed by the FSS for a Plan's consideration?**

1 A: While Kansas continues to believe that Nebraska can develop a plan or plans  
2 pursuant to Appendix M that Kansas could approve, Kansas holds that the period  
3 from August 1 to November 1 is for plan evaluation, not plan development and  
4 negotiation. Had the Plan required only minor adjustments as a result of the  
5 RRCA's evaluation, it might have been possible to reform it. However, the Plan  
6 was so far from meeting the basic requirements of an acceptable Plan, it was  
7 apparent that reformation would not be possible.

8 **Q: Does a plan have to ensure Nebraska's compliance, as Dr. Schneider**  
9 **indicated in his responsive report, in order to be of value to the States?**

10 A: No. Dr. Schneider is confusing two very different sets of calculations: he is  
11 confusing the methods by which Nebraska forecasts and calculates its estimate  
12 of what is required to comply with the Compact and FSS under Nebraska's  
13 Integrated Management Plans, with the certain actions and certain reductions in  
14 CBCU that Appendix M requires.

15 According to Dr. Schneider's report, it seems he believes that Appendix M was  
16 developed as a means for Nebraska to be relieved of the challenge of the  
17 Compact's retrospective accounting where the states do not know their allocation  
18 and use until after the close of the year (p 2). He wishes it to be a tool where  
19 Nebraska has the flexibility "so that it can implement any number of alternatives  
20 that have the practical effect of reducing CBCU to the point that Compact  
21 compliance is ensured – but no further."

1 He further states that “requiring an AWSY Plan to contain a fixed reduction in  
2 CBCU results in a situation where the plan in no way ensures that Nebraska will  
3 be in compliance with the Compact and the FSS.”

4 While Appendix M was designed to assist with Nebraska’s compliance, the  
5 language in Appendix M requires more definitive commitments from Nebraska. In  
6 addition, there were no discussions during our negotiations of the Settlement that  
7 Appendix M would be used in the way Dr. Schneider’s proposes.

8 As Nebraska has consistently asserted, it has many tools at its disposal to  
9 balance its use and allocation. Appendix M is a tool Nebraska may elect to use,  
10 both in terms of whether to subject a plan for RRCA consideration and approval,  
11 and even if it obtains such approval, whether it will elect to use it in a particularly  
12 year. The fact that it might be only a part of Nebraska’s solution should not be  
13 any impediment to its value.

14 All three states are required to comply with the Compact’s various tests of  
15 compliance. We all must deal with the retrospective accounting. This was known  
16 and accepted by the States in adopting the FSS and Accounting Procedures

#### 17 **B. Nebraska Rock Creek Augmentation Plan**

18 **Q. What are your concerns with respect to the use of augmentation to**  
19 **offset excessive groundwater CBCU?**

20 **A.** Augmentation projects are complex water-engineering plans that provide a  
21 means by which groundwater depletions can replace the streamflow

1 depletions their pumping causes, usually from an external source. These  
2 projects are used in Colorado and elsewhere in the west. As I  
3 understand it, under the laws of these states, such augmentation must  
4 replace streamflow depletions in such a way that senior users can obtain  
5 the same quantity of water to which they are entitled as they obtained  
6 before junior groundwater pumping impacted their supplies, and at the  
7 same time and location.

8 While the FSS allows augmentation plans, I am concerned that over-  
9 reliance on the use of augmentation, as Nebraska appears to be pursuing,  
10 will prevent Nebraska from making the pumping cuts that are needed over  
11 the long term. Nebraska's groundwater depletions have continued to grow,  
12 and Kansas remains concerned about their continued growth. Increasing  
13 groundwater depletions can be expected to reduce baseflows during dry  
14 periods when augmentation projects are running.

15 One concern is the sustainability of an augmentation plan that consists  
16 mostly of pumping groundwater in the basin, which causes delayed  
17 depletions of its own.

18 Timeliness and location are two critical components of the value of water.  
19 In the context of Compact compliance, augmentation plans require careful  
20 coordination between the states. Absent coordination with Kansas, there  
21 is the potential for Nebraska to implement augmentation in a way that  
22 would deliver water at times and locations divorced from the depletions

1 they are meant to replace, potentially denying Kansas the full benefit of  
2 the water to which it is entitled.

3 David Pope in his January 24, 2007 letter to Dr. Bleed requested  
4 Nebraska work closely with Kansas on these projects. Ex. WSY/RC K16.  
5 I have made similar statements at the RRCA annual meeting, starting in  
6 2007. This has not occurred.

