
REPUBLICAN RIVER COMPACT ARBITRATION

**Pursuant to Section VII,
Final Settlement Stipulation
(December 15, 2002)**

◆

NEBRASKA'S ALTERNATIVE WATER-SHORT YEAR PLAN
and
NEBRASKA'S ROCK CREEK AUGMENTATION PLAN

◆

BEFORE MR. JEFFREY C. FEREDAY, ARBITRATOR

◆

**DIRECT TESTIMONY OF DR. JAMES C. SCHNEIDER, PH.D.,
RE NEBRASKA'S ROCK CREEK AUGMENTATION PLAN**

◆

JON C. BRUNING
Attorney General of Nebraska
DAVID D. COOKSON
Deputy Attorney General

JUSTIN D. LAVENE
BLAKE JOHNSON
Assistant Attorneys General
PO Box 98920
Lincoln, Nebraska 68509-8920
(402) 471-2682

DONALD G. BLANKENAU
THOMAS R. WILMOTH
Special Assistant Attorneys General
BLANKENAU WILMOTH JARECKE LLP
206 South 13th Street, Suite 1425
Lincoln, Nebraska 68508
(402) 475-7080
Attorneys for the State of Nebraska

1 5. Q: What is your educational background?

2 A: I hold a Ph.D. in Geology (May 2003) from the University of South Florida; an M.S.
3 in Geology (May 1998) from Northern Illinois University; and a B.S. in Geology (May
4 1996) from Northern Illinois University.

5 6. Q: Have you authored any publications?

6 A: I have authored peer-reviewed publications and presented original material at various
7 conferences and meetings on issues related to groundwater modeling and the
8 management of integrated water resources.

9 7. Q: What is your present position?

10 A: Since 2010, I have been the Deputy Director of the Nebraska Department of Natural
11 Resources (“DNR”).

12 8. Q: What are your basic duties in that role?

13 A: In that capacity, I advise and assist the DNR’s Director in formulating and
14 administering department policies, budgets, organization, and work assignments. I also
15 facilitate development of state water policies, particularly as they pertain to water
16 quantity issues, including serving as liaison with the legislature, Federal agencies, other
17 State and local agencies, and public interest groups. Of particular relevance to this case, I
18 assist the Director in the administration of interstate compacts and decrees, including the
19 Republican River Compact (“Compact”).

20 9. Q: What are some key issues you address in the Republican River Basin?

21 A: One of my primary responsibilities in the Republican River Basin (“Basin”) is the
22 development and implementation of Integrated Management Plans (“IMPs”). Simply
23 put, IMPs, and the controls contained within those plans, are the primary means by which
24 Nebraska ensures compliance with the Compact. These plans are jointly developed with

1 the Basin natural resources districts (“NRDs”) and establish the actions that will be taken
2 to limit and/or offset Nebraska’s consumptive uses in the Basin as required by the
3 Compact and the Final Settlement Stipulation (“FSS”).

4 10. Q: What do the IMPs have to do with these proceedings?

5 A: The IMPs are based, in large part, on the terms of the FSS. The FSS contemplates the
6 implementation of augmentation projects as a means for Compact compliance. Not
7 surprisingly, therefore, the IMPs specifically contemplate the potential for stream
8 augmentation as one potential management activity that could be used to ensure Compact
9 compliance. Copies of the IMPs are attached to the Alternative Water-Short Year Plan.
10 See N25001.

11 11. Q: Do you interact with the Republican River Compact Administration?

12 A: Yes. For example, I serve as Nebraska’s representative on technical committees,
13 including the Republican River Compact Administration’s (“RRCA”) Engineering
14 Committee. I also oversee the technical work of consultants and prepare special reports
15 related to surface water and groundwater interactions.

16 12. Q: What did you do before you were made Deputy Director?

17 A: Prior to my service as Deputy Director, from 2008 through 2009 I served as the Head
18 of the DNR’s Integrated Water Management Division. In that capacity, my
19 responsibilities included management of the integrated water management planning
20 process at the DNR. This included oversight of surface water and groundwater related
21 studies, development and implementation of IMPs, supervision of the Integrated Water
22 Management Division and coordination with other DNR Divisions, NRDs, and other
23 State and Federal agencies.

24 13. Q: Do you have experience with groundwater models?

