

Republican River Compact Administration

52nd Annual Meeting

October 15-16, 2012
Junction City, Kansas
C.L. Hoover Opera House

Binder for Nebraska Representatives

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14. RRCA Accounting Procedures and Reporting Requirements (Revised 8/12/2010)
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Draft RRCA Working Session Agenda (draft of 10/10/2012)

Monday October 15th 1:00 pm central

Geary County Health Department conference room

1:00 pm start

1. Welcome and introductions
2. Nebraska proposal – Alternative Water Short Year Plan
 - a. Review of the FSS' Appendix M
 - b. Presentation by Nebraska of its proposal
 - c. Review of Kansas response
 - d. Discussion
3. Colorado resolutions
 - a. Resolution regarding operation and accounting for Bonny Reservoir
 - i. Presentation by CO
 - ii. Discussion
 - b. Resolution regarding Colorado's Compact Compliance Pipeline
 - i. Presentation by CO
 - ii. Discussion
4. Kansas proposals
 - a. Status of Kansas' proposal for revisions to the groundwater model for the South Fork sub-basin in light of the draining of Bonny Reservoir.
5. Conservation Committee
 - a. Presentation of Final report of the committee
 - b. Discussion on archiving data and materials
6. WaterSmart Basin Study update and discussion
7. Status of annual reports and transcripts
8. Engineering Committee report
 - a. Active Items
 - i. Data exchange status
 - ii. Ground and surface water irrigation recharge and return flows
 1. Discussion of Kansas' plan to develop a recommendation for a common set of procedures and recharge values by system type for estimating groundwater irrigation recharge in the RRCA groundwater model.
 - iii. Principia Mathematica contract
 1. Discussion
 2. Options for 2013
 - iv. Nebraska proposal for relocation of Guide Rock stream gage and accounting procedure
 - v. Adoption of revised area-capacity tables for Bonny Reservoir
 - vi. Augmentation – develop a framework for application and approval for future plans
 1. Kansas discussion points circulated to States
 - vii. Applied PRISM procedure for missing precipitation data for 2008-2010
 1. Discussion of 2011 (Sam, Willem, Paul)
 2. Make recommendation to Commissioners
 - viii. Finalizing accounting data for 2008, 2009, and 2010
 - ix. Issues preventing agreement on final accounting for 2006-2010
 - b. Amending Rules & Regulations - Document for approval at annual meeting
 - c. Items tabled for future
 - i. User Manual
 - ii. 5 year accounting spreadsheet
9. Review and finalize agenda for RRCA annual meeting
10. Adjourn

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

Basic information that should be provided with the plan

- Basics of plan:
 - Quantity requested to be authorized
 - Source locations to be converted to augmentation
 - Augmentation delivery point
 - Computations to substantiate no increase in consumptive use.
 - What depletions are augmentation flows under the plan meant to replace?
 - Basics of envisioned operations.
 - When will the augmentation be used? Will it be operated only during Compact Call Years?
 - How the amount of water that will be allowed for augmentation credit in any year be determined (limited).
 - Operating season envisioned:
- Proposed Groundwater modeling
 - Of groundwater pumping
 - Of augmentation flows
- Proposed accounting
 - How will the RRCA accounting reflect the operations?
 - Surface water leases
 - Rock Creek calculations
 - Mainstem calculations
 - Tables 3, 4, 5
 - Examples would be helpful to work through.
- Proposed reported and monitoring data
- Accounting for deliveries made beyond those allowed under the plan (or before approval)?

Questions for discussion (Rock Creek focus)

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

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

PROPOSED AGENDA FOR
**52nd ANNUAL MEETING OF THE
REPUBLICAN RIVER COMPACT ADMINISTRATION**

October 16, 2012, 8:00 AM

C.L Hoover Opera House

135 W. 7th Street

Junction City, Kansas

1. Introductions
2. Adoption of the Agenda
3. Status of Report and Transcript for 2011 Annual Meeting
4. Status of Previous Annual and Special Meetings Reports and Transcripts
5. Report of Chairman and Commissioner's Reports
 - a. Kansas
 - b. Colorado
 - c. Nebraska
6. Federal Reports
 - a. Bureau of Reclamation
 - b. U.S. Army Corps of Engineers
 - c. U.S. Geological Survey
7. Committee Reports
 - a. Engineering Committee
 - i. Assignments from 2011 Annual Meeting
 - ii. Committee Recommendations to RRCA
 - iii. Other Matters
 - iv. Recommended assignments for Engineering Committee
 - b. Conservation Committee
8. Old Business
 - a. Status of unapproved previous accounting
9. New Business and Assignments to Compact Committees
 - a. Action on Engineering Committee Report and assignments
 - b. Nebraska's proposed Plan for Reduction of Computed Beneficial Consumptive Uses
 - c. Colorado's Resolution Regarding Operation and Accounting for Bonny Reservoir.
 - d. Colorado's Resolution Regarding Colorado's Compact Compliance Pipeline.
 - e. Kansas' proposal for revisions to the groundwater model for the South Fork sub-basin in light of the draining of Bonny Reservoir.
 - f. Kansas' proposal for adoption of a common set of procedures and recharge values by system type for estimating groundwater irrigation recharge in the RRCA groundwater model.
 - g. Kansas' proposal for accounting and modeling of augmentation flows.
10. Remarks from the Public
11. Future Meeting Arrangements
12. Adjournment

AGENDA FOR
**51st ANNUAL MEETING OF THE
REPUBLICAN RIVER COMPACT ADMINISTRATION**

August 31, 2011, 9:00 AM MST
Burlington Community and Education Center, Burlington, Colorado

1. Introductions
2. Adoption of the Agenda
3. Status of Report and Transcript for August 12, 2010 Annual Meeting
4. Status of Previous Annual and Special Meetings Reports and Transcripts from 2008 and 2009
5. Report of Chairman and Commissioner's Reports
 - a. Colorado
 - b. Nebraska
 - c. Kansas
6. Federal Reports
 - a. Bureau of Reclamation
 - b. U.S. Army Corps of Engineers
 - c. U.S. Geological Survey
7. Committee Reports
 - a. Engineering Committee
 - i. Assignments from 2010 Annual Meeting
 - ii. Committee Recommendations to RRCA
 - iii. Other Matters
 - iv. Recommended assignments for Engineering Committee
 - b. Conservation Committee
8. Old Business
 - a. Status of 2006, 2007, 2008 and 2009 Final Accounting
9. New Business and Assignments to Compact Committees
 - a. Action on Engineering Committee Report and assignments
10. Remarks from the Public
11. Future Meeting Arrangements
12. Adjournment

51st ANNUAL MEETING OF THE
REPUBLICAN RIVER COMPACT ADMINISTRATION

Wednesday, August 31, 2011

9:12 a.m.

The above-entitled meeting was taken at the Burlington
Community Center, 340 South 14th Street, Burlington,
Colorado, before Denise A. Freeman, Registered
Professional Reporter and Notary Public within Colorado.

1 REPUBLICAN RIVER COMPACT ADMINISTRATION:
2 For Colorado:
 DICK WOLFE, P.E., COMMISSIONER
3 PETER J. AMPE, ESQ.
 MICHAEL SULLIVAN, P.E., DEPUTY STATE ENGINEER
4 MEGAN A. SULLIVAN, P.E.

5 For Nebraska:
 BRIAN P. DUNNIGAN, P.E., COMMISSIONER
6 JUSTIN LAVENE, ESQ.
 JIM SCHNEIDER, P.E.
7 TOM O'CONNOR, P.E.

8 For Kansas:
 DAVID BARFIELD, P.E., COMMISSIONER
9 BURKE W. GRIGGS, ESQ.
 CHRISTOPHER M. GRUNEWALD, ESQ.
10 SCOTT ROSS, P.E.

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P R O C E E D I N G S

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COMMISSIONER WOLFE: Good morning, everyone. Thank you for being here. My name is Dick Wolfe. I am the Colorado Commissioner on the Republican River Compact Administration. Before we get started, I want to have Bob Churchwell, the city administrator for Burlington, to come forward, please.

And I want to remind everyone today to please, if you are using the microphone, to speak up and state your name for the record because we do have a stenographer here today who will be taking a recording of this, so we want to make sure it gets on the record correctly.

So, Bob, please proceed.

MR. CHURCHWELL: Thank you, Dick. I don't think I need this. All my employees say I've got a big enough mouth the way it is.

But we want to welcome each and every one of you here today. We want to welcome the representatives from Colorado and Nebraska and Kansas in your efforts to deal with the water issues. We thank you -- all of you folks for coming out and participating in this conversation so that everybody's voice can be heard.

And we just want to welcome you to Burlington, and, folks, have a good meeting here this

1 afternoon.

2 COMMISSIONER WOLFE: Thank you, Bob.

3 Also on your way in, there was a sign-up
4 sheet. If you do plan on making a public comment --
5 it's identified later in our agenda -- we would like to
6 have you identify that on that sheet so that we can get
7 that here so I know approximately how many people are
8 planning on making a public comment. That will help us
9 plan our time a little better.

10 So if you failed to mark that, we will be
11 taking a break somewhere here before we get to that
12 point, and I would ask you to get with Katie Radke, who
13 is at the back table there, or Dave Keeler, and we will
14 get that sheet updated if you want to plan on making a
15 public comment.

16 Also as part of our introductions, I would
17 like to introduce some of our staff members that are
18 here today as well as some representatives from Colorado
19 that work with some of our groundwater management
20 districts in eastern Colorado within the Republican
21 River Basin.

22 Here at the front table with me, to my left,
23 is Meg Sullivan, who is our engineer adviser on the
24 Compact Administration. Pete Ampe, to my immediate
25 right, he's the first assistant attorney general with

1 Colorado. And Mike Sullivan, on the far right, who is
2 the deputy state engineer.

3 We also have -- I've mentioned -- Katie
4 Radke, who you met coming in, as well as Dave Keeler,
5 who is in the back there, who is our lead water
6 commissioner here in the basin, as well as some of his
7 staff, Devin Ridnour, Ben Krause.

8 We also have here Ivan Franco, who will be
9 right up here in front. He will be replacing Meg
10 Sullivan as our engineer adviser, so I hope all of
11 you've had an opportunity to meet Ivan. We look forward
12 to having him on this.

13 Also we have here with us, representing
14 Colorado, Willem Schreuder with Principia Mathematica.
15 He's over here to my left against the wall.

16 Some other folks I would like to identify --
17 and you always run the risk, when you are doing these
18 kind of introductions, that you are going to miss
19 someone, and someone may have come in after we had a
20 chance to identify you, so I apologize if I miss some of
21 you.

22 But we also have Jack Dowell with W-Y
23 Groundwater Management District here with us today.
24 Nate Midcap with the Central Yuma, Sandhills, Marks
25 Butte, and Frenchman Groundwater Management District.

1 Deb Daniel is here. She is the new manager
2 of the Republican River Water Conservation District.
3 And I would also like to take this opportunity -- I
4 don't think Stan Murphy is here with us today.

5 But Stan just retired as general manager
6 with the Republican River Water Conservation District,
7 so we want to recognize Stan for all of his service and
8 years as the manager of the District since its creation
9 in 2004 and his prior service as manager of some of the
10 groundwater management districts in this part of the
11 basin prior to that.

12 So we want to thank Stan for all of his
13 years of service and wish him the best in retirement.
14 And I know Deb is going to do a great job following in
15 his footsteps, so we wish her well.

16 Also at the Republican River Water
17 Conservation District, the board president, Dennis
18 Coryell, is also here with us today, as well as the
19 legal counsel with the District, Dennis Montgomery and
20 David Robbins. Thank you for being here.

21 We also have a couple representatives from
22 the CAPA group in the basin, Tony Mangus and also
23 Bethleen McCall.

24 And also I would like to recognize, from our
25 executive director's office with the Department of

1 Natural Resources, Alex Davis, assistant director over
2 water is here as well. And some of you have had an
3 opportunity to meet Alex.

4 So I thank all of you for being here today
5 and representing Colorado and all your efforts to assist
6 Colorado in our efforts here in the Republican River
7 Basin for achieving compact compliance.

8 So at this time I would like to turn it over
9 to Commissioner Dunnigan, if you would like to make some
10 introductions at this time.

11 COMMISSIONER DUNNIGAN: Thank you, Chairman
12 Wolfe. I will introduce at the table first. To my
13 immediate right is Justin Lavene from the Attorney
14 General's Office. Jim Schneider from the Department of
15 Natural Resources, and Tom O'Connor from the Department
16 of Natural Resources.

17 I would also like to introduce staff that I
18 have from the Department: Shane Stanton, Paul Koester,
19 and Jesse Bradley. Representing the Nebraska Irrigation
20 District, I have Don Felker, Mike Delka, and Brad
21 Edgerton here today.

22 With the Nebraska Natural Resources District
23 representing the Republican Natural Resources District,
24 Nate Jenkins is here. Bob Wierhead representing the
25 Middle Republican Natural Resources District.

1 Rich Holloway, representing the Tri-Basin
2 Natural Resources District. And manager Mike Clemens
3 representing the Lower Republican Natural Resources
4 District.

5 And as Chairman Wolfe said, you always risk
6 the possibility of leaving somebody out. I hope I did
7 not, and I apologize if I did. Thank you.

8 COMMISSIONER WOLFE: Thank you,
9 Commissioner.

10 At this time, Commissioner Barfield, if you
11 would like to make some introductions

12 COMMISSIONER BARFIELD: Certainly. Thank
13 you, Chairman Wolfe.

14 My name is David Barfield. I am the chief
15 engineer with the Division of Water Resources in Kansas,
16 a commissioner of the Compact Administration.

17 Again here at the table, to my right is
18 Scott Ross. He's our water commissioner over northern
19 Kansas and our water engineering committee lead.

20 To my left first is Burke Griggs. He's
21 legal counsel for the division. And Chris Grunewald is
22 with the Attorney General's Office, the Kansas Attorney
23 General's Office.

24 Also with me is Chris Sable, Chelsea
25 Geracheck, Paul Chankow, and Sam Griffith. That's who's

1 here from Kansas.

2 COMMISSIONER WOLFE: Thank you.

3 I would also like to take this opportunity
4 to give thanks to those representatives on the
5 engineering committee. You have done a great job this
6 past year assisting the commissioners in getting through
7 our duties that we have to take care of today, so thank
8 you very much for all of your efforts over the past year
9 working off-line on these matters.

10 As we get into the discussion on the
11 committee reports, you will see that the engineering
12 committee has got quite a few assignments to work on and
13 have been working on. And so we appreciate all the
14 effort and time you've put into that in addition to your
15 other duties.

16 There was a copy of the agenda at the back
17 of the room, which was the initial agenda that was
18 advertised. We do have some modifications to that, and
19 I will try and identify those changes there. And then I
20 will ask the other commissioners if there is anything
21 that I missed before we adopt the revised agenda.

22 I would like to offer under Old Business,
23 under 8(b), that we add an additional assignment to the
24 engineering committee from the 2010 meeting to modify
25 the rules and regulations to reflect the current version

1 of the accounting procedures and model.

2 And Commissioner Dunnigan will do the
3 introduction on that, but I wanted to identify that on
4 the agenda for action.

5 Also we have under New Business, under
6 agenda Item 9, two items, (b) and (c).

7 The first one is 9(b), which is to take
8 action on the procedure for the missing precipitation
9 data. And this will also be discussed as part of Megan
10 Sullivan's report from the engineering committee. We
11 will be taking action on that.

12 Also 9(c), we will be taking action on
13 relocation of the Guide Rock stream flow gage. And
14 Commissioner Dunnigan will be doing the introduction as
15 well on that one.

16 Commissioners, are there any other
17 amendments to the agenda?

18 COMMISSIONER BARFIELD: No. I move adoption
19 of the agenda as amended.

20 COMMISSIONER DUNNIGAN: Second.

21 COMMISSIONER WOLFE: We have a motion and a
22 second. All those in favor signify by saying aye.

23 COMMISSIONER DUNNIGAN: Aye.

24 COMMISSIONER BARFIELD: Aye.

25 COMMISSIONER WOLFE: Aye.

1 Motion approved.

2 Agenda Item No. 3 is the status report and
3 transcript of the August 12, 2010 annual meeting. This
4 has been prepared. It has been circulated for review
5 and comment.

6 We are not taking an action item on this.
7 It's just to reflect that each state has that in their
8 possession now and will be providing review and comment
9 on that. And we will be taking our final action and
10 approval of that transcript and those minutes from that
11 meeting at a later date.

12 So are there any comments from the
13 commissioners as far as that agenda item?

14 Commissioner Dunnigan.

15 COMMISSIONER DUNNIGAN: Chairman Wolfe, I
16 would like it reflected in the minutes a discussion, as
17 reflected on page 76 of the transcript from last year,
18 relating to amending the rules. Thank you.

19 COMMISSIONER WOLFE: Thank you.

20 Any other comment on that? Thank you.

21 Agenda Item No. 4 is also a status report on
22 the previous annual and special meeting reports and
23 transcripts from the 2008 and 2009 meetings as well.

24 That's been undergoing review by each of the
25 states, and we have not finalized completion of

1 recommended changes to that, so this is just to
2 recognize in the record again that we are still in the
3 process of reviewing and finalizing that. And we'll
4 take that up for action at a future meeting date.

5 Any comments in regards to that agenda item?

6 COMMISSIONER BARFIELD: No.

7 COMMISSIONER DUNNIGAN: No.

8 COMMISSIONER WOLFE: Thank you.

9 All right. We are on to agenda Item No. 5,
10 reports from the commissioners, each of the states. I
11 will go ahead and start with my report.

12 I would like to first just highlight some of
13 the hydrologic conditions for calendar year 2010 in
14 Colorado. We would like to report on activities and
15 hydrologic conditions on each of the three major
16 branches in the basin, as well as Bonny Reservoir.

17 And first on the North Fork of the
18 Republican River, 20,420 acre-feet passed the Stateline
19 Gage in calendar year 2010. This is approximately 8,200
20 acre-feet less than the 1935 to 2010 average annual flow
21 of 28,660 acre-feet.

22 On the Arikaree, stream flows at the
23 Arikaree River Gage at Haigler totaled 2,360 acre-feet
24 for calendar year 2010, about three times the amount
25 recorded for 2009, which totaled 780 acre-feet. Flows on

1 the Arikaree have declined significantly from the
2 average of 12,170 acre-feet for the period of 1933 to
3 2010.

4 On the South Fork of the Republican River, a
5 total of 12,760 acre-feet passed the Benkleman Gage in
6 2010. This is a thirty percent increase from the 8,400
7 acre-feet that passed the gage in 2009, and six times
8 the total for 2008.

9 Stream flows on the South Fork continue to
10 improve from the drought years of zero flow but are
11 still significantly lower than the 72-year average of
12 approximately 24,000 acre-feet.

13 As far as Bonny Reservoir, this is located
14 on the South Fork just north of Burlington. It is the
15 only federal reservoir in Colorado's Republican River
16 Basin. Bonny Reservoir is approximately 18 percent full
17 with an active storage as of last week of 7,372
18 acre-feet.

19 The releases that we have made from Bonny
20 Reservoir in 2010, from July 9, 2010 to August 27, 2010,
21 was 5007 acre-feet. An additional 2248 acre-feet was
22 released this past June 20 through July 7. And we will
23 also be making additional releases from Bonny Reservoir
24 starting in September of 2011.

25 I wanted to highlight for the commissioners

1 and the public what Colorado has been doing in terms of
2 our efforts towards compact compliance over the past
3 year and few years.

4 As I have indicated, we have continued to
5 make releases from Bonny Reservoir to help our efforts
6 in terms of overall basin-wide compact compliance as
7 well as our obligations to meet the subbasin
8 nonimpairment test on the South Fork, and as it stands
9 now, the water currently stored in Bonny Reservoir is
10 significantly less than the previous year.

11 Also in cooperation with the Republican
12 River Water Conservation District, through some of the
13 land-fallowing programs through CREP and EQIP, in 2010,
14 or at least through 2010 -- and this is cumulative up to
15 that point -- 19,755 acres have been currently retired
16 under the CREP program; 11,359 acres under various
17 EQIPs; and 1546 acres under the AWEPP.

18 Approximately 10,000 acres are still
19 available under the 2006 CREP program. We are also
20 looking currently on an amendment to the CREP program
21 which will add an additional 20,000 acres, and that's
22 currently under review by the U.S. Department of
23 Agriculture.

24 The Republican River Water Conservation
25 District continues to pursue purchasing surface water

1 rights in the basin. As a result of their efforts over
2 the last several years, there is very little surface
3 water irrigation left in the basin.

4 We also adopted well measurement rules
5 that -- 2010 is the second year of our administration
6 under those well measurement rules.

7 And as of March 1, 2009, all high-capacity
8 wells in the basin were required to have a measurement
9 device installed and verified by a certified tester or
10 be declared inactive.

11 By December 1 of 2010, pumping totals for
12 the irrigation year for all active wells were required
13 to be submitted to the State Engineer.

14 The measurement team is staffed with four
15 full-time positions, and staff is currently and actively
16 enforcing the well measurement rules and well permits
17 within the basin.

18 Some of the activities of the well
19 measurement team include, in 2010 they began the field
20 inventory process for 3733 active and inactive wells
21 located in the Republican River Basin.

22 The team processed 445 well meter
23 verification tests, issued 577 notices of rule
24 violation/orders to comply, and sent out approximately
25 1800 notices of annual well pumping reporting

1 requirements, and processed 3194 annual pumping reports.

2 So thank you, staff, for all of your efforts
3 over the last year in completing that.

4 We also, in cooperation with the Republican
5 River Water Conservation District, are moving forward
6 with construction of the compact compliance pipeline.
7 The District had ground-breaking ceremonies this week.
8 On Monday, August 29, they started construction of that
9 pipeline.

10 It is anticipated that that project will be
11 completed in the summer of 2012, making deliveries of
12 water to the North Fork of the Republican River in the
13 latter part of 2012.

14 I would also just like to update folks
15 briefly on our current negotiations with Kansas and
16 Nebraska on approval of the compact compliance pipeline.

17 As you know, we have been working rigorously
18 over the last couple years in those efforts to get
19 approval of that. We continue those negotiations.

20 I believe we have been -- still continue to
21 make progress in those discussions, and I appreciate
22 each of the states' efforts in working with Colorado in
23 working towards final resolution of those remaining
24 issues so that we can seek approval by the compact
25 commissioners here in the very near future for approval

1 of the compact compliance pipeline.

2 Lastly, I would just like to report on the
3 pending litigation. Since the last compact meeting, the
4 United States Supreme Court accepted Kansas' petition
5 and appointed a special master to run the case. So the
6 litigation is proceeding, but no trial date has been
7 set.

8 And that concludes my report. At this time
9 I will turn it over to Commissioner Dunnigan for your
10 report.

11 COMMISSIONER DUNNIGAN: Thank you, Chairman
12 Wolfe.

13 First of all, I would like to thank Colorado
14 and the City of Burlington for hosting this year's
15 Republican River Compact Administration meeting. The
16 facilities are great. Thank you very much.

17 The State of Nebraska is in compliance with
18 the Republican River Compact. Using current accounting
19 procedures, Nebraska has had positive balances during
20 2007, 2008, 2009 and 2010, which has led to compliance
21 with the five-year average. Based on preliminary
22 estimates, Nebraska will again be in compliance for the
23 five-year period ending in 2011.

24 In the future Nebraska will continue to
25 remain in compliance with the Republican River Compact.

1 The Upper Republican, Middle Republican, and, most
2 recently, the Lower Republican Natural Resource District
3 boards have all voted to adopt a third generation of
4 integrated management plans.

5 These plans were modified from the previous
6 version to address concerns of water-short year
7 compliance brought up during the 2008 arbitration. These
8 plans also further solidify Nebraska's long-term
9 commitment to compact compliance.

10 The basin NRDs have demonstrated an on-going
11 commitment to compliance through the adoption of this
12 third-generation integrated management plan.

13 All of the integrated management plans
14 adopted by the basin NRDs contain controls that would
15 require, when necessary, the shutdown of wells in rapid
16 response areas during water-short years as part of
17 compliance efforts, as well as provisions to administer
18 stream flows in a manner that will ensure Nebraska
19 maintains compliance.

20 The integrated management plans also contain
21 provisions to continue to reduce groundwater pumping
22 volumes and conduct evaluations annually to determine if
23 additional long-term pumping adjustments are necessary.