7 The States must coordinate and negotiate to ensure that augmentation is  
8 done in a way that fulfills the Compact's purpose to avoid controversy and  
9 makes the most efficient and beneficial use of the waters of the Basin.  
10 Nebraska's unilateral approach to developing its plans is unworkable.

11 **Q: Why was Kansas unable to approve the Rock Creek Augmentation Project**  
12 **as proposed at the RRCA Special Meeting on March 8, 2013?**

13 A: The reasons for Kansas' inability to approve the plan are contained in my letter of  
14 March 8, 2013, Ex. WSY/RC J20, to Commissioners Dunnigan and Wolfe and  
15 are further described in my expert report and those of other Kansas experts.

16 Principally, the reasons include:

17 a. The Rock Creek Plan should, but does not, require clear limits on the  
18 quantity of water to be pumped, limits that prevent the expansion of use  
19 beyond the historic consumptive use of its wells.

1 b. The Rock Creek Plan should, but does not, require a full consideration  
2 of losses below its outflow, consideration performed through the use of the  
3 Model to determine the augmentation credit.

4 c. The Rock Creek Plan should, but does not, include a clear mechanism  
5 to demonstrate that augmentation deliveries are required for Compact  
6 compliance, with data exchange requirements that are sufficiently specific  
7 and complete to allow the States to verify operations.

8 d. Finally, the Rock Creek Plan should, but does not, require temporal  
9 limits and review by the RRCA for changed conditions.

10 **VII. What Kansas could approve**

11 **A. Nebraska's Plan for Alternative Water-Short Year Administration**

12 **Q: Is there an Alternative Water-Short Year Administration Plan that Kansas**  
13 **would approve?**

14 **A:** Yes, I believe there is. I outlined in our October 4, 2012 letter and my expert  
15 report the elements that we believe would be required to obtain RRCA approval  
16 of a plan. While I do not believe the IMPs constitute an Appendix M plan in  
17 themselves as Nebraska proposed, individual actions within the IMPs could be  
18 proposed in a Plan. Qualifying actions would be those that reduce a certain,  
19 quantifiable amount of CBCU and which can be evaluated and approved by the  
20 RRCA ahead of time.

1 The RRCA has yet to have substantive discussions on this point. I had hoped the  
2 beginning of these discussions would have occurred at the Administration's  
3 October 2012 work session, but Nebraska rebuffed my attempts to engage them  
4 on the subject. As it stands, Nebraska's and Kansas' communications on this  
5 issue have be relegated to depositions and expert reports; an expensive and  
6 largely ineffective way to work through such details.

7 **Q: Has Kansas put limits on the minimum or maximum quantities that would**  
8 **be applicable to a Plan?**

9 A: No. My references to quantities in my report were obviously illustrative, not  
10 minimum or maximums.

11 **Q: Have you stated in your report or is it your view that surface water rights**  
12 **and temporary leases of groundwater allocations could not be used in a**  
13 **Plan as Dr. Schneider indicates on page 4 of his report?**

14 A: No. I have not made any such statements. If the yield from the purchase or lease  
15 could be established ahead of time, I believe that either or both could be  
16 elements of a Plan.

#### 17 **B. Nebraska Rock Creek Augmentation Plan**

18 **Q: Is there a Rock Creek Augmentation Plan that Kansas could approve?**

19 A: Yes, I believe there is.

20 **Q: How would Nebraska need to modify its plan in order to obtain Kansas'**  
21 **approval?**



1 A: We have outlined in our expert reports the elements that we believe would be  
2 required to obtain Kansas approval of a revised Rock Creek augmentation plan.

3 In summary, the following elements would be needed:

4 a. The Rock Creek Plan should establish and commit to clear limits on the  
5 quantity of water to be pumped, such that there would not be an  
6 expansion of use beyond the historic consumptive use of its wells.

7 b. The Rock Creek Plan should fully consider losses below its outflow,  
8 through the use of the Model to determine the augmentation credit of the  
9 Rock Creek Plan.

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

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

16 **Q: Do you believe these requirements are unduly burdensome or would**  
17 **prevent Nebraska from fulfilling the purposes of the augmentation project?**

18 A: No.

Pursuant to 28 U.S.C. §1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on August 21, 2013.

A handwritten signature in cursive script, reading "David W. Baird", is written over a horizontal line.