1 A: Yes. I have approximately fifteen years of experience developing and applying
2 various groundwater models. Most recently, before I was made Head of the DNR's
3 Integrated Water Management Division, I worked for the DNR as a Senior Groundwater
4 Modeler. This role required me to model and analyze various management scenarios,
5 including scenarios that might be applied in the Basin. I relied primarily on the RRCA
6 Groundwater Model (the "Model"). The analyses I conducted for these proceedings also
7 rely on the Model.

8 **DEVELOPMENT OF THE ROCK CREEK AUGMENTATION PROJECT AND PLAN**

9 14. Q: Please describe your understanding of the history of the Project.

10 A: While the potential for streamflow augmentation has been studied to varying degrees
11 for some time, following adoption of the revised IMPs in 2010, the Upper Republican
12 NRD ("URNRD") began to pursue the development of an augmentation project for the
13 purpose of offsetting any potential depletions during an upcoming Compact Call Year as
14 specified in those IMPs. Such a project would be able to limit or eliminate the otherwise
15 required curtailment of groundwater wells in an area designated the Rapid Response
16 Region during Compact Call Years (i.e., the curtailment of wells provides the required
17 offsets in lieu of other management actions).

18 15. Q: What interaction did the DNR have with the URNRD?

19 A: Early in 2011, the URNRD contacted the DNR to discuss a potential project in the
20 Rock Creek subbasin. The general concept was to acquire a property that was then
21 currently on the market, retire the irrigation that occurred on the property, and use the
22 same irrigation source (i.e., the aquifer) as a source for augmentation pumping. The
23 water would then be delivered to Rock Creek via an augmentation pipeline.

1 16. Q: Did DNR and the URNRD expect to receive augmentation credit immediately
2 through the RRCA?

3 A: While both DNR and the URNRD understood that the FSS provided for a full
4 augmentation credit (as opposed to a simple increase in the Virgin Water Supply and
5 allocations) after the RRCA approved an augmentation plan, it was also recognized that
6 such a credit may not be available immediately. This understanding was generally based
7 on the long process for approval by Kansas of the Colorado Compliance Pipeline, which
8 to date has not been approved and is currently subject to a second non-binding arbitration
9 proceeding.

10 17. Q: Given that history, did the URNRD seek some assurance from DNR?

11 A: The URNRD requested that DNR provide some level of assurance as to the short-
12 term benefits of the project in the absence of an approved augmentation plan before it
13 proceeded with the project. In January 2011, I provided what I would characterize as a
14 generic analysis of the potential benefits of an augmentation project in the Rock Creek
15 subbasin. See N20003. I attempted to make a conservative analysis to ensure that I did
16 not overstate the potential benefits of the Project. It included a non-exclusive example of
17 the potential benefits of such a project absent an approved augmentation plan. It was not
18 intended to limit the URNRD's options in terms of operations or protocols.

19 18. Q: What did the URNRD do with that information?

20 A: The URNRD proceeded to acquire the land in the Rock Creek subbasin (See N20021,
21 Page 23 of 102), and to design and construct the Project. The URNRD provided the
22 necessary details on the project to DNR for the development of the Plan.

23 19. Q: Once the URNRD commenced developing the project, how did Nebraska
24 proceed before the RRCA?

1 A: At the annual meeting of the RRCA in August of 2011, Nebraska came forward to
2 request that the RRCA develop a framework for augmentation plans that it could then
3 follow in developing the Plan. The RRCA assigned this to the Engineering Committee as
4 part of the committee's assignments for that year. During this time period, the State of
5 Kansas was chair of both the RRCA and the Engineering Committee and responsible for
6 organizing meetings and coordinating the work of the committee. While there were
7 several conference call meetings that occurred during the spring and summer of 2012, no
8 progress was made on this assignment.

9 20. Q: Given the Engineering Committee's inertia, what did you do?

10 A: In these meetings I repeatedly explained that Nebraska needed to understand what
11 Kansas would accept in an augmentation plan. Nebraska received no feedback until just
12 before that annual meeting in October of 2012. At that time Kansas supplied a non-
13 exhaustive list of requirements, many of which had no cited foundation in the FSS or
14 elsewhere. A copy of that list is N20024.

15 21. Q: How did Nebraska respond to that list?