24 The updated integrated management plans
25 incorporate complex forecasting and triggers that rely

1 on conservative dry-year projections to proactively
2 identify the potential for non-compliance, thereby
3 providing the necessary information to proactively
4 reduce consumption to levels necessary to ensure compact
5 compliance.

6 These triggers go well beyond the
7 requirements imposed by the compact and FSS because
8 Nebraska knows that future noncompliance is not an
9 option.

10 Nebraska understands that Kansas may have
11 concerns about the implementation of these most recent
12 integrated management plans and would, once again,
13 invite constructive dialogue through the engineering
14 committee to discuss any such concerns.

15 The department also continues to work with
16 the Tri-Basin Natural Resources District to finalize an
17 integrated management plan.

18 While not a necessary component to ensure
19 compact compliance, this plan will, among other
20 objectives, require the NRD to limit groundwater
21 depletions to the same volume as groundwater imports.

22 The Republican River Sustainability Task
23 Force continues to meet. The purpose of the 27-member
24 Republican River Basin Water Sustainability Task Force
25 is to define water sustainability for the Republican

1 River Basin, develop and recommend a plan to help reach
2 water sustainability in the basin, and develop and
3 recommend a plan to help avoid a water-short year in the
4 basin.

5 The task force will be working to summarize
6 their efforts in a report to the legislature.

7 Nebraska continues to invest in long-term
8 solutions to reduce consumption in the basin. State and
9 local natural resource districts and financial resources
10 continue to be invested in CREP and AWEP programs.

11 These programs have worked to provide
12 permanent and temporary reductions in irrigated lands
13 throughout the basin. Nebraska also continues to invest
14 in the science necessary to support future sound
15 management decisions.

16 This work has included the development of a
17 wide array of management tools, specific evaluations of
18 augmentation sites throughout the basin, and the
19 evaluation of riparian vegetation on water supplies,
20 just to name a few.

21 The department is also pursuing efforts in
22 coordination with the Nebraska Republican River
23 Management District Association to develop modeling
24 tools to support the evaluation of potential conjunctive
25 management options throughout the basin.

1 The department continues to be open to
2 working with the other states through the WaterSMART
3 Basin Studies program to develop these tools and
4 believes that such collaboration is called for pursuant
5 to Section IV.E. of the final settlement stipulation.

6 In closing, I reiterate that Nebraska will
7 continue to comply with the Republican River Compact.
8 The State will continue to proactively evaluate the
9 basin and make the necessary changes to remain in
10 compliance.

11 We will continue to work with all
12 stakeholders in the basin, including the other states,
13 the NRDs, the surface water districts, individual users,
14 and the Bureau of Reclamation.

15 I will now have Tom O'Connor give the report
16 of water administration activity in Nebraska for
17 calendar year 2010.

18 MR. O'CONNOR: Thank you. I would like to
19 mention here that the first version of the 2010 water
20 administration report omitted an entry for November and
21 December 2010. A modification has been made to the
22 report as posted on the Nebraska E&R website, and I have
23 copies of the revised reports here to distribute to
24 whoever is interested.

25 Report of water administration activities

1 for the Republican River Basin In Nebraska for the
2 calendar year 2010:

3 January 19. Letters were sent to irrigators
4 reminding them that 2009 water use reports must be filed
5 in the Cambridge field office.

6 February 16. Fifteen closing notices were
7 issued to water users that failed to submit their
8 required annual water use reports. These were to be
9 filed in the Cambridge field office by December 31.
10 These water users were not allowed to divert water
11 during the 2010 calendar year.

12 May 17. One regulating notice was sent to
13 Riverside Canal notifying them that they were not
14 allowed to divert water in excess of the amount of their
15 appropriation without prior consent.

16 June 28. Six regulating notices were sent
17 to water users above Meeker-Driftwood Canal notifying
18 them that they were not allowed to divert water in
19 excess of the amount of their appropriation without
20 prior consent.

21 June 28. Thirty-eight closing notices were
22 issued to water users above Meeker-Driftwood Canal
23 notifying them that they shall not divert water until
24 further notice.

25 July 7. One notice of the pumping schedule

1 was sent to a water user notifying them of the amount
2 they could legally divert.

3 July 16. One regulating notice was sent to
4 Riverside Canal.

5 July 19. One notice of the pumping schedule
6 was sent to a water user.

7 August 2. One regulating notice was sent
8 again to Riverside Canal.

9 August 2. Thirty-seven open/regulating
10 notices were issued to water users above
11 Meeker-Driftwood Canal notifying them that they were not
12 allowed to divert water in excess of the amount of their
13 appropriation without prior consent.

14 August 2. Six regulating notices were also
15 issued to water users above Meeker-Driftwood Canal, and
16 two notices of the pumping schedule were sent to water
17 users notifying them of the amount they could legally
18 divert.

19 August 3. One hundred five closing notices
20 were issued to water users above Cambridge Canal
21 notifying them that they shall not divert water until
22 further notice.

23 August 3. Thirty-nine regulating notices
24 were sent to water users above Cambridge Canal notifying
25 them that they were not allowed to divert water in

1 excess of the amount of their appropriation without
2 prior consent.

3 August 4. One notice of the pumping
4 schedule was sent to a water user.

5 August 8. Twenty-nine closing notices were
6 issued to water users above Meeker-Driftwood Canal
7 notifying them that they shall not divert water until
8 further notice.

9 August 9. Fifty-eight open/regulating
10 notices were sent to water users above Cambridge Canal
11 notifying them that they were not allowed to divert
12 water in excess of the amount given of their
13 appropriation without prior consent.

14 August 9. Four regulating notices were also
15 sent to Frenchman Cambridge and Frenchman Valley-H&RW
16 Irrigation Districts notifying them that they were not
17 allowed to divert water in excess of the amount of their
18 appropriation.

19 August 13. Two regulating notices were sent
20 to Frenchman Cambridge Irrigation District notifying
21 them that they were not allowed to divert water in
22 excess of the amount of their appropriation.

23 August 23. Eight closing notices were
24 issued to water users above Meeker-Driftwood Canal
25 notifying them that they shall not divert water until

1 further notice.

2 August 23. One regulating notice was also
3 sent to Frenchman Cambridge Irrigation District
4 notifying them that they were not allowed to divert
5 water in excess of the amount of their appropriation
6 without prior consent.

7 August 26. One water appropriation was
8 canceled above Swanson Reservoir.

9 September 3. Thirty-seven open/regulating
10 notices were issued to water users above
11 Meeker-Driftwood Canal notifying them that they were not
12 allowed to divert water in excess of the amount of their
13 appropriation without prior consent.

14 September 3. Six regulating notices were
15 also sent to water users above Meeker-Driftwood Canal
16 notifying them that they were not allowed to divert
17 water in excess of the amount given of their
18 appropriation without prior consent.

19 November 1. Ten opening notices were sent
20 to reservoirs notifying them that they may store water.

21 December 2010. Water use reports were
22 mailed to water appropriations in the Republican River
23 Basin. These were to be filed in the Cambridge field
24 office by December 31.

25 COMMISSIONER DUNNIGAN: Chairman Wolfe, that

1 concludes Nebraska's report.

2 COMMISSIONER WOLFE: Thank you,
3 Commissioner.

4 Commissioner Barfield?

5 COMMISSIONER BARFIELD: Yes. Thank you,
6 Chairman Wolfe.

7 Again, I would like to provide some
8 comments, first of all, of a general nature relating to
9 the State of Kansas and legislative issues and then some
10 specific comments on the Republican Basin.

11 In January Sam Brownback became Kansas' 46th
12 governor. He was formerly secretary of ag, agriculture,
13 and a U.S. representative and a two-term U.S. senator.
14 Governor Brownback appointed Dale Rodman the 15th Kansas
15 Secretary of Agriculture.

16 Secretary Rodman was retired from a career
17 of active business, including 37 years of car dealing.

18 The governor has initiated several new
19 initiatives. He is holding a series of economic
20 summits, as part of his administration's commitment to
21 growing our state's economy, over a wide variety of
22 topics. But one of them I think that I wanted to note
23 here in this forum is his initiative on the Ogallala.

24 The Ogallala is a significant source of -- a
25 significant water resource in our respective states,

1 including Kansas, providing a lot of economic activity
2 but is also substantially overappropriated resulting in
3 water level declines and declines in yields and sort of
4 uncertainties about the future.

5 So he held a summit in Colby, Kansas, on
6 July 21. And we had individuals attending that with a
7 broad range of perspectives and contributing sort of
8 ideas about the future of the Ogallala in Kansas.

9 And there's a committee that is sort of
10 following up on some of the brainstorming that happened.
11 We are expecting two to three specific pieces of
12 legislation in 2012.

13 And as a result of that, sort of to get
14 started, and then, I think, broader discussions and
15 maybe more legislation in 2013 as we sort of seek to
16 figure out how to continue to use the Ogallala and
17 benefit from the economics thereof but extend the life
18 of that resource. And so I will continue to report on
19 that in future times here.

20 We had a pretty active legislative session
21 in Kansas. There were 14 water resource bills. We were
22 expecting a pretty quiet session. Then had a fairly
23 active one. None of them are very -- extremely
24 earthshaking. I will just note three of them for
25 purposes here.

1 One of them was to legislatively authorize
2 what's called the Water Right Conservation Program that
3 would allow people to voluntarily put their water right
4 in a nonuse status for up to 10 years.

5 And that enrollment would be on sufficient
6 cause for nonuse and prevent damage of that water right
7 to sort of balance preservation of those property rights
8 with conserving use of them and not requiring them to
9 use water to preserve that water right.

10 There were also changes in House Bill 231 to
11 something called flex accounts to seek to make that
12 program more attractive and seek to provide more
13 flexibility, but it requires a 10 percent conservation
14 requirement.

15 And, finally, there was a Senate substitute
16 for House Bill 2133 that deals with a fund that the
17 legislature created in case damages are received from
18 either Colorado or Nebraska in this litigation. It sort
19 of talks about how those moneys would be utilized in the
20 legislation. It sort of amended how that would be done.

21 Climate conditions. We have had a very
22 interesting climate year in Kansas.

23 As a result of La Nina, over the past year
24 Kansas -- the southern half of Kansas is currently
25 experiencing its worst drought since at least 2002. And

1 in some areas, in 2011 to date, it is the driest year
2 since really we've been keeping records since the late
3 1800s. It's drier in some respects than the 1930s dust
4 bowl.

5 There's been a drought declaration in 52 of
6 Kansas' 105 counties, and there's a pending declaration
7 to extend that into southeast Kansas. The U.S. drought
8 monitor of August 16 showed continuing intensification
9 of the drought in southwest and south central Kansas.

10 As a result of this, I have had to sort of
11 innovate. We have a lot of farmers in southwest and
12 south central Kansas that have enough season they can
13 double crop. Get a wheat crop and then grow a corn or
14 some other crop behind it.

15 And typically they can get that wheat crop
16 in with just a few inches of irrigation. In many cases
17 really there's no precipitation even back through the
18 latter half of last year. They've had to irrigate six
19 inches to get the wheat home.

20 And then we are running out of authorization
21 to get their corn home. And so I instituted, in
22 addition to the amendments to the flex account, an
23 alternative, something called an emergency drought term
24 program that, as such, it allows water users to borrow
25 from their 2012 authorization to finish out their crops

1 in 2011. So they could make adjustments to 2011.

2 We expected interest in that, 50 or 75
3 permits. As of yesterday, I think we had 706 drought
4 terms that we had accepted for filing. So it's going to
5 be an interesting year next year as they sort of make
6 their decisions about how to use that smaller allocation
7 next year.

8 It's been a very active year for water
9 administration, again, in south central and southeast
10 Kansas, administering rivers that -- much more
11 significantly than past years.

12 Alternatively, in the north half of the
13 state, including the Republican Basin, we have had a
14 tremendous year. Very timely rains have produced great
15 crops in the Republican part of the basin in northwest
16 Kansas and north central.

17 A month-long -- several-month-long flood on
18 the Missouri River -- we have been dealing with
19 significant flooding issues in northeast Kansas, along
20 with Nebraska and other Missouri basin states. So it's
21 been quite an interesting year weatherwise.

22 Turning to the Republican River Basin
23 specifically, Kansas is fully in compliance with the
24 compact in relation to the final settlement stipulation.

25 Our entire basin is either closed in

1 appropriations or managed under the principle of safe
2 yield, which is a pretty -- a very restrictive yield
3 application.

4 We are fully metered. We have been for a
5 couple years and have an aggressive water use program to
6 ensure that those records are kept. And have a very
7 active compliance and enforcement program to make sure
8 that people comply with those programs. Those are all
9 ongoing, as they have been in the past.

10 In Kansas, northwest Kansas, the Ogallala
11 portion of that is covered by the northwest Kansas
12 Groundwater Management District No. 4, and they have
13 been very active, even before the governor's initiative,
14 over recent years to try and determine how to provide
15 for enhanced management of the water resources, again,
16 toward the objective of continuing the economic
17 viability of this resource now and into the future.

18 They have gone through a process of
19 identifying six high priority areas that have the most
20 significant declines and where they believe their
21 actions should be concentrated. They also are very
22 involved with programs under AWEPP and other state and
23 federal programs to reduce water use and have been
24 focusing those programs in these high priority areas.

25 They have also used a version of the

1 Republican River Compact model to sort of look into the
2 future in terms of what their part of the basin looks
3 like.

4 And the district staff have gone to each of
5 these high priority areas over the last year or two and
6 sought to engage them in dialogue about the future of
7 their areas and potential enhanced management
8 alternatives.

9 One of the HPAs, as they are called in
10 Sheridan County, has been working to determine how they
11 can essentially enact systematic allocations in their
12 high priority area and working with me and my staff on
13 that.

14 And, in fact, one of the legislative items
15 that the Ogallala committee is endorsing move forward
16 would help them do that in a way that balances their
17 needs with state processes.

18 I think, with that, I will conclude my
19 report.

20 COMMISSIONER WOLFE: Thank you,
21 Commissioner.

22 At this time I think we will move on to
23 agenda Item No. 6 on federal reports. And here with the
24 Bureau of Reclamation is Aaron Thompson.

25 MR. THOMPSON: Thank you, Chairman Wolfe --

1 I am pleased to be here -- also appreciate Commissioner
2 Dunnigan and Commissioner Barfield.

3 My name is Aaron Thompson. I am here with
4 the Bureau of Reclamation. I represent the Bureau of
5 Reclamation's activities in the Nebraska, Kansas area
6 office. I serve as area manager for that region.

7 Today we are going to submit a written
8 report to the Compact Administration. I have given each
9 commissioner a copy of the report.

10 It highlights -- or it contains our 2010
11 operations. It highlights our 2011 operations through
12 August 15 of this year.

13 It also has our reservoir management
14 activities, which highlights our WaterSMART efficiency
15 grant, our WaterSMART operational system improvements,
16 and our water conservation field services program.

17 And one item that is not in the report that
18 I would like to highlight is, in October of 2010, we
19 found a safety dam issue with Red Willow Dam. We have
20 been working on a corrective action report to correct
21 the safety dam issue there at the dam.

22 Yesterday we had bid openings for the
23 repair. The expected construction time is expected to
24 last about two years, and the apparent low bid yesterday
25 was at \$15.3 million.

1 And that is all the Bureau of Reclamation
2 would like to report. If you have any questions on the
3 report, I would be happy to take them at this time or
4 send them to me at a later date.

5 COMMISSIONER WOLFE: Thank you, Aaron. I
6 appreciate that report. Any questions for Aaron?

7 COMMISSIONER BARFIELD: No.

8 COMMISSIONER DUNNIGAN: No.

9 COMMISSIONER WOLFE: Thank you.

10 I would like to also take this opportunity
11 to thank you, Aaron, for his work over the last -- this
12 past year in our efforts in terms of future operations
13 at Bonny Reservoir.

14 His staff has been very cooperative in
15 working with us in trying to address future concerns
16 about what Bonny Reservoir will be like in the event we
17 drain it down to a very low condition and concerns about
18 operational issues there.

19 So we appreciate their efforts in assisting
20 us to try and address those concerns. So thank you,
21 Aaron. I appreciate that.

22 I don't believe we have anyone here from the
23 U.S. Army Corps of Engineers. I think we did receive
24 something via e-mail from them, but in case I missed
25 anybody that may have shown up from the Corps?

1 Next we have got John Miller with the U.S.
2 Geological Survey.

3 MR. MILLER: I would like to thank everybody
4 for the opportunity to present the data that was
5 collected by the U.S. Geological Survey in the 2010
6 water year.

7 Again, I am John Miller with the U.S.
8 Geological Survey from the field office in North Platte,
9 Nebraska. I am going to give a quick report on the
10 stream flow status on many sites within the Republican
11 River Basin.

12 The first set of slides -- go ahead and
13 proceed a few slides here for the sake of time. That's
14 a handout from the back table. I hope there's a few of
15 those left. If not, we can make a couple more copies.

16 You, obviously, can't see the data there
17 very well, but with those handouts, you can look at
18 those if you can get ahold of one.

19 First, we'll go ahead and proceed. The
20 first set of slides is going to be the compact sites
21 that are operated by the U.S. Geological Survey that are
22 funded through our Anset program.

23 The first site -- for the sake of time, I'll
24 just point out the median flow -- or the mean flow for
25 the 2010 water year. The water year is from October 1

1 to September 30 for each of these sites. I will point
2 out the mean and also where it's ranging over the entire
3 years of data collection.

4 For the Arikaree River, the ranking is the
5 69th lowest year out of 78 years of data collection.
6 The mean was 3.42 -- 3.4 CFS in the 2010 water year.

7 The North Fork of the Republican River, the
8 mean for this last water year was 29.6 CFS, and it
9 ranked 65th out of 75 years of data collection.

10 The next slide is Buffalo Creek near
11 Haigler, Nebraska. The mean for this last year was
12 3.47. It ranked 65th out of 70 years of water
13 collection. That's 65th lowest. Hopefully, I am saying
14 that right.

15 The next slide is going to be Rock Creek
16 near Parks. The mean flow from last year was 7.43 CFS,
17 and it ranked 65th out of 70 years of data collection.

18 The next slide is going to be South Fork
19 near Benkelman, Nebraska. The mean flow was up actually
20 quite a bit this last year to 19.4 CFS, and it ranked
21 49th out of 73 years of data collection.

22 The next slide is Frenchman Creek near
23 Culbertson, ranking 41st out of 60 years of data
24 collection. And its mean flow this past year was
25 48.3 CFS.

1 The next slide is going to be Driftwood
2 Creek near McCook, Nebraska. And its mean flow was
3 4.73 CFS for the last year, ranking 50th out of 64 years
4 of data collection.

5 And then Red Willow Creek near Red Willow,
6 Nebraska, its mean flow is up substantially, and this is
7 due to the work that's being done on Hugh Butler Dam and
8 the releases that have been -- that are being made
9 there. Its mean flow this past water year was 59.6 CFS,
10 ranking 1st in 49 years of data collection.

11 Sappa Creek near Stamford, the mean flow was
12 30.9 CFS this last year, ranking 23rd out of 64 years of
13 data collection.

14 And I believe this is the last site that's
15 within the compact. Cortland Canal Site, the mean flow
16 this past year was 59.9 CFS, ranking 41st out of 56
17 years of data collection.

18 The next set of sites are sites that are
19 probably of interest. There's just a couple of them.
20 They are also operated by the U.S. Geological Survey.

21 The first site there is Republican River at
22 Stratton. The mean flow this past year was 56.7 CFS,
23 ranking 48th out of 60 years of data collection.

24 And the Republican River at McCook with a
25 mean flow of 71.4 CFS, ranking 45th out of 56 years of

1 data collection.

2 Then the last set of sites -- actually, one
3 more. The Republican River near Orleans ranked 25th out
4 of 63 years of data collection with an average flow of
5 229 CFS.

6 And then there's just one more set of sites
7 that are operated by the Nebraska Department of
8 Resources, DNR. We displayed their data on the web and
9 reviewed the record. It's a cooperative effort.

10 The first slide is Frenchman Creek at
11 Palisade with a mean flow of 28 CFS, ranking 53rd out of
12 60 years of data collection.

13 The final slide is the Republican River at
14 Cambridge with a mean flow this past year of 203 CFS,
15 ranking 24th out of 61 years of data collection.

16 And the final slide. Here's the contact
17 information for our management in Lincoln, Nebraska. In
18 the upper right there, all of this information that was
19 displayed and given today can be looked at in much more
20 detail at our website, in the upper right.

21 There's also just loads of historic data --
22 measurements and stream flow data -- that can be
23 accessed. If you need help getting through our website,
24 you can get hold of somebody -- Duane Curtis would be
25 the person to ask in our Lincoln office. His name isn't

1 up there, but he's the guy that can get around pretty
2 efficiently on our website there.

3 That concludes my report. If there's any
4 questions, I can address those now.

5 COMMISSIONER WOLFE: Thank you, John. Any
6 questions for John?

7 COMMISSIONER BARFIELD: You don't have Hardy
8 information?

9 MR. MILLER: I don't.

10 COMMISSIONER BARFIELD: Does Kansas maintain
11 that one?

12 MR. MILLER: That is correct.

13 COMMISSIONER BARFIELD: I would just note,
14 these variations were quite interesting, and we sort of
15 try and look at and understand as well.

16 Again, as I was noting, the range of
17 hydrologic conditions is pretty amazing, and the
18 persistence of dry trends or -- and wet trends as
19 well -- I had one of my staff assemble for the State of
20 Nebraska a precip that in 2007 every -- they have been
21 above the 84th percentile all four years.

22 So we saw a persistent pattern of water
23 use -- or low precip and now a persistent pattern of
24 good rains that I think are reflected in some of those
25 gages.

1 Again, one part of the basin and another can
2 have a lot of variability as well. So it makes it sort
3 of hard to figure out what all this means, but I
4 appreciate your report.

5 MR. MILLER: Thank you.

6 COMMISSIONER WOLFE: Thank you, John.

7 At this time I would like to have Megan
8 Sullivan, the engineering adviser for Colorado, give the
9 engineering committee report.

10 MS. SULLIVAN: Thank you, Commissioner
11 Wolfe.

12 The engineering committee and technical
13 representatives from the states of Colorado, Kansas, and
14 Nebraska participated in several collaborative work
15 assignments and phone conferences with regards to the
16 assignments from the August 12, 2010 annual meeting.
17 The following assignments and work activities were
18 completed:

- 19 1. Complete the user's manual for accounting
20 procedures and provide a resolution for its adoption.
 - 21 a) The States reviewed the 2006 draft initiated by
22 Kansas and provided comments. However, a final draft of
23 the manual was not completed. The assignment should be
24 continued on to next year.
- 25 2. Exchange by April 15, 2011 the information listed

1 in Section V of the RRCA Accounting Procedures and
2 Reporting Requirements, and other data required by that
3 document. By July 15, 2011, the States will exchange
4 any updates to these data.

5 a) Each state exchanged its model data sets by
6 April 15, 2010 or shortly thereafter. A preliminary run
7 of the RRCA groundwater model was developed by Willem
8 Schreuder of Principia Mathematica and posted on the
9 RRCA website he maintains for the administration.

10 b) The States exchanged their final data, with the
11 exception of Colorado meter data, in August of 2011.
12 Willem Schreuder of Principia Mathematica completed a
13 model run based on this data and posted the results on
14 the website.

15 c) Final accounting for 2010 was not completed.

16 d) Data sets were collected by the committee for
17 stream flow, climate information, diversion records, and
18 reservoir evaporation records of the three states in
19 cooperation with the USGS, U.S. Bureau of Reclamation,
20 and U.S. Army Corps of Engineers for 2010.

21 3. Continue efforts to resolve concerns related to
22 varying methods of estimating ground and surface water
23 irrigation recharge and return flows within the
24 Republican River Basin and related issues.

25 a) Kansas provided a copy of six articles regarding

1 irrigation efficiencies. Both Colorado and Nebraska
2 will review the reports. No additional progress has
3 been made on this assignment.

4 4. Retain Principia Mathematica to perform ongoing
5 maintenance of the groundwater model and periodic
6 updates requested by the engineering committee.

7 a) Each state separately contracted with Principia
8 Mathematica for that service.

9 5. Continue development of a five-year accounting
10 spreadsheet/database for adoption at the 2010 annual
11 meeting or earlier.

12 a) The assignment was not completed. The assignment
13 should be continued on to next year.

14 6. Continue to review Colorado's augmentation
15 proposal, as appropriate.

16 a) This proposal was the subject of arbitration. No
17 additional information was discussed by the engineering
18 committee.