16 A: Frustrated by these efforts to work collaboratively with Kansas, Nebraska proceeded
17 to develop a framework based on the explicit language of the FSS and requested a special
18 meeting of the RRCA to discuss this framework. A copy of that framework is N20025.
19 That meeting was held on December 11, 2012. After discussion Nebraska requested
20 timely feedback from the States during the meeting.

21 22. Q: Did you receive any constructive feedback?

22 A: No. Kansas eventually provided a "brief response" by raising various issues and
23 providing a list of topics for Nebraska to address that would "begin" to address those

1 issues. Most notably, Kansas indicated that they would need to know the details for a
2 specific augmentation project to fully comment. A copy of that letter is N20026.

3 23. Q: Did you provide those details?

4 A: Yes. Nebraska developed the Plan and submitted it to the RRCA for action. All the
5 details required by the FSS are contained in the Plan.

6 24. Q: Did you make any other efforts to address Kansas' concerns?

7 A: Yes. Representatives of DNR travelled to Topeka, Kansas, March 1, 2013, for an
8 RRCA Workshop, in which the RRCA members typically attempt to address technical
9 issues. Prior to the Workshop, Kansas, as chair of the RRCA, sent out a proposed
10 agenda. See N20030. After reviewing the agenda, Nebraska informed Kansas that it
11 could find no foundation in the Compact or the FSS for many of the issues found on that
12 agenda. A copy of that letter is N20027.

13 25. Q: What happened next?

14 A: At the workshop, Kansas did not identify any foundation in the Compact or the FSS
15 for the additional issues Kansas wanted the Plan to address. Thus, those issues were not
16 discussed. However, there was considerable discussion of the remaining agenda items.

17 26. Q: What did the RRCA ultimately do with the Plan?

18 A: In a subsequent special meeting of the RRCA on March 8, 2013, Nebraska offered a
19 resolution for adoption of the Plan by the RRCA. A copy of that Resolution is N20028.
20 Nebraska and Colorado voted in favor of the Plan, Kansas voted against the Plan. This
21 two-one outcome has become commonplace, with Kansas' dissenting vote leading to five
22 currently pending arbitrations issues.

23 27. Q: Then what happened?

1 A: Thereafter Nebraska submitted the Plan to non-binding arbitration pursuant to the
2 dispute resolution procedures of the FSS.

3 **TECHNICAL DETAILS OF THE PLAN**

4 28. Q: Please describe generally the details of the Plan.

5 A: DNR developed the Plan consistent with the straightforward methodologies of the
6 RRCA Accounting Procedures and Reporting Requirements (“Accounting Procedures”).
7 The groundwater pumping from the augmentation wells is incorporated into the Model to
8 assess any depletions caused by this pumping. See N20021, Page 6 of 102. Whereas
9 historical irrigation pumping was only 80% consumptive, with the remaining 20% of the
10 water returning to the aquifer as recharge, the full augmentation pumping would be
11 represented in the Model with no portion of this water returning to the aquifer as
12 recharge.

13 29. Q: How is the Augmentation Credit determined?

14 A: Determining the Augmentation Water Supply (“AWS”) Credit is then a simple matter
15 of measuring the water that is discharged to Rock Creek. See N20021, Page 6 of 102.
16 The Plan then modifies the Accounting Procedures so that the AWS Credit is subtracted
17 from the gaged flows in the determination of the Virgin Water Supply. This is
18 appropriate as any losses of the AWS in Rock Creek appear to be *de minimis*. See
19 N20022, Page 9 of 53.

20 30. Q: How do you account for the AWS Credit under the Plan?

21 A: The AWS Credit is then combined with the Imported Water Supply Credit as offsets
22 against Nebraska’s Computed Beneficial Consumptive Use in the various accounting
23 tests included in the FSS. See N20021, Pages 9-10 of 102.

1 31. Q: Does the Plan have a mechanism for preventing “new net depletions” as
2 required by the FSS?

3 A: Yes. The Plan includes a process for meeting the requirement of no new net
4 depletions for augmentation wells as required by the FSS. While the Project did involve
5 the retirement of a considerable amount of irrigated acreage, the anticipated pattern and
6 level of pumping under the Plan varies from that which occurred historically on those
7 lands. See N20021, Pages 5-6 of 102. Specifically, the project would be operated at
8 pumping rates much greater than average annual historical rates in those years when it
9 was needed for Compact compliance (termed Compact Operations Years in the Plan),
10 and operated at the lowest possible level in intervening years. See N20021, Pages 5-9 of
11 102. While the Project was designed and located such that any increase in depletions (i.e.,
12 new depletions) resulting from these operations would be very minimal, as is apparent
13 from the technical analysis provide in the Plan, there is the potential for very minimal
14 new depletions to occur. See N20021, Pages 15, 18-19 of 102.

15 32. Q: Don’t you need to do something to prevent even those minimal depletions?

16 A: Yes, they are addressed in the Plan by incorporating what is called Maintenance
17 Operations in the years between Compact Operations Years. See N20021, Pages 5-6 of
18 102. Based on the analyses included in the Plan, a minimum of 300 acre-feet (or 0.41
19 cubic feet per second if delivered at a constant rate over the year) would be delivered in
20 Maintenance Operations Years. See N20021, Page 9 of 102.

21 33. Q: What if your modeling is later determined to be off a bit?

22 A: Nebraska would conduct annual Model runs to be shared with the other States to
23 determine if that amount would need to increase in the future. See N20021, Page 9 of
24 102. If the new depletions resulting from the project ever increase to a value greater than

1 300 acre-feet, Nebraska will increase the Maintenance Operation delivery accordingly.
2 The analyses included in the Plan indicate that Maintenance Operations at a level of
3 300 acre-feet should be sufficient for at least the next 60 years. See N20021, Pages 18-19
4 of 102.

5 34. Q: Is the Plan intended to limit or constrain the operation of the Project?

6 A: No. The Plan provides an example of the accounting method that would be used to
7 quantify the AWS Credit. The Project will be operated based on the forecast needs to
8 ensure Compact compliance. The Plan, however, identifies 20,000 acre-feet as the
9 annual maximum amount that could be pumped for augmentation purposes based on the
10 plant and equipment constructed for the Project. See N20021, Page 7 of 102. Thus, for
11 purposes of the Plan, Nebraska's maximum AWS Credit in one year could not exceed
12 20,000 acre-feet.

13 **KANSAS' CONCERNS REGARDING THE PLAN ARE NOT VALID**

14 35. Q: Please describe your understanding of Kansas' criticisms of the Plan.

15 A: Kansas believes that the Plan should account for transit losses, both within the Rock
16 Creek subbasin and downstream, by attempting to route the flows through the streamflow
17 package of the Model.

18 36. Q: Would you recommend an analysis of transit losses within the Rock Creek
19 subbasin?

20 A: Yes. I have analyzed that issue with direct observations, and concluded that the
21 transit losses are *de minimis*. See N20022, Pages 8-9 of 53.

22 37. Q: Do you believe the Model must be used to calculate transit losses?

23 A: In my professional opinion, the Model is not a proper tool to estimate transit losses.
24 See N20022, Pages 9-10 of 53. The Model was not constructed for or calibrated for this

1 purpose. Furthermore, as discussed previously, losses in the Rock Creek subbasin appear
2 to be *de minimis* if they exist at all. This conclusion is based on the examination of actual
3 data, not the artifact of a Model simulation.

4 38. Q: But, why not just use the Model as Kansas suggests to determine transit losses
5 downstream of the Rock Creek subbasin associated with the operation of the Project?

6 A: After the water passes the streamgage in the Rock Creek subbasin, it should be
7 treated in a manner consistent with all other surface water that flows past any of the
8 subbasin streamgages into the Mainstem of the Republican River. Currently, the
9 Accounting Procedures do not assess any transit losses to any of this water. See N20022,
10 Pages 10-11 of 53. Rather, the assumption implicit in the Accounting Procedures is that
11 all of this water shows up at a downstream gage (e.g., the Hardy gage at the Kansas –
12 Nebraska stateline) or is otherwise consumptively used. It would be improper to assess
13 transit losses to the augmentation water in the Mainstem if all other surface water flowing
14 into the Mainstem from the subbasins, including other water from the Rock Creek
15 subbasin, is not assigned any transit losses. Conversely, if the augmentation water should
16 be assigned transit losses in the Mainstem, then the RRCA should develop consistent
17 methodologies to assign transit losses to all subbasin water flowing through the Mainstem
18 and incorporate those methods into the Accounting Procedures.