19 7. Continue efforts to finalize accounting data for
20 2008 and 2009. By October 15, 2010, the engineering
21 committee will meet to discuss issues surrounding model
22 inputs and accounting data. Also by October 15, 2010,
23 Colorado will provide meter data as required under the
24 final settlement stipulation.

25 a) The engineering committee discussed this

1 assignment. However, unresolved issues subject to
2 non-binding arbitration as well as Kansas' data requests
3 continue to prevent agreement on accounting data.
4 Colorado was unable to provide final meter data.
5 Preliminary data was collected and is under review.

6 8. By October 15, 2010, the engineering committee will
7 meet to discuss issues preventing agreement on final
8 accounting for 2006 to 2009.

9 a) The engineering committee discussed this
10 assignment. Unresolved issues subject to non-binding
11 arbitration and Kansas' data requests continue to
12 prevent agreement on model results and accounting data.

13 9. Discuss water-short-year accounting for Beaver
14 Creek.

15 a) This topic was raised during arbitration and under
16 discussion outside the engineering committee. The topic
17 was not pursued by the engineering committee.

18 10. Discuss and resolve the issue of missing
19 precipitation data.

20 a) A subcommittee of groundwater modelers from each
21 state met to resolve the issue and developed a procedure
22 to fill in gaps from missing data. The recommended
23 procedure is detailed in attached Exhibit A, the report.

24 The engineering committee recommends that
25 the RRCA take specific action to accept this procedure

1 and to direct that the procedure be applicable for
2 climate data for the groundwater model for compact year
3 2008 and forward.

4 In addition to the above assignments, the
5 engineering committee discussed the following issues:

6 The first one is, due to stream bank
7 instability, the stream flow gage at Guide Rock must be
8 relocated approximately two miles downstream from its
9 present location.

10 The engineering committee recommends that
11 the RRCA recognize that the gage must be relocated and
12 to assign the engineering committee the task to develop
13 a procedure to account for inflows along the two-mile
14 stream segment between the diversion dam and the
15 relocated stream gage.

16 The next issue is, In the fall of 2010, the
17 U.S. Bureau of Reclamation conducted a sediment survey
18 on Bonny Reservoir and subsequently revised the
19 area-capacity tables for the reservoir.

20 The State of Colorado requests the
21 engineering committee discuss the application of the
22 revised area-capacity tables to current and past
23 accounting, specifically past accounting input data that
24 has not been accepted by the RRCA.

25 The third issue is, the State of Nebraska

1 recently received a petition for a variance for a
2 surface water permit. Section III.C of the final
3 settlement stipulation outlines a general procedure for
4 notification of new surface water rights so as to
5 provide the RRCA an opportunity for discussion.

6 It is anticipated that additional petitions
7 for variances will be received by Nebraska, and if such
8 variances are granted, Nebraska will send the submitted
9 applications to the other states and the Bureau of
10 Reclamation and allow the states 60 days for comment.

11 The fourth issue is, the State of Nebraska
12 requests the engineering committee discuss developing a
13 framework for submitting and reviewing future
14 augmentation plans.

15 The recommended assignments for the coming
16 year. The engineering committee recommends the RRCA
17 assign the following tasks:

18 No. 1. Finalize work on a user's manual for
19 the RRCA accounting procedures and provide a
20 recommendation to the administration for adoption at
21 next year's annual meeting or earlier.

22 No. 2. Exchange, by April 15, 2012, the
23 information listed in Section V of the RRCA Accounting
24 Procedures and Reporting Requirements and other data
25 required by that document. By July 15, 2012, the States

1 will exchange any updates to these data.

2 No. 3. Continue efforts to resolve concerns
3 related to varying methods of estimating ground and
4 surface water irrigation recharge and return flows
5 within the Republican River Basin and related issues.

6 No. 4. Retain Principia Mathematica to
7 perform ongoing maintenance of the groundwater model and
8 periodic updates requested by the engineering committee
9 for calendar year 2012.

10 The billable costs shall be limited to
11 actual costs incurred, not to exceed \$15,000 in total,
12 and will be apportioned in equal one-third amounts to
13 the states of Colorado, Kansas, and Nebraska,
14 respectively.

15 The fifth assignment is to continue
16 development of a five-year accounting spreadsheet for
17 adoption by the RRCA.

18 Next, continue to review Colorado's
19 augmentation proposal, as appropriate.

20 No. 7. Continue efforts to finalize
21 accounting data for 2008, 2009 and 2010.

22 No. 8. Continue discussion of issues
23 preventing agreement on final accounting for 2006-2010.

24 No. 9. Develop a procedure to account for
25 inflows to the stream segment between the Guide Rock

1 diversion dam and the relocated stream flow gage.

2 No. 10. Discuss the application of the
3 revised Bonny Reservoir area-capacity tables to current
4 and past accounting data.

5 No. 11. Discuss any accounting changes that
6 may be needed for surface water diversions for the
7 purpose of recharging groundwater.

8 No. 12. Discuss developing a framework for
9 an application and approval process for future
10 augmentation plans.

11 No. 13. Apply the procedure described in
12 Exhibit A of this report to fill in missing
13 precipitation data in the groundwater model for compact
14 years 2008, 2009 and 2010 and for subsequent years.

15 And the last and final, discuss archiving
16 the data and materials from the Conservation Committee
17 study.

18 Commissioner Wolfe, that is the engineering
19 committee report.

20 COMMISSIONER WOLFE: Thank you. Are there
21 any questions on the report? We will be taking action
22 on this other agenda item, No. 9.

23 Thank you for the report. And I think that
24 essentially covers 7(a), and at this time we will go to
25 agenda Item 7(b) on the report from the Conservation

1 Committee.

2 Pat Erger. I think there's a microphone
3 right there at the end of the table.

4 MR. ERGER: Good morning, Commissioners.
5 Thank you very much for having the Bureau of Reclamation
6 here to make this presentation on the Conservation
7 Committee.

8 As you all are well aware, back in 2004,
9 during the final settlement stipulation, there was a
10 plan put together to study impacts of nonfederal
11 reservoirs and land terraces on the basin water supplies
12 of the Republican River Basin.

13 I'm here today to tell you that we have
14 completed that study. And as we discussed yesterday, we
15 gave you an overview of the preliminary findings of that
16 report.

17 Dr. Derrel Martin, UNL, and Dr. Jim
18 Koelliker, KSU, made those presentations yesterday. The
19 study uses a water balance model to quantify the
20 impacts.

21 As we discussed yesterday -- and we talked
22 at great lengths about that -- and also in Megan's
23 report we talked about how to store all that data
24 generated by the study.

25 Two other important things that I would like

1 to present today and report on is that the States and
2 Reclamation have spent 100 percent of the plan's study
3 costs. Originally the study cost \$1 million. The
4 actual study cost was 1.3 million.

5 The States' combined impact services have
6 met the requirements of the final settlement stipulation
7 agreement for the final study.

8 And to date so far, four papers have been
9 completed as a result of the work directly related to
10 this study, one doctor thesis and three master's theses.
11 Additional papers are going to be prepared by
12 Dr. Koelliker and Dr. Martin.

13 And these papers will be to the American
14 Society of Agricultural and Biological Engineering
15 communities.

16 And I will be glad to answer any other
17 additional questions.

18 COMMISSIONER WOLFE: Any questions for Pat?

19 COMMISSIONER DUNNIGAN: No.

20 COMMISSIONER BARFIELD: No.

21 COMMISSIONER WOLFE: Thank you, Pat. We
22 appreciate your efforts and the report.

23 At this time we are on agenda Item 8 under
24 Old Business. Agenda Item 8(a) is the status of the
25 2006, 2007, 2008, 2009 -- and I think we should add

1 2010 -- final accounting there.

2 Again, this is not for action at this point.
3 Just to recognize that the States continue to work
4 through the engineering committee on finalization of
5 data and other information required for adoption of
6 final accounting for those years, and so that is still
7 under way.

8 And it will continue to be addressed as part
9 of the engineering committee assignments of this
10 forthcoming year.

11 Are there any comments or other questions in
12 regards to this agenda item?

13 COMMISSIONER BARFIELD: No.

14 COMMISSIONER DUNNIGAN: No.

15 COMMISSIONER WOLFE: The next agenda item is
16 8(b). I would like to turn this over to Commissioner
17 Dunnigan to introduce for the commissioners.

18 COMMISSIONER DUNNIGAN: Thank you, Chairman
19 Wolfe.

20 At last year's meeting there was discussion
21 about amending the rules and regulations to reflect the
22 actions taken at last year's RRCA meeting, specifically
23 amending Rule 14.

24 That was assigned to the engineering
25 committee, and I don't believe that was reflected in the

1 engineering committee report. So under agenda Item
2 9(a), I would make the motion to have that assigned.

3 COMMISSIONER WOLFE: Thank you,
4 Commissioner.

5 Commissioner Barfield, any comment on that?

6 COMMISSIONER BARFIELD: No.

7 COMMISSIONER WOLFE: Thank you.

8 At this time we are at agenda Item 9.
9 Before we take any final actions on that, I would like
10 to take about a 10-minute break.

11 Again, for those of you who plan to provide
12 public comment, I'd ask you, if you could, please, to go
13 to the back table where you've signed it and make sure
14 you have identified to either David Keeler or Katie
15 Radke your intention to speak so I can gather those
16 during the break and determine how much time we need to
17 allocate for that.

18 So we'll come back in about 10 minutes and
19 continue action on agenda Items 9, 10 and 11.

20 (Break was taken from 10:18 to 10:50.)

21 COMMISSIONER WOLFE: We are going to get
22 back to agenda Item 9.

23 For those of you who aren't normally
24 familiar with the Compact Administration and our process
25 and how we work throughout the year, it may appear, if

1 you are just coming to today's meeting, that we are
2 moving rather quickly through the agenda and some things
3 that seem to be very complicated subject matters have
4 been worked on over the year.

5 But we did have a work session yesterday
6 afternoon and spent several hours here with the
7 engineering committee as well as the commissioners going
8 over that information and having that discussion and
9 recommendations that would be taken for consideration
10 today.

11 So that folks understand a little bit of
12 that background, this is what we have done ad hoc this
13 morning in putting this agenda together.

14 But if you do ever have any questions about
15 any of this process or any information on here, I
16 encourage you to contact either the commissioners or the
17 engineering committee members about that. This is all
18 public information. We certainly want to make sure that
19 we have answered any questions that you have about the
20 process.

21 At this time we are going to agenda Item
22 9(a), the action on the engineering committee report and
23 assignments. And I think, before we do that,
24 Commissioner Dunnigan would like to make a motion to add
25 an assignment to that.

1 So Commissioner Dunnigan.

2 COMMISSIONER DUNNIGAN: Thank you, Chairman
3 Wolfe.

4 I would like to make a motion to add an
5 assignment to amend the rules as discussed on page 76 of
6 the transcript from last year to the engineering
7 committee assignment list.

8 COMMISSIONER BARFIELD: I would second that.

9 COMMISSIONER WOLFE: There's been a motion
10 and a second. And just for the record, Megan, will that
11 be Item No. 15 on the list?

12 MS. SULLIVAN: Yes.

13 COMMISSIONER WOLFE: That will be Item
14 No. 15 on the assignment list for the coming year. Any
15 other discussion on that motion? Hearing none, all
16 those in favor say aye.

17 COMMISSIONER DUNNIGAN: Aye.

18 COMMISSIONER BARFIELD: Aye.

19 COMMISSIONER WOLFE: Aye.

20 Motion passed.

21 Let's go ahead then and take some action on
22 the entire committee report and those assignments.

23 COMMISSIONER BARFIELD: I will go ahead. I
24 won't reread the list, but I guess I would move that we
25 assign the engineering committee the 15 items then --

1 with the addition of Brian's motion here -- that Megan
2 listed in her report, that we provide that as the
3 assignments for the next year to the engineering
4 committee.

5 COMMISSIONER DUNNIGAN: Second.

6 COMMISSIONER WOLFE: There's been a motion
7 and a second.

8 And, Commissioner Barfield, as part of that
9 motion, is it the understanding that we would be also
10 approving the entirety of the report as well, including
11 those assignments?

12 COMMISSIONER BARFIELD: We are making
13 assignments here. I guess there's always been a
14 question about whether we approve or accept the report.
15 I guess I am just moving the assignments in this motion.

16 COMMISSIONER WOLFE: I just want to be clear
17 because the agenda item said we were taking action on
18 the reports. I just want to make sure, when we act on
19 this motion, that we understand what we are acting on.

20 COMMISSIONER BARFIELD: I guess I would add
21 that we are accepting the engineering committee report
22 then in this motion.

23 COMMISSIONER WOLFE: Any other discussion on
24 agenda Item No. 9(a)? All those in favor say aye.

25 COMMISSIONER DUNNIGAN: Aye.

1 COMMISSIONER BARFIELD: Aye.

2 COMMISSIONER WOLFE: Aye.

3 Motion approved.

4 Next is agenda Item 9(b). This is in
5 regards to the action on the procedure for the missing
6 precipitation data. This was discussed by Megan as Item
7 No. 10 in the engineering committee report.

8 To accept the recommendation on using the
9 method and including that in the user manual and
10 adoption of that for the groundwater model for the years
11 2008 through 2010.

12 Would anybody like to entertain a motion on
13 that?

14 COMMISSIONER BARFIELD: I will make an
15 attempt here.

16 Yes, I would move that the Compact
17 Administration direct the engineering committee to adopt
18 the procedure that they presented to us yesterday during
19 the work session and implement that procedure for years
20 2008 and following and that they document that
21 appropriately.

22 COMMISSIONER DUNNIGAN: Second.

23 COMMISSIONER WOLFE: There's a motion and a
24 second. Any discussion? All those in favor say aye.

25 COMMISSIONER DUNNIGAN: Aye.

1 COMMISSIONER BARFIELD: Aye.

2 COMMISSIONER WOLFE: Aye.

3 Motion approved.

4 The last agenda item under 9 is 9(c), and
5 this is to take action on the relocation of Guide Rock's
6 stream flow gage. And I am going to turn it over to
7 Commissioner Dunnigan for a motion.

8 COMMISSIONER DUNNIGAN: Thank you, Chairman
9 Wolfe.

10 I would like to make a motion to approve
11 moving the Guide Rock gage from its present location to
12 a location downstream at the Highway 136 river bridge
13 just south of Guide Rock, Nebraska. I also recognize
14 the assignment relating to this issue that was given to
15 the engineering committee.

16 COMMISSIONER BARFIELD: I would second.

17 COMMISSIONER WOLFE: There's been a motion
18 and a second. Any further discussion? Hearing none,
19 all those in favor say aye.

20 COMMISSIONER DUNNIGAN: Aye.

21 COMMISSIONER BARFIELD: Aye.

22 COMMISSIONER WOLFE: Aye.

23 Motion approved.

24 And I believe that's all we had as far as
25 action items on the agenda. Was there anything else

1 that we missed? I think we have got it.

2 At this time we will move on to agenda Item
3 No. 10, remarks from the public. I would like to just
4 make a few introductory remarks before we get started.

5 We do have a microphone up here. I think I
6 have got a list of those who have signed up who want to
7 make remarks before the commissioners and the public.
8 So if we have missed your name, as we get through the
9 list, if you are still interested and want to make
10 remarks, please come forward.

11 Also, for the benefit of the stenographer,
12 when you come forward, please announce your name and
13 also, if you could spell your last name, that would be
14 helpful. We've got it written down here, but we want to
15 make sure that we get it correctly in the record.

16 And I know that there's a number of
17 individuals who have come here today to speak in regards
18 to Bonny Reservoir. And so to the extent that
19 representatives are here today, we appreciate your
20 attendance and remarks you may have on that.

21 And I think, based on the number of people
22 that I have seen identified sign up, it doesn't appear
23 that there's an attempt to have a vast number of people
24 come up to make duplicative comments regarding that, so
25 we appreciate that.

1 But to the extent you have remarks that are
2 similar to the previous speakers who've come up, we'd
3 appreciate it if you would try to limit that, just in
4 the interest of time.

5 But I would like to maybe, just before we
6 get started -- and there may be some others who want to
7 come up and speak on something other than Bonny
8 Reservoir, but we know there are some folks here that
9 want to address the commission in regards to that.

10 But I would like to just make a few
11 introductory remarks before we get started on that as
12 far as where Colorado is moving forward in regards to
13 Bonny Reservoir, briefly.

14 I am not going to go into a lot of details.
15 And certainly my staff is always available for responses
16 to questions that come up.

17 Alex Davis is here today as well on behalf
18 of the department, and she is available for answering
19 questions as well after we break after the meeting or
20 any subsequent time that you have any questions about
21 what efforts that Colorado and the Department of Natural
22 Resources is taking in terms of Bonny Reservoir and
23 Bonny State Park.

24 As you know, Parks and Wildlife is moving
25 forward with a plan to repurpose operations at the

1 reservoir site and the lands around it as part of a
2 repurposing to more of a passive recreation area from a
3 more active recreation area that's there now with the
4 boating on the lake, for example.

5 And so those efforts are under way. And I'm
6 not going to attempt to try to address all the specifics
7 that are going on.

8 Alex Davis has been one of the lead
9 representatives from the department and has attended, I
10 know, a number of meetings here in the basin in regards
11 to that, and I presume there may be still some further
12 discussion in regards to that as that process moves
13 forward.

14 It's been a long and complicated process to
15 move forward through that repurposing because there's a
16 number of entities involved in this operation of Bonny
17 State Park with federal agencies involved, state
18 agencies involved. We have got water administration
19 going on. We have got compact compliance issues that
20 are at stake as well.

21 And so it has taken a considerable amount of
22 time working over the last years to work through the
23 myriad of regulations and agreements that have been out
24 there, and I know some of you have been more involved in
25 that process than others. But we hope we have tried to

1 bring clarity to that process and the complexity that
2 there is out there in trying to repurpose that site.

3 One of the things, as the state engineer and
4 a commissioner on the Compact Administration in terms of
5 my responsibilities, is an obligation under the compact
6 to make sure that we maintain our compliance with the
7 Republican River Compact.

8 And as I reported earlier in my report this
9 morning about the efforts of the State, along with the
10 Republican District and users in the basin out here,
11 they have been difficult decisions.

12 I know that the users in the basin have
13 contributed upwards of -- in the end, when it's all said
14 and done, probably close to \$100 million of their own
15 money to implement and take actions to achieve compact
16 compliance.

17 So it's certainly been difficult and an
18 expensive proposition to go down this path, but we have
19 looked very hard at the options that have been before us
20 to reach compact compliance.

21 We have been working with the other states
22 in those efforts. And some of these decisions that have
23 been made have been very difficult and have come down to
24 choosing the best of our worst options.

25 And certainly Bonny Reservoir fits into that

1 equation. And I want to, I guess, state that it's not
2 a -- it's not an easy decision to try to afford in the
3 near term to drain water out of Bonny Reservoir to
4 achieve compact compliance.

5 And we have been trying to do this
6 thoughtfully in making sure that whatever decisions we
7 make and agreements that we reach with Kansas and
8 Nebraska, that we don't have any irrevocable processes
9 that we have set in place that would prevent us from
10 trying to keep Bonny Reservoir as a viable operation to
11 the extent we can here in the basin.

12 We know in the short term that we have got
13 to drain Bonny Reservoir to achieve compact compliance.
14 It's not an easy decision to make. We know the impacts
15 that it has on the community and the concerns that are
16 out there.

17 But I think we want folks to understand that
18 we don't know what the future holds on this, but we
19 don't want to make any of those decisions today that
20 would prevent us from -- if there's an opportunity in
21 the future that Bonny Reservoir could retain some water
22 and allow Colorado to maintain compact compliance, I
23 think it's in Colorado's interest that we try to do what
24 we can to look for those opportunities.

25 We can't guarantee anything today. We don't

1 know what the future holds on that.

2 Based on projections that we see now and the
3 uncertainty about climate change in the -- certainly in
4 the very near term in the years ahead, Bonny Reservoir
5 will have to be drained for us to achieve compact
6 compliance and to maintain that or Colorado will be
7 subject to ongoing penalties from the other states under
8 the compact.

9 So I wanted to lay that out as just a little
10 bit of the framework to help people understand what
11 Colorado has been doing in its efforts to achieve
12 compact compliance.

13 And so, with that, I would like to start
14 with our people who have come forward and who have asked
15 to speak before us today. I am not going in any
16 particular order of preference, just in terms of the
17 sheets that were handed to me.

18 And I apologize if I mispronounce your name,
19 but as you come forward, if you could state your name
20 and spell it for the record for the stenographer, we
21 would greatly appreciate that.

22 The first I have on my list here is Audrey
23 Hayes, if you could come forward. There's a microphone
24 right here on the end of the table. It should be on.
25 If not, just push the button on the bottom of it until

1 you get a digital display.

2 MS. HASE: My name is Audrey Hase,
3 A-U-D-R-E-Y, H-A-S-E.

4 Just for everyone in here, just to clarify
5 because there have been some misunderstandings to what
6 my intentions have been in regard to trying to have some
7 support for saving Bonny Reservoir.

8 I completely understand that irrigation and
9 farming drives our economy out here, and I would never
10 sacrifice -- sacrifice the irrigators to save Bonny
11 Reservoir, and no one would ever do that.

12 So I just want to be on the same page with
13 you guys to let you know that -- everyone here, we just
14 want to make it clear we are not trying to save Bonny at
15 the expense of the irrigator.

16 And we know -- we have shut about 30,000
17 acres down already, and our economy cannot accept that
18 anymore. So if we have to drain Bonny, that's what we
19 have to do to be in compact compliance.

20 So I just want to make that clear because I
21 know some of the irrigators are getting nervous about
22 what we are trying to do. We want to just save this
23 lake, if at all possible, but still be in compact
24 compliance.

25 So my question is for you, Mr. Barfield, is

1 there any way that these options that we have thrown out
2 in the last few months about maybe with this evaporation
3 issue -- Nebraska getting a certain amount, Kansas
4 getting a certain amount, and Colorado getting a certain
5 amount to put in their debit column for evaporation --
6 that we could utilize that to save Bonny or that Kansas
7 uses Bonny for storage and we share the park so that we
8 can save Bonny but yet keep us in compliance so we can
9 save the irrigation that we still have?

10 I don't want to put you on the spot. I know
11 this is an extremely complicated issue. But I think you
12 can see from the people in this room, we have a
13 reservoir here that we've had for 60 years and we do not
14 want to see it go down the tubes.

15 And we have petitions, 4500 signatures, that
16 we have got, and there are tons of Kansas signatures on
17 that, too. Your people in western Kansas are using that
18 reservoir also. So I don't want to put you on the spot,
19 but I just wanted to ask that question. Thank you.

20 COMMISSIONER WOLFE: I appreciate your
21 remarks. And I guess it's the Chair's prerogative -- I
22 understand we are in negotiations on this, but to the
23 extent Commissioner Barfield would like to respond -- I
24 don't think we are obligated to in the public remarks
25 section, but if Commissioner Barfield would like to

1 provide any comments.

2 I would like to preface, before he says
3 anything, that there have been numerous discussions
4 about these various options.

5 I don't know to what extent Mr. Barfield is
6 aware of some of the options you referred to in your
7 remarks there, but there have been a lot of options
8 looked at with Kansas in regards to operation of Bonny
9 Reservoir, and we continue to look at those and try and
10 seek the best solution there.

11 So, Commissioner Barfield, if you feel so
12 inclined to make any remarks, I will let you do that.

13 COMMISSIONER BARFIELD: I wonder if I could
14 suggest this course: Maybe hear the public comment, and
15 I will make a statement at the end, if that's okay. Let
16 me sort of hear the full extent of the comments here, if
17 that's okay.

18 COMMISSIONER WOLFE: Thank you, Ms. Hase.
19 Don Stewart.

20 MR. STEWART: I would defer. That's what
21 I wanted to say.

22 COMMISSIONER WOLFE: I think the statement
23 was, he would defer to others who are coming forward to
24 speak.

25 Lincoln Wilson.

1 MR. WILSON: I am not going to defer. I
2 love my voice.

3 Good morning. Lincoln Wilson, W-I-L-S-O-N.
4 Hale, Colorado.

5 I appreciate the opportunity to be here. A
6 couple questions specifically. I was at -- I attended
7 the Kansas governors economic summit and received good
8 information.

9 One of the issues is the replenishing of --
10 does Bonny Reservoir support the active source to
11 replenish the aquifer? Since we are in this drought
12 condition, we are in a situation that water is the life
13 blood of irrigation, and it is also a recreational
14 resource for these communities, communities being our
15 cities -- Goodland, Wray, Burlington, et cetera.

16 What steps has Colorado's compact, the
17 Republican River Compact, taken to consider maintaining
18 Bonny Reservoir or a level of Bonny Reservoir as regards
19 to its ability to replenish Colorado's aquifer?

20 And second question, what specific long-term
21 or short-term plans has the Compact come up with -- or
22 Colorado -- in regards to looking at allowing the water
23 to stay in Bonny Reservoir?

24 I have not heard any plans specifically
25 other than, We hope that it will come back. Are there

1 any specific plans? Thank you.

2 COMMISSIONER WOLFE: Thank you for your
3 comments. And, likewise, I think we will wait until we
4 hear all the speakers' remarks. There may be some
5 similarities in some of the questions and we can
6 respond. So thank you.

7 Harold Shandy. I am not quite sure I can
8 read the handwriting, but if I'm saying your name
9 incorrectly, I apologize.

10 MR. SHANDY: Hi there. My name is Harold
11 Shandy. I live over in Hale, Colorado. I am not a
12 farmer. I have never been a farmer. My background is,
13 I was a stationary engineer for just under 30 years.
14 And as such dealt with water problems and evaporation
15 and that continually.

16 The last meeting I was at was approximately
17 four years ago. And I asked the question then about
18 what amount of water that came into the state flowed
19 into the Republican and the restrictions of those flows.
20 I didn't get an answer then. I haven't got an answer
21 today.

22 It's not just about saving Bonny Reservoir.
23 It's about saving farmers all over eastern Colorado,
24 Kansas, Nebraska, and has to be dealt with as such.

25 The problem -- that I guess I have addressed

1 Colorado with -- is the flow control itself. The bridge
2 that goes over 385 for the Republican flows into the
3 reservoir area itself. Right now I doubt if I could
4 crawl under it. Thirty years ago they rode horses under
5 it. Those are drastic changes.

6 The graphs that you brought forth from 1935
7 until today showed a decline in flow. So we are making
8 our decisions on flow today. It's terrible compared to
9 then. There's no doubt.

10 But maintaining those areas are terrible.
11 And I think those things have to be addressed before any
12 further commitment of draining or change can be done.
13 We don't know what we have got to work with until that
14 happens.

15 The other thing is, I see the Corps of
16 Engineers isn't here again, but -- so my understanding
17 is that the dam at Bonny has to have or needs a
18 saturation point of 11 feet to maintain the safety of
19 the dam itself.

20 I live below Bonny. That interests me
21 greatly. If it's not going to be a safe dam, then I
22 think it needs to be removed entirely. Or at least the
23 center section to where we don't suffer a catastrophic
24 release at some point.

25 Last, but not least, is the -- I haven't

1 heard anything on health considerations as far as
2 stagnant water, mosquito abatement, those kind of
3 things. We have already got West Nile disease diagnosed
4 this summer here in Hale. That's a serious
5 consideration.

6 No one has even addressed it. I think those
7 things need to be done. That's about all for me.

8 COMMISSIONER WOLFE: Thank you, Mr. Shandy.
9 The next one on my list here is Dick Malone.
10 I am having a little difficulty reading the handwriting
11 but, hopefully, I am not butchering it that bad.

12 MR. PETTIBONE: Richard Pettibone,
13 P-E-T-T-I-B-O-N-E. Kanorado, Kansas.

14 I am a Kansan. Anyway, I was asked to give
15 my opinion as a Kansan about Bonny Reservoir and also
16 the flow.

17 I have had some excellent people ahead of me
18 addressing some claims and everything. But, as you
19 know -- maybe a lot of people don't know -- this is not
20 the only compact in the United States.

21 There are multitudes of compacts, and I
22 think a lot of them are still in progress. However,
23 Kanorado says I live on the state line, and I do farm in
24 Kanorado in Kansas and in Colorado. And the Bonny
25 Reservoir is important to people in Kansas alone, as to

1 other people.

2 And, economically -- a lot of these
3 questions have already been asked and talked about --
4 economically, the reservoir is important as is our
5 water. My water is depleting on irrigation wells on the
6 farm right now, so we have concerns.

7 Like I said, it's loss of recreation area.
8 And if I understand right, a federal law originally said
9 that recreation has priority over other water uses.

10 However, Colorado, I think, leased the
11 reservoir from the feds years ago, if I am correct on
12 that. I am not sure. So, anyway, I am just here to say
13 that we would support Kansas in our area to not drain
14 the reservoir if at all possible.

15 And probably most of this goes back to
16 foresight of a lot of our legislators in 1940. How did
17 they know the conditions that we are in today? And
18 somewhere there has to be a way to alleviate changes
19 with time.

20 Thank you.

21 COMMISSIONER WOLFE: Thank you,
22 Mr. Pettibone.

23 Sue Jarrett.

24 MS. JARRETT: Hi. My name is Sue Jarrett,
25 J-A-R-R-E-T-T. I live north of Wray, Colorado. I am a

1 rancher.

2 Many years ago I went to college and left
3 the ranch to be an accountant, and I wasn't a speaker.
4 I moved back to the ranch, and in setting a house on the
5 ranch, we uncovered a new industry coming into our
6 state, and I have become an activist and a speaker.

7 My No. 1 issue was water quality, not
8 quantity. I stood up and fought to preserve the quality
9 of our Ogallala aquifer, which is also the drinking
10 water, and we have become very involved with water
11 regulations -- the Safe Water Drinking Act, the Safe
12 Water Act, the Groundwater Act -- from the state to the
13 federal.

14 And no matter where I went -- if I went to
15 my county commissioners, they said, Oh, that's a state
16 issue. I go to my state, they say, That's a federal
17 issue. I go to the federal. They say, Go back locally.
18 So I have been all over. And I even went so far as to
19 Japan to speak on the Ogallala aquifer.

20 Now we have used the Ogallala aquifer to
21 mass produce commodities to lower the cost of
22 production. But in today's market, we are actually
23 making money raising commodities out here. But we have
24 a very valuable resource, and I am right on the edge of
25 it. Colorado, of course. Nebraska has the primary part

1 of it.

2 But we have to understand something. USDA,
3 all these federal agencies, have all kinds of reports on
4 this aquifer. And when we developed irrigation out
5 here, we took valuable farmland, and we added water to
6 it, and we made it produce more. That was great for the
7 time.

8 But we have mined that to the point, if we
9 don't seriously look at the mining of the aquifer as
10 part of this and take into account -- now I heard
11 today -- and I have to quantify. I own one irrigation
12 well. My father developed two on our ranch. It's a
13 homestead ranch.

14 I sold one, and I now own one. I have lost
15 my father. So I am the irrigator, but I'm a rancher
16 first. I run a cow-calf operation.

17 There are areas where we have mined it to
18 the point that people don't even have water for their
19 homes. They are now hiding water.

20 We have to seriously look at mandatory
21 things. We have tried to volunteer. I served on the
22 conservation board. I was one of the first chairs of
23 the Republican River repairing project at Tristate
24 trying to get volunteer things going.

25 Nobody wants to lose the value of irrigated

1 land. It's a great economic driver. But if you look at
2 the land in the region, the wells are owned by a select
3 few. Most of the people are dryland farmers. They are
4 ranchers.

5 And in Yuma County, where I live, natural
6 gas is our driving economic factor, the development of
7 it and the business of it. Irrigation isn't far behind,
8 but dryland farming and ranching is right up there, too.

9 If all the water is gone -- we still have
10 land and, without water, what are we going to do with it
11 if we don't even have water for the cities and people
12 and animals?

13 I will be blackballed again for standing up
14 and saying this, but a couple days ago there was
15 shoveling for a pipeline. That pipeline ain't far from
16 the ranch I own.

17 When I was in Japan, I became aware of a
18 group -- and there's a documentary called Blue Gold.
19 Nationally and internationally we spend millions of
20 dollars to try and get water into the ground to preserve
21 it. It's the safest, cheapest, best way to store water
22 for future use.

23 Now my state, Colorado, has determined,
24 after all these years, that there's only two ways to get
25 into compliance right now.

1 One is to take all these irrigation wells
2 and pump them into a pipeline and dump them into the
3 North Fork to meet compact compliance. And the other
4 one is to drain Bonny. I, as an individual, don't
5 support either one. I will be blackballed for saying
6 it, but I don't. It's the stupidest thing I have heard
7 of, but we are forced into doing something because three
8 states went to court and fought.

9 We hear Kansas say, We really didn't mean to
10 drag Colorado in; Nebraska was dragged in because of
11 this agreement. The point is, the compact was signed by
12 three states, and everybody wants their piece of the
13 pie.

14 Kansas -- and I used to travel to farm
15 shows. I run computers to help farmers start conserving
16 water. They have got irrigation wells and Colorado has
17 them and Nebraska has them.

18 Somewhere somebody has got to put common
19 sense into it. That's what seems sorely lacking today
20 in today's world.

21 We get paid to produce these commodities
22 with farm bills, and we say we have to have the
23 irrigation for the farms to drive the economy, which we
24 need, but everything has to be in moderation and
25 everybody has to give up a piece.

1 I watched our Republican River board that
2 was created wait forever to buy surface water to come
3 into compliance. They finally did.

4 Waited a long time to spend 49 million to
5 buy this groundwater. They still had to let the farmer
6 farm it, instead of leaving it sit there, because they
7 couldn't use historic use.

8 That's why I bring up the documentary Blue
9 Gold. Every person in this room and on this panel
10 should have to watch that documentary because we have
11 created laws that force us to do one thing that's
12 contrary to something else we are doing.

13 And we really do lack common sense in this
14 fight, in my opinion, of all three states. That's all I
15 have to say.

16 COMMISSIONER WOLFE: The last individual I
17 had signed up that wanted to make public remarks is Deb
18 Daniel.

19 MS. DANIEL: Thank you, Commissioner Wolfe.
20 My name is Deb Daniel, D-A-N-I-E-L.

21 And I think, as you can see, Commissioners,
22 by the crowd that we have here today, that I would
23 encourage all of the states to continue to have these
24 meetings within the basin where the water users are
25 being affected.

1 As you can see, there's a lot of people that
2 are interested and want to have a voice in this. And I
3 thank you, Commissioner Wolfe, for doing this for the
4 last two years.

5 And I encourage the other commissioners,
6 Commissioner Barfield and Commissioner Dunnigan, to
7 consider this when you have your next meeting. So that
8 way those of us that your decisions are affecting can
9 have a bit of a voice. So I thank you for that, and
10 that's all the comments I have today.

11 COMMISSIONER WOLFE: That's all that we had
12 signed up. Was there anybody else who intended to make
13 some remarks that did not check on the list here?

14 Yes, please come up, sir.

15 MR. PETERSON: I am Alan Peterson,
16 P-E-T-E-R-S-O-N.

17 And I just want to make a comment that, if
18 Bonny Dam is completely taken out so it's free flow --
19 the home where I was born near Guide Rock, Nebraska, was
20 full of water in 1935, and we should remember that when
21 we try to destroy it in these days. Thank you.

22 COMMISSIONER WOLFE: Thank you,
23 Mr. Peterson.

24 Anybody else? I see a hand back here.
25 Please come forward.

1 MR. MARSHALL: Thank you. My name is Russel
2 Marshall, R-U-S-S-E-L, M-A-R-S-H-A-L-L.

3 Yesterday in the coffee shop, I was invited
4 to come here. And I probably wouldn't have been here,
5 but he said, Don't stand up and say anything, but just
6 come and sit down and shut up.

7 Okay. That isn't my nature because I love
8 people around me. I love everybody. And I claim to be
9 a Jayhawker because I was born in Kansas and I lived in
10 Kansas for 60 years.

11 And I learned to water ski in Bonny Dam, and
12 I drank my share of the water out of it, but it didn't
13 lower the water level. And I appreciated it being
14 there. And I am not standing up here because of the
15 recreation of Bonny Dam even though that's extremely
16 important.

17 I stood up because I want to address the
18 point of greed and selfishness. Now if we were on a
19 teeter-totter, the one with the most weight controls the
20 teeter-totter. And that's the situation we are in
21 today, as I see it, because what they are trying to do
22 is to enforce an antique compact that was made 70 years
23 ago.

24 And those men who made it that day made a
25 good compact for that day and at that time, but they

1 couldn't foresee the future as to how things would be in
2 2011. And today here the group of us can't foresee
3 what's going to happen next year and the next.

4 There's only one person that knows the
5 future, and he has the power to control the future
6 because he makes the future. And that isn't exactly
7 what I want to talk about as much as the fact of the
8 greed and selfishness.

9 I know, in 1979 in Washington, D.C., we
10 farmers had the opportunity of expressing our viewpoint
11 in Washington, D.C. to the Congressional agriculture
12 committee in Washington, D.C., and there were about
13 30,000 of us farmers that had an issue of economic
14 survival.

15 And I had the opportunity of speaking for an
16 hour to the agriculture committee and telling them of
17 our problem. And there was a crowd. The meeting room
18 had a lot of people in it, all American ag people. And
19 a lot of people agreed with them. A lot of them didn't.
20 But the final bottom line is, what is right?

21 And the majority of us as human beings have
22 an amount of selfishness, and that's what it is. It's
23 greed and selfishness. We know that. That's the way
24 humanity is made. Okay.

25 But we can control that by choices we make.

1 And I see that there's a lot of things about this
2 compact that I don't know, and I maybe need to know the
3 details a little more before I stand up and talk.

4 But I do know that whenever an agreement or
5 a compact is made between two people, as long as they
6 are both alive, they can adjust that compact according
7 to the condition of today. Because the ones that made
8 this compact over 70 years ago didn't know what the
9 conditions would be in Burlington, in this area, in
10 2011.

11 So I would like to suggest that using common
12 sense -- the people who are appointed or elected to the
13 power of authority to change this compact and make it
14 fit the situation we are in today use common sense in
15 doing it.

16 To me, I couldn't see common sense in
17 picking water up out of the ground and pour it down a
18 pipe and go dump it into a sandpit, and it goes back
19 down to where you pumped it out of. And spend millions
20 of dollars doing it. Well, it doesn't make sense to do
21 that. It's not common sense.

22 I don't have much longer to live in this old
23 world. Another 20 years and I will probably be gone.
24 But I am thinking about, if time should continue lasting
25 longer, your children and grandchildren are going to be

1 involved in the decisions we make today, and I hope that
2 I can encourage each one of you who are in the power of
3 authority to consider whether it's common sense.

4 I know that, if I were in your position,
5 that I would probably do as you are doing, which is
6 following the orders of those who are up higher.
7 Because if I don't do that, I am going to lose my job,
8 and we all need a paycheck.

9 And I believe that's about all I have to
10 say, but I encourage you to really give consideration if
11 there's any possible way that you can put this compact
12 on pause.

13 I just now happen to think, what's going to
14 happen to this water -- when they open the gates here
15 the 1st of September, how is that going to benefit the
16 state of Kansas? Are they going to use it for
17 irrigation at the time that the farming season is over?

18 Maybe it could be postponed that they don't
19 drain the water until farming season if they are going
20 to use it for irrigation.

21 Well, I think I have said enough and maybe
22 too much, but I appreciate the privilege of standing up
23 here and saying what I believe. In making all these
24 decisions, I hope you will consider greed and
25 selfishness and do the right thing.

1 COMMISSIONER WOLFE: All right. Is there
2 anybody else before we close this portion of the
3 meeting?

4 All right. Maybe I will just take a couple
5 of minutes just to maybe respond in general to some of
6 the statements that I heard, and I will allow the
7 opportunity if Commissioners Barfield or Dunnigan want
8 to respond.

9 I think people have got to recognize, too --
10 and I think some of the comments here about those who
11 preceded us -- and I have a lot of faith in those who
12 preceded us that they made decisions to the best of
13 their abilities when they were deciding upon the compact
14 and all the actions that have taken place up to this
15 point in time.

16 I have known some of those individuals. I
17 have high regard for them. A lot of those people are
18 representatives from this basin out here, and I think
19 all of the actions that have gotten us to where we are
20 today are based on the will of the people in the basin
21 and those they have elected to serve them and represent
22 them here.

23 It's not only us as commissioners on this
24 board. There's local groundwater boards. There's
25 legislative people, and there's federal people in there.

1 There's a lot of actions that have taken place to get us
2 to this point.

3 And I think I can speak on behalf of the
4 commissioners here, in working with Commissioners
5 Barfield and Dunnigan, that they, I believe, have tried
6 to bring as much ability to this decision-making process
7 and common sense, recognizing and taking input along the
8 way from everybody who's impacted by this.

9 And, again, as I indicated, they're not easy
10 decisions. There's a lot of complicated issues that
11 have to be decided as we work through this process, but
12 I have high regard for these individuals that have been
13 working on this process for decades.

14 And I think they've put a lot of heart and
15 soul into the decisions they have made to get us to this
16 point. And this is not the end. As we have talked
17 about, these are decisions that face us at this point at
18 this temporary time that we all have here and trying to
19 move forward into the future.

20 And I think we are continuing to make as
21 good decisions as we can based on what we know today.

22 As you have indicated -- somebody spoke
23 about, we can't predict the future, but we can try to
24 make decisions today to help create the future, and
25 that's what we are trying to do in making these

1 decisions we are working on.

2 We have not answered all the questions. We
3 have made statements before about the needs of the
4 people here in the basin, of what they want to do into
5 the future in terms of recognizing there is a mining of
6 the aquifer going on. What do you want for the future
7 of this basin?

8 And we are going to continue those efforts.
9 I will, as state engineer and commissioner on this
10 administration, continue to work with the constituents
11 in this basin beyond today in trying to answer those
12 questions.

13 Some of the questions that have come up I
14 know have been looked into. Somebody raised the
15 question -- I think Mr. Shandy -- about, is Bonny
16 Reservoir safe? Yes, we know it to be safe.

17 We have worked with the Bureau. We've had
18 our own dam safety engineers look at this. We do not
19 have any concerns about lowering the water level in
20 Bonny Reservoir and no concerns that it may pose a risk
21 to downstream people that live in that pathway.

22 It was built there as a flood protection
23 facility, and we do not have any concerns on that. We
24 have looked at that.

25 I know there's people -- he also raised an

1 issue about the health issues. I know that's part of
2 some of the stuff that the department and state looks at
3 with the users here in the basin as well to address
4 those concerns.

5 These are ongoing things that we deal with,
6 not at Bonny Reservoir, but at over 3000 reservoirs that
7 we have in the state. We regularly have these kind of
8 issues come up at all these sites.

9 Many of these reservoirs are drained
10 regularly for irrigation purposes and other purposes, so
11 it's not an unknown realm that we live in in dealing
12 with those issues.

13 So we are going to continue to work with all
14 those stakeholders who are impacted by those issues that
15 you have concerns about.

16 I think Mr. Wilson had brought up questions
17 about options we have looked at in terms of keeping
18 water in Bonny Reservoir.

19 Yes, we have looked at all the options that
20 have been presented to us. And not only that we have
21 talked about in our negotiations but that constituents
22 of the basin have brought forward to us. We have been
23 talking about those over the last few years.

24 And I'd be happy, outside the context of
25 this meeting, to sit down and talk in more detail about

1 those.

2 You raised issues about whether these
3 releases out of Bonny Reservoir help to sustain the
4 aquifer. Yes, they do. We have seen it by the
5 increased stream flow that we have seen over the last
6 few years.

7 You saw the presentation by the USGS. We
8 have seen it by recording these releases, monitoring
9 those, and to the extent these recharge the aquifer and
10 make it down to Benkelman, we see a real effect of these
11 releases that are out there. They are known.

12 And we have got to recognize this
13 interaction between the surface water and groundwater
14 system that's out there that everybody relies on, not
15 only for irrigation purposes, but for municipal and
16 domestic purposes, we recognize those needs that are out
17 there.

18 I think that's, I guess, in trying to
19 respond to the notes I took in terms of some of the
20 comments that were made. I wanted to make those
21 remarks.

22 Commission Barfield, I don't know if you had
23 any remarks that you want to make as well.

24 COMMISSIONER BARFIELD: Yes, certainly, I
25 will.

1 I appreciate you all coming and voicing your
2 concerns. I am certainly aware very generally of all
3 those concerns and recognize the passion you all have
4 for them.

5 Common sense is not always a simple thing.
6 This is a complicated situation. As I was talking about
7 with the Ogallala summit, there was also a reference --
8 we have our places as well.

9 We are in a situation we find ourselves in
10 that cannot be sustained and difficult choices have to
11 be made and intelligent choices have to be made in terms
12 of how we can sustain as much as possible in terms of
13 the benefits of the aquifers and natural resources that
14 we can. But those choices are not easy.

15 As Kansas commissioner to the Republican
16 Compact, it's my duty to make sure we fulfill our
17 obligations, and it is my duty to preserve our
18 entitlements under the compact.

19 I don't believe the compact is antiquated.
20 It's a fairly simple document on its part. It
21 essentially is an allocation of the basin's water
22 supply, and it informs each of the states how much of
23 the water supply they can develop and not get in the way
24 of the other states developing their equitable share.
25 That's, in essence, what it is.

1 And to renegotiate it is to say, We are
2 going to give this piece of the pie to this other party,
3 and that's not an easy place to go to.

4 So I commend Dick. He's working hard to
5 figure out, how can Colorado get the most benefit from
6 its piece of the pie.

7 Kansas has not required or asked Colorado to
8 take any specific action to get into compliance. We
9 aren't requiring that, so we haven't asked them to drain
10 Bonny, but we have insisted that they figure out a way
11 to deliver their share so that Kansas can enjoy the
12 benefits of its portion of the basin's water supply.

13 So that's sort of the dynamic that is
14 forcing the State of Colorado to have its dialogue with
15 you all to figure out how best to move forward.

16 Colorado in the South Fork is using its
17 share and part of our share. And, again, this channel
18 is to figure out how to move forward.

19 So we will continue to work with them.
20 There actually has been a tremendous amount of
21 dialogue, so we want to afford Colorado the
22 flexibility that it has within the compact. We just
23 have to insist that they stay within their share so
24 that we can enjoy our portion.

25 Bonny is -- the inflows into Bonny are in

1 significant decline. I think those of you who are
2 aware, in the early '90s and before, it was a stable
3 resource that you all enjoyed.

4 And since the late '90s, it's seen a
5 significant decline, and that decline is rooted in the
6 depletion of the inflows that are occurring above it,
7 both predominantly to the base flow that comes out of
8 the Ogallala and some is reduction in runoff.

9 And, again, I think you have a resource
10 that's been very valuable and may continue to have a
11 role here, but there's some realities, I think, that
12 have to be faced.

13 And I am confident that Dick and all of the
14 partners here in Colorado will figure out the best way
15 to accomplish it, just as we have to figure out how to
16 deal with our challenges. So, with that, I will stop.

17 COMMISSIONER WOLFE: Thank you,
18 Commissioner.

19 Commissioner Dunnigan, do you have anything?
20 It sounds like you weren't directly implicated in this,
21 but --

22 COMMISSIONER DUNNIGAN: I really don't have
23 any comments. My commitment on behalf of the state of
24 Nebraska is to work very hard with Colorado and Kansas
25 on this compact and find the solutions that we can find.

1 COMMISSIONER WOLFE: Thank you. And I
2 agree.

3 And if it wasn't stated, I think we all
4 recognize our roles as commissioners in the compact that
5 we have here.

6 I think the compact was set up with an
7 understanding that it recognized the needs in the basin
8 and the available water supply and provided the
9 framework through this commission into the future to
10 address these issues as they come up.

11 One of the fortunate things, I think, we
12 have is the ability to meet like this as professionals
13 in trying to address these complicated issues, but we
14 recognize through our ultimate role as compact
15 commissioners that the compact is there and approved by
16 the United States. It's mandatory and it's not
17 discretionary.

18 So we have a fulfillment under that compact
19 that we are all trying to reach in recognizing all the
20 needs in the basin.

21 So we do appreciate the input. We want to
22 continue to hear from you beyond today in how we can
23 continue to move forward to address all of the needs
24 within the basin. So we appreciate your attention and
25 time here today and hope you have safe travels back to

1 where your home is.

2 At this time I think we will address agenda
3 Item No. 11 about future meeting arrangements. It's my
4 understanding that the next commission meeting will be
5 in Kansas. And I will turn it over to Commissioner
6 Barfield, and if he has any prearrangement information
7 for us, he can tell us at this time.

8 COMMISSIONER BARFIELD: Well, Kansas will
9 host the next two annual meetings, and we
10 traditionally -- well, I plan to have one in the upper
11 basin in Kansas, in northwest Kansas, and one of those
12 two meetings in the lower basin.