19 39. Q: Has Kansas cited other concerns?

20 A: Kansas also feels that the operation of the augmentation project under the Plan should
21 be limited to the historical consumptive use of the lands retired as part of the project.

22 40. Q: Does that concern have any foundation in the FSS?

23 A: No. In this case Kansas seems to be relying on some undocumented belief regarding
24 the intent of the “no new net depletion” requirement. The simple answer to this is that if

1 the FSS was intended to include such a limitation, it would say exactly that. Rather,
2 instead of using a term that is defined in the FSS (Historical Consumptive Use), the
3 limitation imposed on augmentation wells is “no new net depletions” which is not
4 defined. See N20022, Pages 13-15 of 53. The Plan incorporates a process to ensure that
5 there will not be any new net depletions either annually or long-term, consistent with the
6 explicit requirements of the FSS.

7 41. Q: Doesn't Kansas also claim that the Rock Creek Project can only be operated
8 for Compact compliance?

9 A: Yes, and I don't really see the point of that concern, as wet water should generally
10 help Kansas. But, in any event, operation of the Project will always be for the purposes
11 of offsetting stream depletions in order to achieve Compact compliance. See N20022,
12 Pages 15-17 of 53. Given that all Compact accounting is conducted on rolling averages,
13 all water would be beneficial for Compact compliance. I cannot see any scenario
14 wherein operation of the Project would not be for Compact compliance purposes.

15 42. Q: What about the notion of a temporal limit on the duration of the Plan?

16 A: A multi-million dollar investment has been made in this case. We cannot set up
17 roadblocks to wise water management. Neither URNRD, nor any other NRD, will likely
18 be willing to spend significant resources on projects that have only fleeting benefit. This
19 is especially true in the Republican River Basin, where there is so little good faith shown
20 by Kansas. See N20022, Pages 18-20 of 53. Once the Plan is approved, it should not
21 expire. However, Nebraska would concede to a built-in review of the Plan after 20 years
22 that would afford the RRCA an opportunity to discuss whether any revisions to the Plan
23 would be appropriate at that time. However, I would note that the annual accounting

1 process affords Kansas with the opportunity to raise concerns regarding the operation or
2 reporting under the Plan on an annual basis.

3 43. Q: Is Nebraska willing to make any other concessions if it would ensure Kansas'
4 affirmative vote?

5 A: Nebraska would concede that the AWS Credit should be limited to that portion of the
6 augmentation pumping in excess of any new depletions for a given year. However, your
7 caveat is important: We would only do this if it ensured an affirmative vote.

8 44. Q: In your professional opinion, is the Plan in conformance with the FSS and the
9 Compact with regard to any required temporal limits, RRCA review, and its reporting
10 requirements?

11 A: Yes.

12 45. Q: Will the project adversely affect Kansas water users?

13 A: It is very hard for me to conceive of a scenario where introducing wet water to the
14 Basin will harm Kansas water users. Nevertheless, Kansas has raised a final concern
15 regarding the usability of its Compact allocations, a matter the Compact is generally
16 silent about. It appears to me that this concern is really rooted in philosophical objections
17 to the practice of stream augmentation. Given the reregulation afforded to Kansas water
18 users by Harlan County Lake, I can conceive of no scenario that would affect the
19 usability of Kansas' Compact allocations for their water users outside of actions taken by
20 Kansas that are in conflict with the interests of its own water users.

21 46. Q: On what do you base that view?

22 A: Well, in fact this year, Nebraska water management generated additional water for
23 Compact compliance purposes that was re-regulated through Harlan County Lake for the

1 benefit of Kansas Bostwick Irrigation District (“KBID”). See N20022, Page 13 of 53.
2 The augmentation water from Rock Creek was a large part of those activities.

3 **CONCLUSIONS**

4 47. Q: Please summarize your conclusions about the Plan.

5 A: The Plan as presented to the RRCA fulfills all requirements set forth in the plain
6 language of the FSS and should be approved. While not necessary to bring the Plan in
7 conformance with the FSS, Nebraska would concede two minor modifications as
8 discussed above and in my Response Report. See N20022, Page 21 of 53.