13 I am expecting to have next year's annual
14 meeting in the lower basin and likely in Junction City,
15 but I haven't made any final decisions but intend to
16 make those decisions in the coming weeks or months.

17 I don't know if we want to pick a date for
18 that meeting -- a tentative date for the meeting or just
19 save that for the future.

20 COMMISSIONER WOLFE: I think we typically
21 try to coordinate that at a later date, but I think we
22 have run into this issue before, I think, that it does
23 require that we hold it before August. Is that normally
24 the case?

25 COMMISSIONER BARFIELD: Yeah. We are

1 required to hold it before the end of July unless we
2 agree otherwise. And so it will be either the end of
3 July, most likely, or the first part of August if we
4 reach agreement.

5 COMMISSIONER WOLFE: I just know, when we
6 made attempts to set up here, we had to find
7 arrangements and everything.

8 So once you find a location and some dates
9 that you think would work, if you could just contact us
10 and we will set that time. We should be able to make
11 that work. Just so the folks know here, it should be in
12 the July, August time frame of next year.

13 And before I forget on that point, too, any
14 other future actions that may come before this
15 commission, like approval of the compact compliance
16 pipeline, does not have to wait until that future annual
17 meeting date.

18 We anticipate, once we reach a verbal
19 agreement on that, that our proposal would be to call a
20 special meeting of this body to take formal action on
21 that or any other action that comes before us then that
22 we have identified in this agenda here today.

23 So the folks know that we don't have to wait
24 an entire year to take action on items before the
25 commissioners.

1 COMMISSIONER BARFIELD: That's correct. I
2 appreciate your hosting the meeting, and thank you.

3 COMMISSIONER WOLFE: Thank you.

4 Commissioner Dunnigan, do you have anything
5 in regards to the meeting date?

6 COMMISSIONER DUNNIGAN: No.

7 COMMISSIONER WOLFE: At this time I would
8 entertain a motion to adjourn.

9 COMMISSIONER DUNNIGAN: So moved.

10 COMMISSIONER BARFIELD: Second.

11 COMMISSIONER WOLFE: There's a motion and a
12 second. All those in favor, say aye.

13 COMMISSIONER DUNNIGAN: Aye.

14 COMMISSIONER BARFIELD: Aye.

15 COMMISSIONER WOLFE: Aye.

16 We are adjourned. Thank you.

17 (WHEREUPON, the meeting concluded at 11:44 a.m.)

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1 STATE OF COLORADO)

2) SS. REPORTER'S CERTIFICATE

3 COUNTY OF DENVER)

4 I, Denise A. Freeman, do hereby certify
5 that I am a Registered Professional Reporter and
6 Notary Public within the state of Colorado.

7 I further certify that this meeting was
8 taken in shorthand by me at the time and place herein
9 set forth and was thereafter reduced to typewritten
10 form, and that the foregoing constitutes a true and
11 correct transcript.

12 In witness whereof, I have affixed my
13 signature this 12th day of September, 2011.

14

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Denise A. Freeman
Registered Professional Reporter
and Notary Public

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4 September 12, 2011

5 MEGAN A. SULLIVAN, P.E.
Division of Water Resources
6 Department of Natural Resources
1313 Sherman Street, Room 818
7 Denver, Colorado 80203

8 Caption: 51st Annual Meeting of the Republican River
Compact Administration, August 31, 2011
9

10 Dear Ms. Sullivan:

11 Enclosed is the transcript of the 51st Annual Meeting of
the Republican River Compact Administration held
12 August 31, 2011:

13 _____ Previously filed. Forwarding signature page
and amendment sheet(s).

14 _____ Signed, no changes.

15 _____ Signed, with changes, copy of which is enclosed.

16 X No signature required.

17 _____ Signature waived.

18 _____ Forwarding original transcript unsigned;
19 signature page and/or amendments will be forwarded,
if received.

20 _____ Original exhibits included in ongoing notebook
21 and will be filed with counsel at conclusion of
discovery.
22
23
24
25

2010 NEBRASKA REPORT
for the
Republican River Compact Administration
August 31, 2011

The State of Nebraska is in compliance with the Republican River Compact. Using current accounting procedures, Nebraska has had positive balances during 2007, 2008, 2009 and 2010 which has led to compliance with the five year average. Based on preliminary estimates, Nebraska will again be in compliance for the five-year period ending in 2011.

In the future, Nebraska will continue to remain in compliance with the Republican River Compact. The Upper Republican, Middle Republican, and most recently the Lower Republican Natural Resources District boards have all voted to adopt a third generation of integrated management plans. These plans were modified from the previous version to address concerns of water-short year compliance brought up during the 2008 arbitration. These plans also further solidify Nebraska's long-term commitment to Compact compliance.

The basin NRDs have demonstrated an on-going commitment to compliance through the adoption of this third generation integrated management plan. All of the integrated management plans adopted by the basin NRDs contain controls that would require, when necessary, the shutdown of wells in rapid response areas during water-short years as part of compliance efforts as well as provisions to administer streamflows in a manner that will ensure Nebraska maintains compliance. The integrated management plans also contain provisions to continue to reduce groundwater pumping volumes and conduct evaluations annually to determine if additional long-term pumping adjustments are necessary.

The updated integrated management plans incorporate complex forecasting and triggers that rely on conservative dry-year projections to proactively identify the potential for non-compliance, thereby providing the necessary information to proactively reduce consumption to levels necessary to ensure Compact compliance. These triggers go well beyond the requirements imposed by the Compact and FSS because Nebraska knows that future non-compliance is not an option. Nebraska understands that Kansas may have concerns about the implementation of these most recent integrated management plans and would once again invite constructive dialog through the Engineering Committee to discuss any such concerns.

The Department also continues to work with the Tri-Basin NRD to finalize an integrated management plan. While not a necessary component to ensure Compact compliance, this plan will among other objectives, require the NRD to limit groundwater depletions to the same volume as groundwater imports.

The Republican River Sustainability Task Force continues to meet. The purpose of the 27 member Republican River Basin Water Sustainability Task Force is to define water sustainability for the Republican River Basin, develop and recommend a plan to help reach

water sustainability in the basin, and develop and recommend a plan to help avoid a Water-Short Year in the basin. The Task Force will be working to summarize their efforts in a report to the legislature.

Nebraska continues to invest in long-term solutions to reduce consumptive use in the basin. State and local NRD financial resources continue to be invested in CREP and AWEP programs. These programs have worked to provide permanent and temporary reductions in irrigated lands throughout the basin. Nebraska also continues to invest in the science necessary to support future sound management decisions. This work has included: 1) the development of a wide array of management tools; 2) specific evaluations of augmentation sites throughout the basin; and 3) the evaluation of riparian vegetation on water supplies, just to name a few.

The department is also pursuing efforts in coordination with the Nebraska Republican River Management Districts Association to develop modeling tools to support the evaluation of potential conjunctive management options throughout the basin. The Department continues to be open to working with the other states through the Water SMART Basin Studies program to develop these tools, and believes that such collaboration is called for pursuant to section IV.E. of the Final Settlement Stipulation.

In closing, I reiterate that Nebraska will continue to comply with the Republican River Compact. The State will continue to proactively evaluate the basin and make the necessary changes to remain in compliance. We will continue to work with all stakeholders in the basin, including the other states, the NRDs, the surface water districts and individual users, and the Bureau of Reclamation.

**REPORT OF WATER ADMINISTRATION ACTIVITIES FOR THE REPUBLICAN
RIVER BASIN IN NEBRASKA FOR THE CALENDAR YEAR 2010**

January 19, 2010

Letters were sent to irrigators reminding them that 2009 Water Use Reports must be filed in the Cambridge Field Office.

February 16, 2010

Fifteen (15) closing notices were issued to water users that failed to submit their required annual Water Use Reports, which were to be filed by December 31 of each year. These water users were not allowed to divert water during the 2010 calendar year.

May 17, 2010

One (1) regulating notice was sent to Riverside Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

June 28, 2010

Six (6) regulating notices were sent to water users above Meeker-Driftwood Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

June 28, 2010

Thirty-eight (38) closing notices were issued to water users above Meeker-Driftwood Canal, notifying them that they shall not divert water until further notice.

July 7, 2010

One (1) Notice (Pumping schedule) was sent to a water user notifying them of the amount they could legally divert.

July 16, 2010

One (1) regulating notice was sent to Riverside Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

July 19, 2010

One (1) Notice (Pumping schedule) was sent to a water user notifying them of the amount they could legally divert.

August 2, 2010

One (1) regulating notice was sent to Riverside Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

Aug 2, 2010

Thirty-seven (37) open/regulating notices were issued to water users above Meeker-Driftwood Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

Aug 2, 2010

Six (6) Regulating notices were issued to water users above Meeker-Driftwood Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

Aug 2, 2010

Two (2) Notices (Pumping schedule) were sent to water users notifying them of the amount they could legally divert.

Aug 3, 2010

One-hundred five (105) closing notices were issued to water users above Cambridge Canal, notifying them that they shall not divert water until further notice.

August 3, 2010

Thirty nine (39) regulating notices were sent to water users above Cambridge Canal, notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

August 4, 2010

One (1) Notice (Pumping schedule) was sent to a water user notifying them of the amount they could legally divert.

August 8, 2010

Twenty nine (29) closing notices were issued to water users above Meeker Driftwood Canal notifying them that they shall not divert water until further notice.

Aug 9, 2010

Fifty eight (58) open/regulating notices were sent to water users above Cambridge Canal, notifying them that they were not allowed to divert water in excess of the amount given of their appropriation without prior consent.

August 9, 2010

Four (4) regulating notices were sent to Frenchman Cambridge and Frenchman Valley-H&RW Irrigation Districts, notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

August 13, 2010

Two (2) regulating notices were sent to Frenchman Cambridge Irrigation District notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

August 23, 2010

Eight (8) closing notices were issued to water users above Meeker Driftwood canal notifying them that they shall not divert water until further notice.

August 23, 2010

One (1) regulating notice was sent to Frenchman Cambridge Irrigation District notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

August 26, 2010

One water appropriation was cancelled above Swanson Reservoir.

September 3, 2010

Thirty-seven (37) opening/regulating notices were issued to water users above Meeker-Driftwood Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

September 3, 2010

Six (6) regulating notices were sent to water users above Meeker-Driftwood Canal, notifying them that they were not allowed to divert water in excess of the amount given of their appropriation without prior consent.

November 1, 2010

Ten (10) Opening notices were sent to reservoirs notifying them that they may store water.

December 2010

Mailed water user reports to water appropriations in the Republican River Basin. These are to be filed in the Cambridge Field Office by December 31 of each year.

2011 NEBRASKA REPORT
for the
Republican River Compact Administration
October 16, 2012

The State of Nebraska is in compliance with the Republican River Compact. Using current accounting procedures, Nebraska has had positive balances during 2007, 2008, 2009, 2010 and 2011 which has led to compliance with the five year average. Based on preliminary estimates, Nebraska will again be in compliance for the five-year period ending in 2012.

That said, 2012 saw drought conditions once again creep into the basin. Such conditions will obviously place stress on the basins water supplies. However, any concerns that may have carried over from the basins last drought about Nebraska's ability to comply with the Compact should not exist. Nebraska has taken significant steps to bolster its water management including the development of third generation integrated management plans which contain forecasting provisions and accompanying controls that ensure Nebraska will be able to take sufficient actions in a timely manner.

These forecasting procedures are a significant advancement over what was available to Nebraska during the previous drought. These procedures incorporate detailed analyses and triggers that rely on conservative dry-year projections to proactively identify the potential for non-compliance, thereby providing the necessary information to proactively reduce consumption to levels necessary to ensure Compact compliance. These triggers go well beyond the requirements imposed by the Compact and Final Settlement Stipulation (FSS) because Nebraska knows that future non-compliance is not an option.

Nebraska also understands that it must continue to manage long-term groundwater depletions and has made consistent efforts to achieve this result. Aside from the forecasting provisions, the most recent integrated management plans also contain provisions to continue to reduce groundwater pumping volumes and conduct evaluations annually to determine if additional long-term pumping adjustments are necessary.

The basin NRDs continue to demonstrate an on-going commitment to compliance through the adoption of their rules to support the full implementation of their most recent integrated management plans. All of the integrated management plans adopted by the basin NRDs contain controls that would require, when necessary, the shutdown of wells in rapid response areas during Compact Call years as part of compliance efforts as well as provisions to administer streamflows in a manner that will ensure Nebraska maintains compliance.

The Department and Tri-Basin NRD also finalized their integrated management plan which became effective on July 1, 2012. While not a necessary component to ensure Compact compliance, this plan will among other objectives, require the NRD to limit groundwater depletions to the same volume as groundwater imports.

Nebraska continues to invest in long-term solutions to reduce consumptive use in the basin. State and local NRD financial resources continue to be invested in CREP and AWEP programs. These programs have worked to provide permanent and temporary reductions in irrigated lands throughout the basin.

Nebraska also continues to invest in the science necessary to support future sound

management decisions. The Department has been pursuing efforts in coordination with the Nebraska Republican River Management Districts Association to develop modeling tools to support the evaluation of potential conjunctive management options throughout the basin. The Department looks forward to the opportunity to work with the other states through the WaterSMART Basin Studies program to utilize these tools, and believes that such collaboration to evaluate system improvements and operational improvements are critical as recognized in section IV.E. of the Final Settlement Stipulation.

In closing, I reiterate that Nebraska will continue to comply with the Republican River Compact. The State will continue to proactively evaluate the conditions within the basin and make the necessary adjustments to remain in compliance. We will continue to work with all stakeholders in the basin, including the other states, the NRDs, the Bureau of Reclamation, and water users as we look to enhance our management efforts into the future.

REPORT OF WATER ADMINISTRATION ACTIVITIES FOR THE REPUBLICAN RIVER BASIN IN NEBRASKA FOR THE CALENDAR YEAR 2011

January 19, 2011

Letters were sent to all non-federal irrigators reminding them that the 2010 Water Use Reports must be filed with the Cambridge Field Office or they would be closed to irrigation in 2011.

February 28, 2011

Seventeen (17) closing notices were issued to irrigators that failed to submit their required annual Water Use Reports. These water users were not allowed to divert water during the 2011 calendar year.

February 28, 2011

Thirty-eight (38) opening notices were issued to storage permits that had previously been closed.

February 28, 2011

Eleven (11) opening notices were issued to irrigators that were closed due to failing to return a 2009 Water Use Report.

May 17, 2011

Nine hundred thirty-seven (937) regulating notices were sent to irrigators in the Republican River Basin notifying them of the amount of water they could legally divert.

June 1, 2011

One (1) notice (pumping schedule) was sent to an irrigator notifying them of the amount they could legally divert.

June 28, 2011

Three (3) regulating notices were sent to water users above Meeker-Driftwood Canal notifying them that they were not allowed to divert water in excess of the amount of their appropriation without prior consent.

June 28, 2011

Twenty-Four (24) closing notices were issued to water users above Meeker-Driftwood Canal notifying them to not divert water until further notice.

July 20, 2011

Nine (9) closing notices were issued to water users above Meeker-Driftwood Canal notifying them to not divert water until further notice.

August 4, 2011

Thirty-three (33) opening notices were issued to water users above Meeker-Driftwood Canal notifying them that they were now allowed to divert water within their permitted amounts.

August 4, 2011

One (1) regulating notice was sent to an irrigator notifying them of the amount they could legally divert.

September 12, 2011

Twenty-two (22) closing notices were sent to storage permit holders in the Republican Basin.

December 1, 2011

Water Use Reports were mailed to all non-federal irrigation permits in the Republican River Basin.

Engineering Committee Report

Republican River Compact Administration

August 31, 2011

ASSIGNMENTS

At the August 12, 2010 Annual Meeting of the Republican River Compact Administration, the Commissioners assigned the Engineering Committee the following tasks:

1. Finalize work on a user's manual for the RRCA Accounting Procedures and provide a recommendation to the Administration for adoption at next year's annual meeting or earlier.
2. Exchange by April 15, 2011 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2011 the states will exchange any updates to these data.
3. Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.
4. Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee for calendar year 2011. The billable costs shall be limited to actual costs incurred, not to exceed \$15,000 in total and will be apportioned in equal 1/3 amounts to the States of Colorado, Kansas, and Nebraska respectively.
5. Continue development of a five-year accounting spreadsheet/database for adoption at the 2011 annual meeting or earlier.
6. Continue to review Colorado's augmentation proposal, as appropriate.
7. Continue efforts to finalize accounting for 2008 and 2009. By October 15, 2010, the Engineering Committee will meet to discuss issues surrounding model inputs and accounting data. Also, by October 15, 2010 Colorado will provide meter data as required under the FSS.
8. By October 15, 2010, the Engineering Committee will meet to discuss issues preventing agreement on final accounting for 2006-2009.
9. Discuss Water Short Year accounting for Beaver Creek.
10. Discuss and resolve the issue of missing precipitation data.

WORK ACTIVITIES RELATED TO THESE ASSIGNMENTS AND OTHER ISSUES

The Engineering Committee and technical representatives from the States of Colorado, Kansas, and Nebraska participated in several collaborative work activities and phone conferences and the following assignments and work activities were completed:

1. **Complete the user's manual for accounting procedures and provide a resolution for its adoption.**
 - a) The States reviewed the 2006 draft initiated by Kansas and provided comments. However, a final draft of the manual was not completed; the assignment should be continued next year.
2. **Exchange by April 15, 2011 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2011 the states will exchange any updates to these data.**
 - a) Each state exchanged its model data sets by April 15, 2010 or shortly thereafter. A preliminary run of the RRCA groundwater model was developed by Willem Schreuder of Principia Mathematica and posted on the RRCA web site he maintains for the Administration.
 - b) The States exchanged their available final data in August of 2011. Willem Schreuder of Principia Mathematica completed a model run based on this data and posted the results on the RRCA web site.
 - c) Final accounting for 2010 was not completed.
 - d) Data sets were collected by the Committee for stream flow, climate information, diversion records, and reservoir evaporation records of the three states in cooperation with the U.S. Geological Survey, U.S. Bureau of Reclamation, and U.S. Army Corps of Engineers for 2010.
3. **Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.**
 - a) Kansas provided a copy of the *Corn Yield Response to Deficit Irrigation* report by Kansas State University. Both Colorado and Nebraska will review the report. No additional progress has been made on this assignment.
4. **Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee.**
 - a) Each state separately contracted with Principia Mathematica.
5. **Continue development of a five-year accounting spreadsheet/database for adoption at the 2010 annual meeting or earlier.**
 - a) The assignment was not completed; the assignment should be continued next year.
6. **Continue to review Colorado's augmentation proposal, as appropriate.**

- a) Proposal was the subject of arbitration. No additional information was discussed by the Engineering Committee.
- 7. **Continue efforts to finalize accounting for 2008 and 2009. By October 15, 2010, the Engineering Committee will meet to discuss issues surrounding model inputs and accounting data. Also, by October 15, 2010 Colorado will provide meter data as required under the FSS.**
 - a) The Engineering Committee discussed this assignment. Unresolved issues subject to non-binding arbitration as well as Kansas' data requests continue to prevent agreement on accounting data. Colorado was unable to provide final meter data. Preliminary data was collected and is under review.
- 8. **By October 15, 2010, the Engineering Committee will meet to discuss issues preventing agreement on final accounting for 2006-2009.**
 - a) The Engineering Committee discussed this assignment. Unresolved issues subject to non-binding arbitration and Kansas' data requests continue to prevent agreement on model results and accounting data.
- 9. **Discuss Water Short Year accounting for Beaver Creek.**
 - a) Topic was raised during arbitration and under discussion outside the Engineering Committee. Topic was not pursued by the Engineering Committee
- 10. **Discuss and resolve the issue of missing precipitation data.**
 - a) A subcommittee of ground water modelers from each state met to resolve the issue. The subcommittee will provide the Engineering Committee with a recommended procedure to fill gaps from missing data.

RECOMMENDED ASSIGNMENTS FOR THE COMING YEAR

The Engineering Committee recommends the Republican River Compact Administration assign the following tasks:

- 11. Finalize work on a user's manual for the RRCA Accounting Procedures and provide a recommendation to the Administration for adoption at next year's annual meeting or earlier.
- 12. Exchange by April 15, 2012 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2012 the states will exchange any updates to these data.
- 13. Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.
- 14. Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee for calendar year 2012. The billable costs shall be limited to actual costs incurred, not to exceed \$15,000 in

total and will be apportioned in equal 1/3 amounts to the States of Colorado, Kansas, and Nebraska respectively.

15. Continue development of a five-year accounting spreadsheet/database for adoption by the RRCA.
16. Continue to review Colorado's augmentation proposal, as appropriate.
17. Continue efforts to finalize accounting for 2008 and 2009.
18. Continue discussion of issues preventing agreement on final accounting for 2006-2009.

The Engineering Committee Report and the exchanged data will be posted on the web at www.republicanrivercompact.org.

Attachments

- A) Revised Republican River Compact Administration Accounting Procedures and Reporting Requirements
- B) Proposal to move the North Fork Accounting Point

SIGNED BY

Megan A. Sullivan
Engineer Committee Member for Colorado

Scott E. Ross
Engineer Committee Member for Kansas

James Schneider
Engineer Committee Member for Nebraska

Engineering Committee Report

Republican River Compact Administration

October 16, 2012

COMMITTEE ASSIGNMENTS AND WORK ACTIVITIES RELATED TO THESE ASSIGNMENTS

The Engineering Committee and technical representatives from the States of Colorado, Kansas, and Nebraska participated in several collaborative work activities and phone conferences and the following assignments and work activities were completed:

1. Finalize work on a user's manual for the RRCA Accounting Procedures and provide a recommendation to the Administration for adoption at next year's annual meeting or earlier.
 - a. The status of this assignment is that Kansas provided their initial thoughts on the user's manual to Colorado and Nebraska for review. No progress was made on this assignment. The assignment was tabled by the Committee this year, but should be continued for next year.
2. Exchange by April 15, 2012 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2012 the states will exchange any updates to these data.
 - a. Kansas and Nebraska posted their model data sets prior to April 15, 2012. Colorado provided preliminary pumping data on April 26 to Willem Schreuder of Principia Mathematica, who ran a preliminary version of the RRCA groundwater model and posted it April 27, 2012 on the RRCA website that he maintains for the Administration.
 - b. The States exchanged their available final data by September 20, 2012. Willem Schreuder of Principia Mathematica completed a run based on this data on October 4, 2012.
 - c. Data sets were collected by the Committee for stream flow, climate information, diversion records, and reservoir evaporation records of the three states in cooperation with the U.S. Geological Survey, U.S. Bureau of Reclamation, and U.S. Army Corps of Engineers for 2011.
3. Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.
 - a. The status of this assignment is that Kansas provided literature regarding irrigation efficiency to Colorado and Nebraska for their review at the 2011 annual meeting. Aside from that initial review and comments by Colorado and Nebraska, no additional progress has been made on this assignment. Kansas has indicated its intent to propose a study to resolve the problems of differing

- groundwater irrigation recharge methods. The assignment should be continued for next year.
4. Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee for calendar year 2012. The billable costs shall be limited to actual costs incurred, not to exceed \$15,000 in total and will be apportioned in equal 1/3 amounts to the States of Colorado, Kansas, and Nebraska respectively.
 - a. Each state separately contracted with Principia Mathematica for calendar year 2012.
 5. Continue development of a five-year accounting spreadsheet/database for adoption at the 2012 annual meeting or earlier.
 - a. The status of this assignment is that Nebraska offered a spreadsheet for consideration. Kansas reviewed that document and offered suggestions in a new spreadsheet for the states to discuss. No progress was made on this assignment. The assignment was tabled by the Committee this year, but should be continued for next year.
 6. Continue to review Colorado's augmentation proposal, as appropriate.
 - a. This assignment was not discussed by the Engineering Committee because the topic has been under discussion by a separate negotiating group.
 7. Continue efforts to finalize accounting for 2006-2010.
 - a. The issues preventing the states from agreeing on the accounting are pending in the current Supreme Court case.
 8. Continue discussion of issues preventing agreement on final accounting for 2006-2010.
 - a. The issues preventing the states from agreeing on the accounting are pending in the current Supreme Court case.
 9. Develop a procedure to account for inflows to the stream segment between Guide Rock diversion dam and the relocated stream flow gage.
 - a. Nebraska investigated several methods of measurement and provided the alternatives and approximate cost to the other states. With input from the Commissioners at the work session, a formal proposal can be prepared. The assignment should continue for next year.
 10. Discuss the application of the revised Bonny Reservoir area-capacity tables to current and past accounting data.
 - a. Kansas agrees to adopt the revised Bonny Reservoir area-capacity tables and apply it to 2011 data and into the future.
 - b. Colorado wants the area-capacity tables retroactively applied for 2007 to 2010.
 - c. The committee would appreciate direction from the Commissioners.
 11. Discuss any accounting changes that may be needed for surface water diversions for the purpose of recharging groundwater.

- a. The committee discussed the topic on several occasions, but no formal action was taken on the assignment at this time. The assignment should be continued.
12. Discuss developing a framework for an application and approval process for future augmentation plans.
 - a. Kansas provided the committee with its initial thoughts on the type of information that should be provided with a plan and a list of questions for discussion in an email (September 27, 2012). The committee would appreciate discussion by the Commissioners. The assignment should be continued.
 13. Apply the procedure described in Exhibit A of the 2011 Engineering Committee report to fill in missing precipitation data in the groundwater model for compact years 2008, 2009 and 2010 and for subsequent years.
 - a. This was completed on Sept 7, 2011 by Willem Schreuder of Principia Mathematica.
 - b. An additional issue surfaced with the 2011 data set such that a refined proposal is required for approval by the Administration. The Engineering Committee's conclusions and recommendation will be offered to the Administration as Exhibit A to this report.
 14. Discuss archiving the data and materials from the Conservation Committee study.
 - a. The Committee discussed options for archiving the data and materials from the Conservation Committee study. Several locations (websites) have been identified as possible sites for archiving the data and materials. A final recommendation will be made to the Administration at the annual meeting.
 15. Amend the RRCA Rules and Regulations, as discussed on page 76 of the 2010 transcript.
 - a. The assignment was completed and the proposed amended regulations are attached to this report as Exhibit B. The amended RRCA Rules and Regulations will be offered for approval by the Commissioners at the 2012 annual meeting.

RECOMMENDED ASSIGNMENTS FOR THE COMING YEAR

The Engineering Committee recommends the Republican River Compact Administration assign the following tasks:

1. Exchange by April 15, 2013 the information listed in Section V of the RRCA Accounting Procedures and Reporting Requirements, and other data required by that document. By July 15, 2013 the states will exchange any updates to these data.
2. Continue efforts to resolve concerns related to varying methods of estimating ground and surface water irrigation recharge and return flows within the Republican River Basin and related issues.
3. Retain Principia Mathematica to perform on-going maintenance of the ground water model and periodic updates requested by the Engineering Committee for calendar year 2012. The billable costs shall be limited to actual costs incurred, not to exceed \$15,000 in

total and will be apportioned in equal 1/3 amounts to the States of Colorado, Kansas, and Nebraska respectively.

- a. Kansas Proposal - As the RRCA chair, Kansas will coordinate the work of the committee to collect all needed data (April 15th) and based on this, will develop a preliminary model run and necessary updates based on improved data and post the model input data and output results for review by the other states. The state will also archive the resulting accounting.
4. Continue efforts to finalize accounting for 2006-2010.
5. Continue discussion of issues preventing agreement on final accounting for 2006-2010.
6. Develop a procedure to account for inflows to the stream segment between Guide Rock diversion dam and the relocated stream flow gage.
7. Discuss any accounting changes that may be needed for surface water diversions for the purpose of recharging groundwater.
8. Discuss developing a framework for an application and approval process for future augmentation plans.
9. Finalize the procedure described in Exhibit A of this report to apply to 2011 and subsequent years with missing precipitation data.
10. Finalize work on a user's manual for the RRCA Accounting Procedures and provide a recommendation to the Administration for adoption.
11. Continue development of a five-year accounting spreadsheet/database for adoption.

ATTACHMENTS

Exhibit A - Precipitation procedure

Exhibit B - RRCA Rules & Regulations revision

The Engineering Committee Report and the exchanged data will be posted on the web at www.republicanrivercompact.org.

SIGNED BY

Scott E. Ross
Chair, Engineering Committee Member for Kansas

Ivan Franco
Engineering Committee Member for Colorado

James Schneider
Engineering Committee Member for Nebraska

The Summary Report of the Study on the Impacts of Non-Federal Reservoirs and Land Terracing on Basin Water Supplies from the Conservation Committee for the 2012 meeting has not yet been provided at the time of this printing.

It will be added as soon as it is received.

The RRCA Accounting through 2011 has not yet been provided
at the time of this printing.

It will be added as soon as it is received.

The Bureau of Reclamation Report for the 2012 meeting has not yet been provided at the time of this printing.

It will be added as soon as it is received.

1-106 REPUBLICAN RIVER COMPACT

AN ACT to ratify the compact entered into by the states of Colorado, Kansas and Nebraska on December 31, 1942, relating to the Republican River; to repeal Chapter 92, Session Laws of Nebraska, 1941; and to declare an emergency.

Be it enacted by the people of the State of Nebraska,

Section 1. The compact entered into on December 31, 1942, between the states of Colorado, Kansas and Nebraska, and in the formulation of which compact a representative of the President of the United States participated, respecting the waters of the Republican River, is ratified and approved in all respects and is as follows:

REPUBLICAN RIVER COMPACT

The States of Colorado, Kansas, and Nebraska, parties signatory to this compact (hereinafter referred to as Colorado, Kansas, and Nebraska, respectively, or individually as a State, or collectively as the States), having resolved to conclude a compact with respect to the waters of the Republican

River Basin, and being duly authorized therefor by the Act of the Congress of the United States of America, approved August 4, 1942, (Public No. 696, 77th Congress, Chapter 545, 2nd Session) and pursuant to Acts of their respective Legislatures have, through their respective Governors, appointed as their Commissioners:

M.C. Hinderlider, for Colorado

George S. Knapp, for Kansas

Wardner G. Scott, for Nebraska

who, after negotiations participated in by Glenn L. Parker, appointed by the President as the Representative of the United States of America, have agreed upon the following articles:

ARTICLE I

The major purposes of this compact are to provide for the most efficient use of the waters of the Republican River Basin (hereinafter referred to as the "Basin") for multiple purposes; to provide for an equitable division of such waters; to remove all causes, present and future, which might lead to controversies; to promote interstate comity; to recognize that the most efficient utilization of the waters within the Basin is for beneficial consumptive use; and to promote joint action by the States and the United States in the efficient use of water and the control of destructive floods.

The physical and other conditions peculiar to the Basin constitute the basis for this compact, and none of the States hereby, nor the Congress of the United States by its consent, concedes that this compact establishes any general principle or precedent with respect to any other interstate stream.

ARTICLE II

The Basin is all the area in Colorado, Kansas, and Nebraska, which is naturally drained by the Republican River, and its tributaries, to its junction with the Smoky Hill River in Kansas. The main stem of the Republican River extends from the junction near Haigler, Nebraska, of its North Fork and the Arikaree River, to its junction with Smoky Hill River near Junction City, Kansas. Frenchman Creek (River) in Nebraska is a continuation of Frenchman Creek (River) in Colorado. Red Willow Creek in Colorado is not identical with the stream having the same name in Nebraska. A map of the Basin approved by the Commissioners is attached and made a part hereof.

The term "Acre-foot," as herein used, is the quantity of water required to cover an acre to the depth of one foot and is equivalent to forty-three thousand, five hundred sixty (43,560) cubic feet.

The term "Virgin Water Supply," as herein used, is defined to be the water supply within the Basin undepleted by the activities of man.

The term "Beneficial Consumptive Use" is herein defined to be that use by which the water supply of the Basin is consumed through the activities of

man, and shall include water consumed by evaporation from any reservoir, canal, ditch, or irrigated area.

Beneficial consumptive use is the basis and principle upon which the allocations of water hereinafter made are predicated.

ARTICLE III

The specific allocations in acre-feet hereinafter made to each State are derived from the computed average annual virgin water supply originating in the following designated drainage basins, or parts thereof, in the amounts shown:

North Fork of the Republican River drainage basin in Colorado, 44,700 acre-feet;

Arikaree River drainage basin, 19,610 acre-feet;

Buffalo Creek drainage basin, 7,890 acre-feet;

Rock Creek drainage basin, 11,000 acre-feet;

South Fork of the Republican River drainage basin, 57,200 acre-feet;

Frenchman Creek (River) drainage basin in Nebraska, 98,500 acre-feet;

Blackwood Creek drainage basin, 6,800 acre-feet;

Driftwood Creek drainage basin, 7,300 acre-feet;

Red Willow Creek drainage basin in Nebraska, 21,900 acre-feet;

Medicine Creek drainage basin, 50,800 acre-feet;

Beaver Creek drainage basin, 16,500 acre-feet;

Sappa Creek drainage basin, 21,400 acre-feet;

Prairie Dog Creek drainage basin, 27,600 acre-feet;

The North Fork of the Republican River in Nebraska and the main stem of the Republican River between the junction of the North Fork and the Arikaree River and the lowest crossing of the river at the Nebraska-Kansas state line and the small tributaries thereof, 87,700 acre-feet.

Should the future computed virgin water supply of any source vary more than ten (10) per cent from the virgin water supply as hereinabove set forth, the allocations hereinafter made from such source shall be increased or decreased in the relative proportions that the future computed virgin water supply of such source bears to the computed virgin water supply used herein.

ARTICLE IV

There is hereby allocated for beneficial consumptive use in Colorado, annually, a total of fifty-four thousand, one hundred (54,100) acre-feet of water. This total is to be derived from the sources and in the amounts hereinafter specified and is subject to such quantities being physically available from those sources:

North Fork of the Republican River drainage basin, 10,000 acre-feet;

Arikaree River drainage basin, 15,400 acre-feet;
South Fork of the Republican River drainage basin, 25,400 acre-feet;
Beaver Creek drainage basin, 3,300 acre-feet; and

In addition, for beneficial consumptive use in Colorado, annually, the entire water supply of the Frenchman Creek (River) drainage basin in Colorado and of the Red Willow Creek drainage basin in Colorado.

There is hereby allocated for beneficial consumptive use in Kansas, annually, a total of one hundred ninety thousand, three hundred (190,300) acre-feet of water. This total is to be derived from the sources and in the amounts hereinafter specified and is subject to such quantities being physically available from those sources:

Arikaree River drainage basin, 1,000 acre-feet;
South Fork of the Republican River drainage basin, 23,000 acre-feet;
Driftwood Creek drainage basin, 500 acre-feet;
Beaver Creek drainage basin, 6,400 acre-feet;
Sappa Creek drainage basin, 8,800 acre-feet;
Prairie Dog Creek drainage basin, 12,600 acre-feet;

From the main stem of the Republican River upstream from the lowest crossing of the river at the Nebraska-Kansas state line and from water supplies of upstream basins otherwise unallocated herein, 138,000 acre-feet; provided, that Kansas shall have the right to divert all or any portion thereof at or near Guide Rock, Nebraska; and

In addition there is hereby allocated for beneficial consumptive use in Kansas, annually, the entire water supply originating in the Basin downstream from the lowest crossing of the river at the Nebraska-Kansas state line.

There is hereby allocated for beneficial consumptive use in Nebraska, annually, a total of two hundred thirty-four thousand, five hundred (234,500) acre-feet of water. This total is to be derived from the sources and in the amounts hereinafter specified and is subject to such quantities being physically available from those sources:

North Fork of the Republican River drainage basin in Colorado, 11,000 acre-feet;
Frenchman Creek (River) drainage basin in Nebraska, 52,800 acre-feet;
Rock Creek drainage basin, 4,400 acre-feet;
Arikaree River drainage basin, 3,300 acre-feet;
Buffalo Creek drainage basin, 2,600 acre-feet;
South Fork of the Republican River drainage basin, 800 acre-feet;
Driftwood Creek drainage basin, 1,200 acre-feet;
Red Willow Creek drainage basin in Nebraska, 4,200 acre-feet;
Medicine Creek drainage basin, 4,600 acre-feet;
Beaver Creek drainage basin, 6,700 acre-feet;

Sappa Creek drainage basin, 8,800 acre-feet;
Prairie Dog Creek drainage basin, 2,100 acre-feet;

From the North Fork of the Republican River in Nebraska, the main stem of the Republican River between the junction of the North Fork and Arikaree River and the lowest crossing of the river at the Nebraska-Kansas state line, from the small tributaries thereof, and from water supplies of upstream basins otherwise unallocated herein, 132,000 acre-feet.

The use of the waters hereinabove allocated shall be subject to the laws of the State, for use in which the allocations are made.

ARTICLE V

The judgment and all provisions thereof in the case of Adelbert A. Weiland, as State Engineer of Colorado, et al. v. The Pioneer Irrigation Company, decided June 5, 1922, and reported in 259 U.S. 498, affecting the Pioneer Irrigation ditch or canal, are hereby recognized as binding upon the States; and Colorado, through its duly authorized officials, shall have the perpetual and exclusive right to control and regulate diversions of water at all times by said canal in conformity with said judgment.

The water heretofore adjudicated to said Pioneer Canal by the District Court of Colorado, in the amount of fifty (50) cubic feet per second of time is included in and is a part of the total amounts of water hereinbefore allocated for beneficial consumptive use in Colorado and Nebraska.

ARTICLE VI

The right of any person, entity, or lower State to construct, or participate in the future construction and use of any storage reservoir or diversion works in an upper State for the purpose of regulating water herein allocated for beneficial consumptive use in such lower State, shall never be denied by an upper State; provided, that such right is subject to the rights of the upper State.

ARTICLE VII

Any person, entity, or lower State shall have the right to acquire necessary property rights in an upper State by purchase, or through the exercise of the power of eminent domain, for the construction, operation and maintenance of storage reservoirs, and of appurtenant works, canals and conduits, required for the enjoyment of the privileges granted by Article VI; provided, however, that the grantees of such rights shall pay to the political subdivisions of the State in which such works are located, each and every year during which such rights are enjoyed for such purposes, a sum of money equivalent to the average annual amount of taxes assessed against the lands

and improvements during the ten years preceding the use of such lands, in reimbursement for the loss of taxes to said political subdivisions of the State.

ARTICLE VIII

Should any facility be constructed in an upper State under the provisions of Article VI, such construction and the operation of such facility shall be subject to the laws of such upper State.

Any repairs to or replacements of such facility shall also be made in accordance with the laws of such upper State.

ARTICLE IX

It shall be the duty of the three States to administer this compact through the official in each State who is now or may hereafter be charged with the duty of administering the public water supplies, and to collect and correlate through such officials the data necessary for the proper administration of the provisions of this compact. Such officials may, by unanimous action, adopt rules and regulations consistent with the provisions of this compact.

The United States Geological Survey, or whatever federal agency may succeed to the functions and duties of that agency, in so far as this compact is concerned, shall collaborate with the officials of the States charged with the administration of this compact in the execution of the duty of such officials in the collection, correlation, and publication of water facts necessary for the proper administration of this compact.

ARTICLE X

Nothing in this compact shall be deemed:

- (a) To impair or affect any rights, powers or jurisdiction of the United States, or those acting by or under its authority, in, over, and to the waters of the Basin; nor to impair or affect the capacity of the United States, or those acting by or under its authority, to acquire rights in and to the use of waters of the Basin;
- (b) To subject any property of the United States, its agencies or instrumentalities, to taxation by any State, or subdivision thereof, nor to create an obligation on the part of the United States, its agencies or instrumentalities, by reason of the acquisition, construction, or operation of any property or works of whatsoever kind, to make any payments to any State or political subdivision thereof, state agency, municipality, or entity whatsoever in reimbursement for the loss of taxes;
- (c) To subject any property of the United States, its agencies or instrumentalities, to the laws of any State to any extent other than the extent these laws would apply without regard to this compact.

ARTICLE XI

This compact shall become operative when ratified by the Legislature of each of the States, and when consented to by the Congress of the United States by legislation providing, among other things, that:

- (a) Any beneficial consumptive uses by the United States, or those acting by or under its authority, within a State, of the waters allocated by this compact, shall be made within the allocations hereinabove made for use in that State and shall be taken into account in determining the extent of use within that State.
- (b) The United States, or those acting by or under its authority, in the exercise of rights or powers arising from whatever jurisdiction the United States has in, over, and to the waters of the Basin shall recognize, to the extent consistent with the best utilization of the waters for multiple purposes, that beneficial consumptive use of the waters within the Basin is of paramount importance to the development of the Basin; and no exercise of such power or right thereby that would interfere with the full beneficial consumptive use of the waters within the Basin shall be made except upon a determination, giving due consideration to the objectives of this compact and after consultation with all interested federal agencies and the state officials charged with the administration of this compact, that such exercise is in the interest of the best utilization of such waters for multiple purposes.
- (c) The United States, or those acting by or under its authority, will recognize any established use, for domestic and irrigation purposes, of the waters allocated by this compact which may be impaired by the exercise of federal jurisdiction in, over, and to such waters; provided, that such use is being exercised beneficially, is valid under the laws of the appropriate State and in conformity with this compact at the time of the impairment thereof, and was validly initiated under state law prior to the initiation or authorization of the federal program or project which causes such impairment.

IN WITNESS WHEREOF, the Commissioners have signed this compact in quadruplicate original, one of which shall be deposited in the archives of the Department of State of the United States of America and shall be deemed the authoritative original, and of which a duly certified copy shall be forwarded to the Governor of each of the States.

Done in the City of Lincoln, in the State of Nebraska, on the 31st day of December, in the year of our Lord, one thousand nine hundred forty-two.

M. C. Hinderlider
Commissioner for Colorado
George S. Knapp
Commissioner for Kansas
Wardner G. Scott
Commissioner for Nebraska

SPECIAL ACTS AND RESOLUTIONS

§ 1-106

I have participated in the negotiations leading to this proposed compact and propose to report to the Congress of the United States favorably thereon.

Glenn L. Parker

Representative of the United States.

Sec. 2. That Chapter 92, Session Laws of Nebraska, 1941, is repealed.

Sec. 3. Since an emergency exists, this act shall be in full force and take effect, from and after its passage and approval, according to law.

Source: Laws 1943, c. 109, p. 377.

Rules and Regulations

Republican River Compact Administration

Revised October 16, 2012

1. Pursuant to Article IX of the Republican River Compact (“Compact”), the States of Colorado, Nebraska and Kansas have the duty to administer the Compact through the officials in such States who are now or may hereafter be charged with the duty of administering the public water supplies in each of such States. Such officials shall be the members of an administrative body hereby designated as the Republican River Compact Administration (“RRCA”). The purpose of the RRCA shall be to administer the Compact. Such administration shall include but not be limited to the responsibilities as are assigned to it in the Final Settlement Stipulation dated December 15, 2002, approved by the States of Colorado, Nebraska and Kansas and filed in the case of *Kansas v. Nebraska and Colorado*, No. 126, Original, in the Supreme Court of the United States (“Final Settlement Stipulation”).
2. As of the effective date of these Rules and Regulations, the officials who are charged with the duty of administering the public water supplies in each of the three States, and who therefore constitute the Members¹ are the individuals who hold the following offices: the State Engineer of the Division of Water Resources of the Colorado Department of Natural Resources; the Director of Natural Resources for the State of Nebraska; and, the Chief Engineer of the Division of Water Resources of the Kansas Department of Agriculture.
3. Each RRCA Member’s term shall run concurrent with his or her term of office as the official charged with administering the public water supplies in his or her State.

¹ Reference in the RRCA records to “Commissioner(s)” refers to the Members as described in these Rules and Regulations.

4. Each State official shall be recognized as a Member of the RRCA upon furnishing to the other Members satisfactory evidence that he or she is the official in his or her State charged with the duty of administering the public water supplies in such State.
5. Any Member of the RRCA may appoint an alternate person to serve in his or her place. In the event any Member is unable to perform his or her official duties, the appointing authority of the State represented by that Member may appoint the Member's alternate to serve in his or her place. Any such alternate shall be recognized as that State's representative to the RRCA upon presentation to the Members from the other States of a written appointment letter signed by the absent Member, or, as applicable, by the appointing authority of the State involved. An appointment of an alternate shall be valid only for the period of the appointment.
6. The Chair of the RRCA shall be a Member of the RRCA. Each Chair shall serve a term encompassing two annual meetings. The Chair's term shall begin upon the conclusion of the last meeting chaired by the previous Chair and shall expire at the conclusion of the second annual meeting at which he or she serves as Chair. Unless otherwise agreed by all Members, the rotation of the Chair shall be by State in the following order beginning at the conclusion of the annual meeting in 2003: Colorado; Kansas; and Nebraska.
7. The Chair, or his or her alternate, shall preside at all meetings of the RRCA. The Chair may initiate or second motions and vote on all matters coming before the RRCA. The Chair shall issue notice of all meetings to all members as to the time, place, and agenda of the meeting at least 15 days in advance of any regular meeting, unless otherwise agreed by the Members, and as soon as possible prior to any special meeting. Any issue to be raised for dispute resolution at a regular meeting pursuant to paragraph 15 of these Rules and Regulations shall be distributed to the members at least 30 days in advance of the regular meeting. The agenda shall include all items for which a Member makes a timely request for inclusion on the agenda. The Chair or

other person designated by the RRCA shall also keep a record of the proceedings, including official meeting minutes, of all meetings and of all transactions of the RRCA during his or her term of office. The record of proceedings shall include: minutes; Annual Report; reports required by the Final Settlement Stipulation; committee or subcommittee reports; the data, computations and results required in the Accounting Procedures; and such other matters as deemed appropriate by the RRCA. Meeting minutes will not be official until approved by the RRCA. Unless otherwise agrees to by all Members of the RRCA, the Chair shall be responsible for the preparation of an electronic recording of each meeting, unless any Member requests in advance a transcript of each meeting. The Chair will be responsible for providing a copy of the record of proceedings for that year. The RRCA, through the Chair, will maintain an official repository of records of the proceedings.

8. The RRCA hereby creates a standing Engineering Committee that shall be composed of one representative from each State appointed by the RRCA Member from that State. The RRCA may create other standing, ad hoc or special committees composed of members of the RRCA and/or other persons appointed by the Members. The RRCA may assign to such committees any tasks that it determines to be appropriate.
9. The RRCA shall hold a regular annual meeting prior to August 1st each year. However, the Chair may waive an annual meeting, or hold the meeting at a later date, upon unanimous written consent of the Members. The annual meeting shall be held at a location in the Chair's State at a time and place acceptable to the other members.
10. The RRCA shall hold a special meeting, other than a meeting to address a "fast track issue" as provided for in the Section VII of the Final Settlement Stipulation, upon written request of any Member and with the concurrence of the other two Members. The Chair of the RRCA shall poll all of the Members prior to setting the meeting date, time, and place of a specially scheduled

meeting. All Members shall make a good faith effort to arrange a mutually agreeable date, time, and place for all meetings.

11. A quorum for a RRCA meeting shall be present only when all of the Members or their duly appointed alternates are in attendance. The RRCA may act only by unanimous vote of all members or duly appointed alternates. Each State shall have one vote. The Chair shall document each action of the RRCA by formal written resolution or such action shall be recorded in the approved minutes. The RRCA shall honor a request by any Member or duly appointed alternate that action on any matter be by formal resolution.
12. The RRCA shall prepare and approve an annual report that includes the official actions taken by the RRCA at the annual meeting and at any special meetings, a summary of the compact accounting for the previous year and such other matters as the RRCA may deem appropriate. The Chair shall furnish copies of the report to the President of the United States, the Governors of the States of Colorado, Nebraska and Kansas, the officials of appropriate State and federal agencies and to any other person, as the RRCA determines appropriate.
13. The RRCA may make amendments, revisions, deletions, or additions to these Rules and Regulations at any meeting of the RRCA. Unless otherwise agreed to by the RRCA, written notice and a copy of any proposed change must be sent to all Members by the Member proposing the change at least 15 days in advance of any meeting at which the RRCA shall consider such changes. Any Member may offer modifications of any such proposed changes at any time prior to the RRCA acting on those proposed changes.
14. Compact accounting and data exchanges among the States shall be done annually in accordance with the Final Settlement Stipulation, including the RRCA Accounting Procedures and Reporting Requirements, dated August 12, 2010, and the Republican River Compact Administration Groundwater Model, Version 12s (V12s), dated January 12, 2005. Unless otherwise agreed to by

the RRCA Members, the annual accounting shall be completed by the Engineering Committee and submitted to the RRCA no later than June 1st of the year following for which the accounting is being done. The RRCA may modify the RRCA Accounting Procedures and the RRCA Groundwater model only by contemporaneously amending these Rules and Regulations to show the date, title or version, as appropriate, of the RRCA Accounting Procedures and/or the RRCA Groundwater model that the RRCA shall use. At the time of any modification, the RRCA shall specify the time and method for implementation of each modification.