9 48. Q: Do you think it will help to make these concessions?

10 A: I doubt it. Kansas has demonstrated, through its actions with regard to the Plan and
11 with other actions regarding other RRCA business, that neither Nebraska nor Colorado
12 should ever expect productive discussions with Kansas in any regard. Furthermore,
13 Kansas’ objections to the Plan appear to be geared toward levying some type of
14 punishment on Nebraska for utilizing the practice of stream augmentation, despite its
15 express reference in the FSS. See N20022, Page 18 of 53. I find this ironic given the
16 depletions of the Ogallala Aquifer throughout Kansas. See N20029. None of Kansas’
17 objections have any grounds in the plain language of the FSS. Therefore, they should not
18 be afforded any weight in any examination of the merits of the Plan.

19
20 I declare under penalty of perjury that the foregoing is true and correct.

Executed this 21st day of August, 2013.

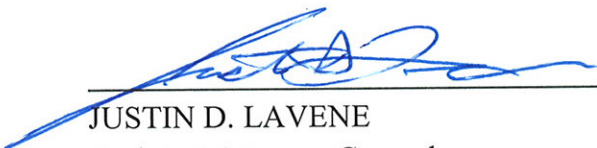


James C. Schneider, Ph.D.

Respectfully submitted this 21st day of August, 2013.

STATE OF NEBRASKA

JON C. BRUNING
Attorney General of Nebraska
DAVID D. COOKSON
Deputy Attorney General



JUSTIN D. LAVENE
Assistant Attorney General
BLAKE E. JOHNSON
Assistant Attorney General
P.O. Box 98920
Lincoln, Nebraska 68509-8920
(402) 471-2682
justin.lavene@nebraska.gov
blake.johnson@nebraska.gov

DONALD G. BLANKENAU
THOMAS R. WILMOTH
Special Assistant Attorneys General
BLANKENAU WILMOTH JARECKE LLP
206 South 13th Street, Suite 1425
Lincoln, Nebraska 68508-2002
(402) 475-7080
don@aqualawyers.com
tom@aqualawyers.com

Attorneys for the State of Nebraska

◆

NEBRASKA'S ALTERNATIVE WATER SHORT YEAR PLAN
and
NEBRASKA'S ROCK CREEK AUGMENTATION PLAN

◆

CERTIFICATE OF SERVICE

◆

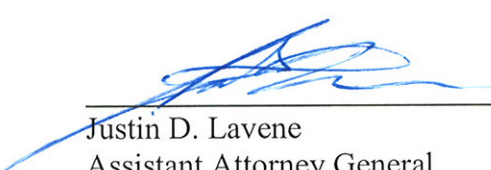
I, Justin D. Lavene, Assistant Attorney General for the State of Nebraska in the above-captioned matter, hereby certify that on August 21, 2013, I made service of the **DIRECT TESTIMONY OF DR. JAMES C. SCHNEIDER, PH.D., RE NEBRASKA'S ROCK CREEK AUGMENTATION PLAN**, by causing a paper copy and an electronic copy to be delivered by UPS Overnight Mail and/or electronic mail pursuant to Section E of the Arbitration Agreement and Paragraph 8 of the Arbitrator's Pre-Hearing Order on the following:

Jeffrey C. Fereday, Arbitrator

GIVENS PURSLEY LLP
601 West Bannock
Boise, Idaho 83702
JeffFereday@givenspursley.com
mpl@givenspursley.com
SHeneise@givenspursley.com
LoriAnderson@givenspursley.com

Scott Steinbrecher
Assistant Attorney General
Natural Resources Section
Federal & Interstate Water Unit
Office of the Attorney General
Ralph L. Carr Colorado Judicial Center
1300 Broadway, 9th Floor
Denver, Colorado 80203
scott.steinbrecher@state.co.us

Burke W. Griggs
Assistant Attorney General
Kansas Office of the Attorney General
120 SW 10th Avenue, 2nd Floor
Topeka, Kansas 66612
burke.griggs@ksag.org
chris.grunewald@ksag.org


Justin D. Lavene
Assistant Attorney General
Blake E. Johnson
Assistant Attorney General
2155 State Capitol
Lincoln, NE 68509
Attorneys for the State of Nebraska