15. Any dispute arising among the States shall be resolved in accordance with the procedures set forth in Article VII of the Final Settlement Stipulation.

Adopted by the Republican River Compact Administration this 16th day of October, 2012.

David W. Barfield
Chair, Republican River Compact Administration
Commissioner for Kansas

Dick W. Wolfe
Commissioner for Colorado

Brian P. Dunnigan
Commissioner for Nebraska

Rules and Regulations
Republican River Compact Administration

Revised January 12, 2005

1. Pursuant to Article IX of the Republican River Compact ("Compact"), the States of Colorado, Nebraska and Kansas have the duty to administer the Compact through the officials in such States who are now or may hereafter be charged with the duty of administering the public water supplies in each of such States. Such officials shall be the members of an administrative body hereby designated as the Republican River Compact Administration ("RRCA"). The purpose of the RRCA shall be to administer the Compact. Such administration shall include but not be limited to the responsibilities as are assigned to it in the Final Settlement Stipulation dated December 15, 2002, approved by the States of Colorado, Nebraska and Kansas and filed in the case of *Kansas v. Nebraska and Colorado*, No. 126, Original, in the Supreme Court of the United States ("Final Settlement Stipulation").
2. As of the effective date of these Rules and Regulations, the officials who are charged with the duty of administering the public water supplies in each of the three States, and who therefore constitute the Members¹ are the individuals who hold the following offices: the State Engineer of the Division of Water Resources of the Colorado Department of Natural Resources; the Director of Natural Resources for the State of Nebraska; and, the

¹ Reference in the RRCA records to "Commissioner(s)" refers to the Members as described in these Rules and Regulations.

- Chief Engineer of the Division of Water Resources of the Kansas Department of Agriculture.
3. Each RRCA Member's term shall run concurrent with his or her term of office as the official charged with administering the public water supplies in his or her State.
 4. Each State official shall be recognized as a Member of the RRCA upon furnishing to the other Members satisfactory evidence that he or she is the official in his or her State charged with the duty of administering the public water supplies in such State.
 5. Any Member of the RRCA may appoint an alternate person to serve in his or her place. In the event any Member is unable to perform his or her official duties, the appointing authority of the State represented by that Member may appoint the Member's alternate to serve in his or her place. Any such alternate shall be recognized as that State's representative to the RRCA upon presentation to the Members from the other States of a written appointment letter signed by the absent Member, or, as applicable, by the appointing authority of the State involved. An appointment of an alternate shall be valid only for the period of the appointment.
 6. The Chair of the RRCA shall be a Member of the RRCA. Each Chair shall serve a term encompassing two annual meetings. The Chair's term shall begin upon the conclusion of the last meeting chaired by the previous Chair and shall expire at the conclusion of the second annual meeting at which he or she serves as Chair. Unless otherwise agreed by all Members, the rotation of the Chair shall be by State in the following order beginning at the conclusion of the annual meeting in 2003: Colorado; Kansas; and, Nebraska.

7. The Chair, or his or her alternate, shall preside at all meetings of the RRCA. The Chair may initiate or second motions and vote on all matters coming before the RRCA. The Chair shall issue notice of all meetings to all members as to the time, place, and agenda of the meeting at least 15 days in advance of any regular meeting, unless otherwise agreed by the Members, and as soon as possible prior to any special meeting. Any issue to be raised for dispute resolution at a regular meeting pursuant to paragraph 15 of these Rules and Regulations shall be distributed to the members at least 30 days in advance of the regular meeting. The agenda shall include all items for which a Member makes a timely request for inclusion on the agenda. The Chair or other person designated by the RRCA shall also keep a record of the proceedings, including official meeting minutes, of all meetings and of all transactions of the RRCA during his or her term of office. The record of proceedings shall include: minutes; Annual Report; reports required by the Final Settlement Stipulation; committee and subcommittee reports; the data, computations and results required in the Accounting Procedures; and such other matters as deemed appropriate by the RRCA. Meeting minutes will not be official until approved by the RRCA. Unless otherwise agreed to by all the Members of the RRCA, the Chair shall be responsible for the preparation of an electronic recording of each meeting, unless any Member requests in advance a transcript of each meeting. The Chair will be responsible for providing a copy of the record of proceedings for that year. The RRCA, through the Chair, will maintain an official repository of records of the proceedings.
8. The RRCA hereby creates a standing Engineering Committee that shall be composed of one representative from each State appointed by the RRCA Member from that State. The

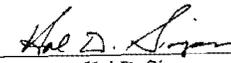
- RRCA may create other standing, ad hoc or special committees composed of the members of the RRCA and/or other persons appointed by the Members. The RRCA may assign to such committees any tasks that it determines to be appropriate.
9. The RRCA shall hold a regular annual meeting prior to August 1st each year. However, the Chair may waive an annual meeting, or hold the meeting at a later date, upon the unanimous written consent of the Members. The annual meeting shall be held at a location in the Chair's State at a time and place acceptable to the other members.
 10. The RRCA shall hold a special meeting, other than a meeting to address a "fast track issue" as provided for in the Section VII of the Final Settlement Stipulation, upon written request of any Member and with the concurrence of the other two Members. The Chair of the RRCA shall poll all of the Members prior to setting the meeting date, time, and place of a specially scheduled meeting. All Members shall make a good faith effort to arrange a mutually agreeable date, time, and place for all meetings.
 11. A quorum for a RRCA meeting shall be present only when all of the Members or their duly appointed alternates are in attendance. The RRCA may act only by unanimous vote of all members or duly appointed alternates. Each State shall have one vote. The Chair shall document each action of the RRCA by formal written resolution or such action shall be recorded in the approved minutes. The RRCA shall honor a request by any Member or duly appointed alternate that action on any matter be by formal resolution.
 12. The RRCA shall prepare and approve an annual report that includes the official actions taken by the RRCA at the annual meeting and at any special meetings, a summary of the compact accounting for the previous year and such other matters as the RRCA may deem

appropriate. The Chair shall furnish copies of the report to the President of the United States, the Governors of the States of Colorado, Nebraska and Kansas, the officials of appropriate State and federal agencies and to any other person, as the RRCA determines appropriate.

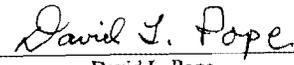
13. The RRCA may make amendments, revisions, deletions, or additions to these Rules and Regulations at any meeting of the RRCA. Unless otherwise agreed to by the RRCA, written notice and a copy of any proposed change must be sent to all Members by the Member proposing the change at least 15 days in advance of any meeting at which the RRCA shall consider such changes. Any Member may offer modifications of any such proposed changes at any time prior to the RRCA acting on those proposed changes.
14. Compact accounting and data exchanges among the States shall be done annually in accordance with the Final Settlement Stipulation, including the RRCA Accounting Procedures and Reporting Requirements, dated January 12, 2005, and the Republican River Compact Administration Groundwater Model, Version 12s (V12s), dated January 12, 2005. Unless otherwise agreed to by the RRCA Members, the annual accounting shall be completed by the Engineering Committee and submitted to the RRCA no later than June 1st of the year following the year for which the accounting is being done. The RRCA may modify the RRCA Accounting Procedures and the RRCA Groundwater model only by contemporaneously amending these Rules and Regulations to show the date, title or version, as appropriate, of the RRCA Accounting Procedures and/or the RRCA Groundwater model that the RRCA shall use. At the time of any modification, the RRCA shall specify the time and method for implementation of each modification.

15. Any dispute arising among the States shall be resolved in accordance with the procedures set forth in Article VII of the Final Settlement Stipulation.

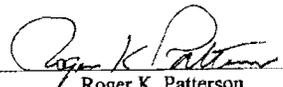
Adopted by the Republican River Compact Administration this 12th day of January, 2005.



Hal D. Simpson
Chair, Republican River Compact Administration
Commissioner for Colorado



David L. Pope
Commissioner for Kansas



Roger K. Patterson
Commissioner for Nebraska

REPUBLICAN RIVER COMPACT

Rules and Regulations

constituting

The Republican River Compact Administration

The Republican River Compact

After negotiations by Commissioners appointed by Governors of the States of Kansas, Nebraska and Colorado, and participated in by a duly appointed Representative of the United States of America, the Commissioners signed, and the Representative of the United States of America approved, the Republican River Compact on December 31, 1942. It was ratified by the State of Colorado by an Act effective on March 15, 1943; by the State of Kansas by an Act effective on June 28, 1943; and by the State of Nebraska by an Act effective on February 24, 1943. The Compact was approved by the Congress of the United States in an Act effective on May 26, 1943. (Public Law 60, 78th Congress, Chapter 104, 1st Session).

Administration of the Compact

Article IX of the Republican River Compact provides for its administration as follows:

Article IX.

It shall be the duty of the three States to administer this compact through the official in each State who is now or may hereafter be charged with the duty of administering the public water supplies, and to collect and correlate through such officials the data necessary for the proper administration of the provisions of this compact. Such officials may, by unanimous action, adopt rules and regulations consistent with the provisions of this compact.

The United States Geological Survey, or whatever federal agency may succeed to the functions and duties of that agency, in so far as this compact is concerned, shall collaborate with the officials of the States charged with the administration of this compact in the execution of the duty of such officials in the collection, correlation, and publication of water facts necessary for the proper administration of this compact.

Rules and Regulations

Pursuant to the responsibility and authority conferred upon them by the Republican River Compact, and for the purpose of implementing its administration, J. E. Whitten, State Engineer of the State of Colorado; Dan S. Jones, Jr., Director of Water Resources of the State of Nebraska; and R. V. Smrha, Chief Engineer, Division of Water Resources, State Board of Agriculture of the State of Kansas, being the officials in their respective states charged with the duty of administering public water supplies, assembled in meeting at Denver, Colorado, on July 15, 1959, and unanimously approved and adopted as being effective from that date, rules and regulations as follows:

1. The State Engineer of the State of Colorado; the Director of Water Resources of the State of Nebraska; and the Chief Engineer, Division of Water Resources, State Board of Agriculture of the State of Kansas, being the officials in their respective states charged with the duty of administering public water supplies, shall be the official members of and together they shall constitute an administrative body hereby designated, "The Republican River Compact Administration".
2. The Republican River Compact, hereinafter referred to as the "Compact", shall be administered by the Republican River Compact Administration, hereinafter referred to as the "Administration".
3. The terms of office of official members of the Administration shall be concurrent with their respective terms of office as officials of each state charged with the duty of administering the public water supplies.

4. Each official member of the Administration shall be recognized in that capacity upon furnishing to the other official members satisfactory evidence that he is the official in his state charged with the duty of administering the public water supplies.
5. If an official member shall be unable to serve personally at any meeting of the Administration, he may appoint a personal representative, other than another official member of the Administration, to serve in his place at said meeting. Such personal representative shall be recognized in that capacity upon furnishing to the official members from the other states or their personal representatives a certificate showing that he has been duly appointed by the official member whom he is to represent. All actions taken in the transaction of business of the Administration by any such duly appointed representative shall be made in the name of the official member whom he represents and shall be binding on such official member.
6. The Chairman of the Administration shall be an official member of the Administration and shall be elected at the annual meeting for a term of office continuing to the close of the annual meeting the following year. In the absence of the Chairman at any meeting, the official members of the Administration and any duly appointed and acting personal representatives present at that time shall select one of them to serve as temporary Chairman. In the event of a vacancy in the office of the Chairman, his successor as the official member from his state shall be temporary Chairman until the next meeting of the Administration at which time, as the first order of business, the vacancy shall be filled by election of an official member of the Administration who shall thereupon be Chairman for the unexpired term.

7. The Chairman shall preside at all meetings of the Administration and may initiate or second motions and vote on all matters coming before the Administration. He shall issue notice of meeting to all official members as to time, place, and purpose in advance of each meeting of the Administration. The Chairman shall keep a record of the proceedings of all meetings and of all transactions of the Administration during his term of office and shall furnish copies thereof concurrently to the other official members to the end that each official member shall have and preserve a complete file of the records of the Administration.
8. The Administration may, from time to time, create committees composed of such official members of the Administration and others as it may determine and assign to such committees such tasks as the Administration may designate.
9. A regular annual meeting of the Administration shall be held on the first Tuesday of March each year. Other meetings of the Administration shall be held as may be agreed upon at any meeting; or upon call of the Chairman; or upon written request to the Chairman by any official member of the Administration.
10. A quorum for the purpose of transacting official business at any meeting of the Administration shall be at least two official members of the Administration or their duly appointed representatives. In all matters coming before the Administration any action shall be determined by vote. Each State shall have one vote and every decision, authorization or other action shall require a unanimous vote of the official members or their duly appointed and acting personal representatives present at a meeting.

11. At each meeting of the Administration, the order of business, except as provided by rule No. 6 herein, shall be as follows:

Reading, correction, and approval of minutes of last meeting

Report of Chairman

Reports of official members or representatives

Unfinished business

New business

Adjournment

12. The Administration at each annual meeting shall adopt and enter upon its records a report covering a summary of its transactions and proceedings for the preceding calendar year, the current status of its affairs and including such other matters as may be deemed appropriate by the official members. Copies of the report may be furnished to the President of the United States; the Governors of the States of Colorado, Nebraska and Kansas; officials of State and Federal agencies and others as determined by the Administration.
13. Amendments, revisions, deletions or additions to these Rules and Regulations may be made at any meeting of the Administration, provided that official members or duly appointed and acting personal representatives from all three states are present. Such changes may be made also at any meeting at which a quorum is present, provided that a statement of the proposed changes is sent by the Chairman to all official members of the Administration by ordinary mail at least fifteen (15) days in advance of the meeting at which they are to be considered.

Approval and Adoption

The foregoing Rules and Regulations, deemed to be consistent with provisions of the Republican River Compact and considered necessary for its administration, are hereby approved and adopted.

Done in the City of Denver in the State of Colorado on the 15th day of July, in the year of our Lord, one thousand nine hundred fifty-nine.

For the State of Colorado

/s/ J. E. Whitten
J. E. Whitten, State Engineer

For the State of Nebraska

/s/ Dan S. Jones, Jr.
Dan S. Jones, Jr.
Director of Water Resources

For the State of Kansas

/s/ R. V. Smrha
R. V. Smrha, Chief Engineer
Division of Water Resources
State Board of Agriculture

STATE OF Colorado, Denver COUNTY, ss.

BE IT REMEMBERED, That on this 15th day of July, A. D. 1959, before me the undersigned, a notary public in and for said County and State, came J. E. Whitten, State Engineer of the State of Colorado; Dan S. Jones, Jr., Director of Water Resources of the State of Nebraska, and R. V. Smrha, Chief Engineer, Division of Water Resources, State Board of Agriculture of the State of Kansas, who are personally known to me to be such duly appointed qualified and acting officials, and who are personally known to me to be the same persons who executed the within instrument of writing as such officials and such persons duly acknowledged the execution of the same as such officials.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year last above written.

(SEAL)

Signature: /s/ Janice A. Stewart
Notary Public

My commission expires ~~My Commission expires~~ January 24, 1962

Republican River Compact Administration

ACCOUNTING PROCEDURES

AND

REPORTING REQUIREMENTS

Revised August 12, 2010

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I. Introduction

This document describes the definitions, procedures, basic formulas, specific formulas, and data requirements and reporting formats to be used by the RRCA to compute the Virgin Water Supply, Computed Water Supply, Allocations, Imported Water Supply Credit and Computed Beneficial Consumptive Use. These computations shall be used to determine supply, allocations, use and compliance with the Compact according to the Stipulation. These definitions, procedures, basic and specific formulas, data requirements and attachments may be changed by consent of the RRCA consistent with Subsection I.F of the Stipulation. This document will be referred to as the RRCA Accounting Procedures. Attached to these RRCA Accounting Procedures as Figure 1 is the map attached to the Compact that shows the Basin, its streams and the Basin boundaries.

II. Definitions

The following words and phrases as used in these RRCA Accounting Procedures are defined as follows:

Additional Water Administration Year - a year when the projected or actual irrigation water supply is less than 130,000 Acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan attached as Appendix K to the Stipulation.

Allocation(s): the water supply allocated to each State from the Computed Water Supply;

Annual: yearly from January 1 through December 31;

Basin: the Republican River Basin as defined in Article II of the Compact;

Beneficial Consumptive Use: that use by which the Water Supply of the Basin is consumed through the activities of man, and shall include water consumed by evaporation from any reservoir, canal, ditch, or irrigated area;

Change in Federal Reservoir Storage: the difference between the amount of water in storage in the reservoir on December 31 of each year and the amount of water in storage on December 31 of the previous year. The current area capacity table supplied by the appropriate federal operating agency shall be used to determine the contents of the reservoir on each date;

Compact: the Republican River Compact, Act of February 22, 1943, 1943 Kan. Sess. Laws 612, codified at Kan. Stat. Ann. § 82a-518 (1997); Act of February 24, 1943, 1943 Neb. Laws 377, codified at 2A Neb. Rev. Stat. App. § 1-106 (1995), Act of March 15, 1943, 1943 Colo. Sess. Laws 362, codified at Colo. Rev. Stat. §§ 37-67-101 and 37-67-102 (2001); Republican River Compact, Act of May 26, 1943, ch. 104, 57 Stat. 86;

Computed Beneficial Consumptive Use: for purposes of Compact accounting, the stream flow depletion resulting from the following activities of man:

- Irrigation of lands in excess of two acres;
- Any non-irrigation diversion of more than 50 Acre-feet per year;
- Multiple diversions of 50 Acre-feet or less that are connected or otherwise combined to serve a single project will be considered as a single diversion for accounting purposes if they total more than 50 Acre-feet;
- Net evaporation from Federal Reservoirs;
- Net evaporation from Non-federal Reservoirs within the surface boundaries of the Basin;
- Any other activities that may be included by amendment of these formulas by the RRCA;

Computed Water Supply: the Virgin Water Supply less the Change in Federal Reservoir Storage in any Designated Drainage Basin, and less the Flood Flows;

Designated Drainage Basins: the drainage basins of the specific tributaries and the Main Stem of the Republican River as described in Article III of the Compact. Attached hereto as Figure 3 is a map of the Sub-basins and Main Stem;

Dewatering Well: a Well constructed solely for the purpose of lowering the groundwater elevation;

Federal Reservoirs:

- Bonny Reservoir
- Swanson Lake
- Enders Reservoir
- Hugh Butler Lake
- Harry Strunk Lake
- Keith Sebelius Lake
- Harlan County Lake
- Lovewell Reservoir

Flood Flows: the amount of water deducted from the Virgin Water Supply as part of the computation of the Computed Water Supply due to a flood event as determined by the methodology described in Subsection III.B.1.;

Gaged Flow: the measured flow at the designated stream gage;

Guide Rock: a point at the Superior-Courtland Diversion Dam on the Republican River near Guide Rock, Nebraska; the Superior-Courtland Diversion Dam gage plus any flows through the sluice gates of the dam, specifically excluding any diversions to the Superior and Courtland Canals, shall be the measure of flows at Guide Rock;

Historic Consumptive Use: that amount of water that has been consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use was lawfully made;

Imported Water Supply: the water supply imported by a State from outside the Basin resulting from the activities of man;

Imported Water Supply Credit: the accretions to stream flow due to water imports from outside of the Basin as computed by the RRCA Groundwater Model. The Imported Water Supply Credit of a State shall not be included in the Virgin Water Supply and shall be counted as a credit/offset against the Computed Beneficial Consumptive Use of water allocated to that State, except as provided in Subsection V.B.2. of the Stipulation and Subsections III.I. – J. of these RRCA Accounting Procedures;

Main Stem: the Designated Drainage Basin identified in Article III of the Compact as the North Fork of the Republican River in Nebraska and the main stem of the Republican River between the junction of the North Fork and the Arikaree River and the lowest crossing of the river at the Nebraska-Kansas state line and the small tributaries thereof, and also including the drainage basin Blackwood Creek;

Main Stem Allocation: the portion of the Computed Water Supply derived from the Main Stem and the Unallocated Supply derived from the Sub-basins as shared by Kansas and Nebraska;

Meeting(s): a meeting of the RRCA, including any regularly scheduled annual meeting or any special meeting;

Modeling Committee: the modeling committee established in Subsection IV.C. of the Stipulation;

Moratorium: the prohibition and limitations on construction of new Wells in the geographic area described in Section III. of the Stipulation;

Non-federal Reservoirs: reservoirs other than Federal Reservoirs that have a storage capacity of 15 Acre-feet or greater at the principal spillway elevation;

Northwest Kansas: those portions of the Sub-basins within Kansas;

Replacement Well: a Well that replaces an existing Well that a) will not be used after construction of the new Well and b) will be abandoned within one year after such construction or is used in a manner that is excepted from the Moratorium pursuant to Subsections III.B.1.c.-f. of the Stipulation;

RRCA: Republican River Compact Administration, the administrative body composed of the State officials identified in Article IX of the Compact;

RRCA Accounting Procedures: this document and all attachments hereto;

RRCA Groundwater Model: the groundwater model developed under the provisions of Subsection IV.C. of the Stipulation and as subsequently adopted and revised through action of the RRCA;

State: any of the States of Colorado, Kansas, and Nebraska;

States: the States of Colorado, Kansas and Nebraska;

Stipulation: the Final Settlement Stipulation to be filed in *Kansas v. Nebraska and Colorado*, No. 126, Original, including all Appendices attached thereto;

Sub-basin: the Designated Drainage Basins, except for the Main Stem, identified in Article III of the Compact. For purposes of Compact accounting the following Sub-basins will be defined as described below:

North Fork of the Republican River in Colorado drainage basin is that drainage area above USGS gaging station number 06823000, North Fork Republican River at the Colorado-Nebraska State Line,

Arikaree River drainage basin is that drainage area above USGS gaging station number 06821500, Arikaree River at Haigler, Nebraska,

Buffalo Creek drainage basin is that drainage area above USGS gaging station number 06823500, Buffalo Creek near Haigler, Nebraska,

Rock Creek drainage basin is that drainage area above USGS gaging station number 06824000, Rock Creek at Parks, Nebraska,

South Fork of the Republican River drainage basin is that drainage area above USGS gaging station number 06827500, South Fork Republican River near Benkelman, Nebraska,

Frenchman Creek (River) drainage basin in Nebraska is that drainage area above USGS gaging station number 06835500, Frenchman Creek in Culbertson, Nebraska,

Driftwood Creek drainage basin is that drainage area above USGS gaging station number 06836500, Driftwood Creek near McCook, Nebraska,

Red Willow Creek drainage basin is that drainage area above USGS gaging station number 06838000, Red Willow Creek near Red Willow, Nebraska,

Medicine Creek drainage basin is that drainage area above the Medicine Creek below Harry Strunk Lake, State of Nebraska gaging station number 06842500; and the drainage area between the gage and the confluence with the Main Stem,

Sappa Creek drainage basin is that drainage area above USGS gaging station number 06847500, Sappa Creek near Stamford, Nebraska and the drainage area between the gage and the confluence with the Main Stem; and excluding the Beaver Creek drainage basin area downstream from the State of Nebraska gaging station number 06847000 Beaver Creek near Beaver City, Nebraska to the confluence with Sappa Creek,

Beaver Creek drainage basin is that drainage area above State of Nebraska gaging station number 06847000, Beaver Creek near Beaver City, Nebraska, and the drainage area between the gage and the confluence with Sappa Creek,

Prairie Dog Creek drainage basin is that drainage area above USGS gaging station number 06848500, Prairie Dog Creek near Woodruff, Kansas, and the drainage area between the gage and the confluence with the Main Stem;

Attached hereto as Figure 2 is a line diagram depicting the streams, Federal Reservoirs and gaging stations;

Test hole: a hole designed solely for the purpose of obtaining information on hydrologic and/or geologic conditions;

Trenton Dam: a dam located at 40 degrees, 10 minutes, 10 seconds latitude and 101 degrees, 3 minutes, 35 seconds longitude, approximately two and one-half miles west of the town of Trenton, Nebraska;

Unallocated Supply: the “water supplies of upstream basins otherwise unallocated” as set forth in Article IV of the Compact;

Upstream of Guide Rock, Nebraska: those areas within the Basin lying west of a line proceeding north from the Nebraska-Kansas state line and following the western edge of Webster County, Township 1, Range 9, Sections 34, 27, 22, 15, 10 and 3 through Webster County, Township 2, Range 9, Sections 34, 27 and 22; then proceeding west along the southern edge of Webster County, Township 2, Range 9, Sections 16, 17 and 18; then proceeding north following the western edge of Webster County, Township 2, Range 9, Sections 18, 7 and 6, through Webster County, Township 3, Range 9, Sections 31, 30, 19, 18, 7 and 6 to its intersection with the northern boundary of Webster County. Upstream of Guide Rock, Nebraska shall not include that area in Kansas east of the 99° meridian and south of the Kansas-Nebraska state line;

Virgin Water Supply: the Water Supply within the Basin undepleted by the activities of man;

Water Short Year Administration: administration in a year when the projected or actual irrigation water supply is less than 119,000 acre feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan attached as Appendix K to the Stipulation.

Water Supply of the Basin or Water Supply within the Basin: the stream flows within the Basin, excluding Imported Water Supply;

Well: any structure, device or excavation for the purpose or with the effect of obtaining groundwater for beneficial use from an aquifer, including wells, water wells, or groundwater wells as further defined and used in each State’s laws, rules, and regulations.

III. Basic Formulas

The basic formulas for calculating Virgin Water Supply, Computed Water Supply, Imported Water Supply, Allocations and Computed Beneficial Consumptive Use are set forth below. The results of these calculations shall be shown in a table format as shown in Table 1.

Basic Formulas for Calculating Virgin Water Supply, Computed Water Supply, Allocations and Computed Beneficial Consumptive Use	
Sub-basin VWS	= Gage + All CBCU + ΔS – IWS
Main Stem VWS	= Hardy Gage – Σ Sub-basin gages + All CBCU in the Main Stem + ΔS – IWS
CWS	= VWS - Δ S – FF
Allocation for each State in each Sub-basin And Main Stem	= CWS x %
State's Allocation	= Σ Allocations for Each State
State's CBCU	= Σ State's CBCUs in each Sub-basin and Main Stem

Abbreviations:

- CBCU = Computed Beneficial Consumptive Use
- FF = Flood Flows
- Gage = Gaged Flow
- IWS = Imported Water Supply Credit
- CWS = Computed Water Supply
- VWS = Virgin Water Supply

% = the ratio used to allocate the Computed Water Supply between the States. This ratio is based on the allocations in the Compact
 ΔS = Change in Federal Reservoir Storage

A. Calculation of Annual Virgin Water Supply

1. Sub-basin calculation:

The annual Virgin Water Supply for each Sub-basin will be calculated by adding: a) the annual stream flow in that Sub-basin at the Sub-basin stream gage designated in Section II., b) the annual Computed Beneficial Consumptive Use above that gaging station, and c) the Change in Federal Reservoir Storage in that Sub-basin; and from that total subtract any Imported Water Supply Credit. The Computed Beneficial Consumptive Use will be calculated as described in Subsection III. D. Adjustments for flows diverted around stream gages and for Computed Beneficial Consumptive Uses in the Sub-basin between the Sub-basin stream gage and the confluence of the Sub-basin tributary and the Main Stem shall be made as described in Subsections III. D. 1 and 2 and IV. B.

2. Main Stem Calculation:

The annual Virgin Water Supply for the Main Stem will be calculated by adding: a) the flow at the Hardy gage minus the flows from the Sub-basin gages listed in Section II, b) the annual Computed Beneficial Consumptive Use in the Main Stem, and c) the Change in Federal Reservoir Storage from Swanson Lake and Harlan County Lake; and from that total subtract any Imported Water Supply Credit for the Main Stem. Adjustments for flows diverted around Sub-basin stream gages and for Computed Beneficial Consumptive Uses in a Sub-basin between the Sub-basin stream gage and the confluence of the Sub-basin tributary and the Mains Stem shall be made as described in Subsections III. D. 1 and 2 and IV.B.,

3. Imported Water Supply Credit Calculation:

The amount of Imported Water Supply Credit shall be determined by the RRCA Groundwater Model. The Imported Water Supply Credit of a State shall not be included in the Virgin Water Supply and shall be counted as a credit/offset against the Computed Beneficial Consumptive Use of water allocated to that State. Currently, the Imported Water Supply Credits shall be determined using two runs of the RRCA Groundwater Model:

- a. The “base” run shall be the run with all groundwater pumping, groundwater pumping recharge, and surface water recharge within the model study

boundary for the current accounting year turned “on.” This will be the same “base” run used to determine groundwater Computed Beneficial Consumptive Uses.

- b. The “no NE import” run shall be the run with the same model inputs as the base run with the exception that surface water recharge associated with Nebraska’s Imported Water Supply shall be turned “off.”

The Imported Water Supply Credit shall be the difference in stream flows between these two model runs. Differences in stream flows shall be determined at the same locations as identified in Subsection III.D.1. for the “no pumping” runs. Should another State import water into the Basin in the future, the RRCA will develop a similar procedure to determine Imported Water Supply Credits.

B. Calculation of Computed Water Supply

On any Designated Drainage Basin without a Federal Reservoir, the Computed Water Supply will be equal to the Virgin Water Supply of that Designated Drainage Basin minus Flood Flows.

On any Designated Drainage Basin with a Federal Reservoir, the Computed Water Supply will be equal to the Virgin Water Supply minus the Change in Federal Reservoir Storage in that Designated Drainage Basin and minus Flood Flows.

1. Flood Flows

If in any calendar year there are five consecutive months in which the total actual stream flow¹ at the Hardy gage is greater than 325,000 Acre-feet, or any two consecutive months in which the total actual stream flow is greater than 200,000 Acre-feet, the annual flow in excess of 400,000 Acre-feet at the Hardy gage will be considered to be Flood Flows that will be subtracted from the Virgin Water Supply to calculate the Computed Water Supply, and Allocations. The Flood Flow in excess of 400,000 Acre-feet at the Hardy gage will be subtracted from the Virgin Water Supply of the Main Stem to compute the Computed Water Supply unless the Annual Gaged Flows from a Sub-basin were in excess of the flows shown for that Sub-basin in Attachment 1. These excess Sub-basin flows shall be considered to be Sub-basin Flood Flows.

If there are Sub-basin Flood Flows, the total of all Sub-basin Flood Flows shall be compared to the amount of Flood Flows at the Hardy gage. If the sum of the Sub-basin Flood Flows are in excess of the Flood Flow at the Hardy gage, the flows to

¹ These actual stream flows reflect Gaged Flows after depletions by Beneficial Consumptive Use and change in reservoir storage above the gage.

be deducted from each Sub-basin shall be the product of the Flood Flows for each Sub-basin times the ratio of the Flood Flows at the Hardy gage divided by the sum of the Flood Flows of the Sub-basin gages. If the sum of the Sub-basin Flood Flows is less than the Flood Flow at the Hardy gage, the entire amount of each Sub-basin Flood Flow shall be deducted from the Virgin Water Supply to compute the Computed Water Supply of that Sub-basin for that year. The remainder of the Flood Flows will be subtracted from the flows of the Main Stem.

C. Calculation of Annual Allocations

Article IV of the Compact allocates 54,100 Acre-feet for Beneficial Consumptive Use in Colorado, 190,300 Acre-feet for Beneficial Consumptive Use in Kansas and 234,500 Acre-feet for Beneficial Consumptive Use in Nebraska. The Compact provides that the Compact totals are to be derived from the sources and in the amounts specified in Table 2.

The Allocations derived from each Sub-basin to each State shall be the Computed Water Supply multiplied by the percentages set forth in Table 2. In addition, Kansas shall receive 51.1% of the Main Stem Allocation and the Unallocated Supply and Nebraska shall receive 48.9% of the Main Stem Allocation and the Unallocated Supply.

D. Calculation of Annual Computed Beneficial Consumptive Use

1. Groundwater

Computed Beneficial Consumptive Use of groundwater shall be determined by use of the RRCA Groundwater Model. The Computed Beneficial Consumptive Use of groundwater for each State shall be determined as the difference in streamflows using two runs of the model:

The “base” run shall be the run with all groundwater pumping, groundwater pumping recharge, and surface water recharge within the model study boundary for the current accounting year “on”.

The “no State pumping” run shall be the run with the same model inputs as the base run with the exception that all groundwater pumping and pumping recharge of that State shall be turned “off.”

An output of the model is baseflows at selected stream cells. Changes in the baseflows predicted by the model between the “base” run and the “no-State-pumping” model run is assumed to be the depletions to streamflows. i.e., groundwater computed beneficial consumptive use, due to State groundwater

pumping at that location. The values for each Sub-basin will include all depletions and accretions upstream of the confluence with the Main Stem. The values for the Main Stem will include all depletions and accretions in stream reaches not otherwise accounted for in a Sub-basin. The values for the Main Stem will be computed separately for the reach above Guide Rock, and the reach below Guide Rock.

2. Surface Water

The Computed Beneficial Consumptive Use of surface water for irrigation and non-irrigation uses shall be computed by taking the diversions from the river and subtracting the return flows to the river resulting from those diversions, as described in Subsections IV.A.2.a.-d. The Computed Beneficial Consumptive Use of surface water from Federal Reservoir and Non-Federal Reservoir evaporation shall be the net reservoir evaporation from the reservoirs, as described in Subsections IV.A.2.e.-f.

For Sub-basins where the gage designated in Section II. is near the confluence with the Main Stem, each State's Sub-basin Computed Beneficial Consumptive Use of surface water shall be the State's Computed Beneficial Consumptive Use of surface water above the Sub-basin gage. For Medicine Creek, Sappa Creek, Beaver Creek and Prairie Dog Creek, where the gage is not near the confluence with the Main Stem, each State's Computed Beneficial Consumptive Use of surface water shall be the sum of the State's Computed Beneficial Consumptive Use of surface water above the gage, and its Computed Beneficial Consumptive Use of surface water between the gage and the confluence with the Main Stem.

E. Calculation to Determine Compact Compliance Using Five-Year Running Averages

Each year, using the procedures described herein, the RRCA will calculate the Annual Allocations by Designated Drainage Basin and total for each State, the Computed Beneficial Consumptive Use by Designated Drainage Basin and total for each State and the Imported Water Supply Credit that a State may use for the preceding year. These results for the current Compact accounting year as well as the results of the previous four accounting years and the five-year average of these results will be displayed in the format shown in Table 3.

F. Calculations To Determine Colorado's and Kansas's Compliance with the Sub-basin Non-Impairment Requirement

The data needed to determine Colorado's and Kansas's compliance with the Sub-basin non-impairment requirement in Subsection IV.B.2. of the Stipulation are shown in Tables 4.A. and B.

G. Calculations To Determine Projected Water Supply

1. Procedures to Determine Water Short Years

The Bureau of Reclamation will provide each of the States with a monthly or, if requested by any one of the States, a more frequent update of the projected or actual irrigation supply from Harlan County Lake for that irrigation season using the methodology described in the Harlan County Lake Operation Consensus Plan, attached as Appendix K to the Stipulation. The steps for the calculation are as follows:

Step 1. At the beginning of the calculation month (1) the total projected inflow for the calculation month and each succeeding month through the end of May shall be added to the previous end of month Harlan County Lake content and (2) the total projected 1993 level evaporation loss for the calculation month and each succeeding month through the end of May shall then be subtracted. The total projected inflow shall be the 1993 level average monthly inflow or the running average monthly inflow for the previous five years, whichever is less.

Step 2. Determine the maximum irrigation water available by subtracting the sediment pool storage (currently 164,111 Acre-feet) and adding the summer sediment pool evaporation (20,000 Acre-feet) to the result from Step 1.

Step 3. For October through January calculations, take the result from Step 2 and using the Shared Shortage Adjustment Table in Attachment 2 hereto, determine the preliminary irrigation water available for release. The calculation using the end of December content (January calculation month) indicates the minimum amount of irrigation water available for release at the end of May. For February through June calculations, subtract the maximum irrigation water available for the January calculation month from the maximum irrigation water available for the calculation month. If the result is negative, the irrigation water available for release (January calculation month) stays the same. If the result is positive the preliminary irrigation

water available for release (January calculation month) is increased by the positive amount.

Step 4. Compare the result from Step 3 to 119,000 Acre-feet. If the result from Step 3 is less than 119,000 Acre-feet Water Short Year Administration is in effect.

Step 5. The final annual Water-Short Year Administration calculation determines the total estimated irrigation supply at the end of June (calculated in July). Use the result from Step 3 for the end of May irrigation release estimate, add the June computed inflow to Harlan County Lake and subtract the June computed gross evaporation loss from Harlan County Lake.

2. Procedures to Determine 130,000 Acre Feet Projected Water Supply

To determine the preliminary irrigation supply for the October through June calculation months, follow the procedure described in steps 1 through 4 of the “Procedures to determine Water Short Years” Subsection III. G. 1. The result from step 4 provides the forecasted water supply, which is compared to 130,000 Acre-feet. For the July through September calculation months, use the previous end of calculation month preliminary irrigation supply, add the previous month’s Harlan County Lake computed inflow and subtract the previous month’s computed gross evaporation loss from Harlan County Lake to determine the current preliminary irrigation supply. The result is compared to 130,000 Acre-feet.

H. Calculation of Computed Water Supply, Allocations and Computed Beneficial Consumptive Use Above and Below Guide Rock During Water-Short Administration Years.

For Water-Short-Administration Years, in addition to the normal calculations, the Computed Water Supply, Allocations, Computed Beneficial Consumptive Use and Imported Water Supply Credits shall also be calculated above Guide Rock as shown in Table 5C. These calculations shall be done in the same manner as in non-Water-Short Administration years except that water supplies originating below Guide Rock shall not be included in the calculations of water supplies originating above Guide Rock. The calculations of Computed Beneficial Consumptive Uses shall be also done in the same manner as in non-Water-Short Administration years except that Computed Beneficial Consumptive Uses from diversions below Guide Rock shall not be included. The depletions from the water diverted by the Superior and Courtland Canals at the Superior-Courtland Diversion Dam shall be included in the calculations of Computed Beneficial Consumptive Use above Guide Rock. Imported Water Supply Credits above Guide Rock, as described in Sub-section III.I., may be used as offsets against the Computed Beneficial Consumptive Use above Guide Rock by the State providing the Imported Water Supply Credits.

The Computed Water Supply of the Main Stem reach between Guide Rock and the Hardy gage shall be determined by taking the difference in stream flow at Hardy and Guide Rock, adding Computed Beneficial Consumptive Uses in the reach (this does not include the Computed Beneficial Consumptive Use from the Superior and Courtland Canal diversions), and subtracting return flows from the Superior and Courtland Canals in the reach. The Computed Water Supply above Guide Rock shall be determined by subtracting the Computed Water Supply of the Main Stem reach between Guide Rock and the Hardy gage from the total Computed Water Supply. Nebraska's Allocation above Guide Rock shall be determined by subtracting 48.9% of the Computed Water Supply of the Main Stem reach between Guide Rock and the Hardy gage from Nebraska's total Allocation. Nebraska's Computed Beneficial Consumptive Uses above Guide Rock shall be determined by subtracting Nebraska's Computed Beneficial Consumptive Uses below Guide Rock from Nebraska's total Computed Beneficial Consumptive Use.

I. Calculation of Imported Water Supply Credits During Water-Short Year Administration Years.

Imported Water Supply Credit during Water-Short Year Administration years shall be calculated consistent with Subsection V.B.2.b. of the Stipulation.

The following methodology shall be used to determine the extent to which Imported Water Supply Credit, as calculated by the RRCA Groundwater Model, can be credited to the State importing the water during Water-Short Year Administration years.

1. Monthly Imported Water Supply Credits

The RRCA Groundwater Model will be used to determine monthly Imported Water Supply Credits by State in each Sub-basin and for the Main Stem. The values for each Sub-basin will include all depletions and accretions upstream of the confluence with the Main Stem. The values for the Main Stem will include all depletions and accretions in stream reaches not otherwise accounted for in a Sub-basin. The values for the Main Stem will be computed separately for the reach 1) above Harlan County Dam, 2) between Harlan County Dam and Guide Rock, and 3) between Guide Rock and the Hardy gage. The Imported Water Supply Credit shall be the difference in stream flow for two runs of the model: a) the "base" run and b) the "no State import" run.

During Water-Short Year Administration years, Nebraska's credits in the Sub-basins shall be determined as described in Section III. A. 3.

2. Imported Water Supply Credits Above Harlan County Dam

Nebraska's Imported Water Supply Credits above Harlan County Dam shall be the sum of all the credits in the Sub-basins and the Main Stem above Harlan County Dam.

3. Imported Water Supply Credits Between Harlan County Dam and Guide Rock During the Irrigation Season

- a. During Water-Short Year Administration years, monthly credits in the reach between Harlan County Dam and Guide Rock shall be determined as the differences in the stream flows between the two runs at Guide Rock.
- b. The irrigation season shall be defined as starting on the first day of release of water from Harlan County Lake for irrigation use and ending on the last day of release of water from Harlan County Lake for irrigation use.
- c. Credit as an offset for a State's Computed Beneficial Consumptive Use above Guide Rock will be given to all the Imported Water Supply accruing in the reach between Harlan County Dam and Guide Rock during the irrigation season. If the period of the irrigation season does not coincide with the period of modeled flows, the amount of the Imported Water Supply credited during the irrigation season for that month shall be the total monthly modeled Imported Water Supply Credit times the number of days in the month occurring during the irrigation season divided by the total number of days in the month.

4. Imported Water Supply Credits Between Harlan County Dam and Guide Rock During the Non-Irrigation Season

- a. Imported Water Supply Credit shall be given between Harlan County Dam and Guide Rock during the period that flows are diverted to fill Lovewell Reservoir to the extent that imported water was needed to meet Lovewell Reservoir target elevations.
- b. Fall and spring fill periods shall be established during which credit shall be given for the Imported Water Supply Credit accruing in the reach. The fall period shall extend from the end of the irrigation season to December 1. The spring period shall extend from March 1 to May 31. The Lovewell target elevations for these fill periods are the projected end of November reservoir level and the projected end of May reservoir level for most

probable inflow conditions as indicated in Table 4 in the current Annual Operating Plan prepared by the Bureau of Reclamation.

c. The amount of water needed to fill Lovewell Reservoir for each period shall be calculated as the storage content of the reservoir at its target elevation at the end of the fill period minus the reservoir content at the start of the fill period plus the amount of net evaporation during this period minus White Rock Creek inflows for the same period.

d. If the fill period as defined above does not coincide with the period of modeled flows, the amount of the Imported Water Supply Credit during the fill period for that month shall be the total monthly modeled Imported Water Supply Credit times the number of days in the month occurring during the fill season divided by the total number of days in the month.

e. The amount of non-imported water available to fill Lovewell Reservoir to the target elevation shall be the amount of water available at Guide Rock during the fill period minus the amount of the Imported Water Supply Credit accruing in the reach during the same period.

f. The amount of the Imported Water Supply Credit that shall be credited against a State's Consumptive Use shall be the amount of water imported by that State that is available in the reach during the fill period or the amount of water needed to reach Lovewell Reservoir target elevations minus the amount of non-imported water available during the fill period, whichever is less.

5. Other Credits

Kansas and Nebraska will explore crediting Imported Water Supply that is otherwise useable by Kansas.

J. Calculations of Compact Compliance in Water-Short Year Administration Years

During Water-Short Year Administration, using the procedures described in Subsections III.A-D, the RRCA will calculate the Annual Allocations for each State, the Computed Beneficial Consumptive Use by each State, and Imported Water Supply Credit that a State may use to offset Computed Beneficial Consumptive Use in that year. The resulting annual and average values will be calculated as displayed in Tables 5 A-C and E.

If Nebraska is implementing an Alternative Water-Short-Year Administration Plan, data to determine Compact compliance will be shown in Table 5D. Nebraska's compliance with the Compact will be determined in the same manner as Nebraska's Above Guide Rock

compliance except that compliance will be based on a three-year running average of the current year and previous two year calculations. In addition, Table 5 D. will display the sum of the previous two-year difference in Allocations above Guide Rock and Computed Beneficial Consumptive Uses above Guide Rock minus any Imported Water Credits and compare the result with the Alternative Water-Short-Year Administration Plan’s expected decrease in Computed Beneficial Consumptive Use above Guide Rock. Nebraska will be within compliance with the Compact as long as the three-year running average difference in Column 8 is positive and the sum of the previous year and current year deficits above Guide Rock are not greater than the expected decrease in Computed Beneficial Consumptive Use under the plan.

IV. Specific Formulas

A. Computed Beneficial Consumptive Use

1. Computed Beneficial Consumptive Use of Groundwater:

The Computed Beneficial Consumptive Use caused by groundwater diversion shall be determined by the RRCA Groundwater Model as described in Subsection III.D.1.

2. Computed Beneficial Consumptive Use of Surface Water:

The Computed Beneficial Consumptive Use of surface water shall be calculated as follows:

a) Non-Federal Canals

Computed Beneficial Consumptive Use from diversions by non- federal canals shall be 60 percent of the diversion; the return flow shall be 40 percent of the diversion

b) Individual Surface Water Pumps

Computed Beneficial Consumptive Use from small individual surface water pumps shall be 75 percent of the diversion; return flows will be 25 percent of the diversion unless a state provides data on the amount of different system types in a Sub-basin, in which case the following percentages will be used for each system type:

Gravity Flow.	30%
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Center Pivot	17%
LEPA	10%

c) Federal Canals

Computed Beneficial Consumptive Use of diversions by Federal canals will be calculated as shown in Attachment 7. For each Bureau of Reclamation Canal the field deliveries shall be subtracted from the diversion from the river to determine the canal losses. The field delivery shall be multiplied by one minus an average system efficiency for the district to determine the loss of water from the field. Eighty-two percent of the sum of the field loss plus the canal loss shall be considered to be the return flow from the canal diversion. The assumed field efficiencies and the amount of the field and canal loss that reaches the stream may be reviewed by the RRCA and adjusted as appropriate to insure their accuracy.

d) Non-irrigation Uses

Any non-irrigation uses diverting or pumping more than 50 acre-feet per year will be required to measure diversions. Non-irrigation uses diverting more than 50 Acre-feet per year will be assessed a Computed Beneficial Consumptive Use of 50% of what is pumped or diverted, unless the entity presents evidence to the RRCA demonstrating a different percentage should be used.

e) Evaporation from Federal Reservoirs

Net Evaporation from Federal Reservoirs will be calculated as follows:

(1) Harlan County Lake, Evaporation Calculation

April 1 through October 31:

Evaporation from Harlan County Lake is calculated by the Corps of Engineers on a daily basis from April 1 through October 31. Daily readings are taken from a Class A evaporation pan maintained near the project office. Any precipitation recorded at the project office is added to the pan reading to obtain the actual evaporation amount. The pan value is multiplied by a pan coefficient that varies by month. These values are:

March	.56
April	.52
May	.53
June	.60
July	.68
August	.78
September	.91
October	1.01

The pan coefficients were determined by studies the Corps of Engineers conducted a number of years ago. The result is the evaporation in inches. It is divided by 12 and multiplied by the daily lake surface area in acres to obtain the evaporation in Acre-feet. The lake surface area is determined by the 8:00 a.m. elevation reading applied to the lake's area-capacity data. The area-capacity data is updated periodically through a sediment survey. The last survey was completed in December 2000.

November 1 through March 31

During the winter season, a monthly total evaporation in inches has been determined. The amount varies with the percent of ice cover. The values used are:

HARLAN COUNTY LAKE

Estimated Evaporation in Inches
Winter Season -- Monthly Total

PERCENTAGE OF ICE COVER

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
JAN	0.88	0.87	0.85	0.84	0.83	0.82	0.81	0.80	0.78	0.77	0.76
FEB	0.90	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.79
MAR	1.29	1.28	1.27	1.26	1.25	1.24	1.23	1.22	1.21	1.20	1.19
OCT	4.87			NO ICE							
NOV	2.81			NO ICE							
DEC	1.31	1.29	1.27	1.25	1.24	1.22	1.20	1.18	1.17	1.16	1.14

The monthly total is divided by the number of days in the month to obtain a daily evaporation value in inches. It is divided by 12 and

multiplied by the daily lake surface area in acres to obtain the evaporation in Acre-feet. The lake surface area is determined by the 8:00 a.m. elevation reading applied to the lake's area-capacity data. The area-capacity data is updated periodically through a sediment survey. The last survey was completed in December 2000.

To obtain the net evaporation, the monthly precipitation on the lake is subtracted from the monthly gross evaporation. The monthly precipitation is calculated by multiplying the sum of the month's daily precipitation in inches by the average of the end of the month lake surface area for the previous month and the end of the month lake surface area for the current month in acres and dividing the result by 12 to obtain the precipitation for the month in acre feet.

The total annual net evaporation (Acre-feet) will be charged to Kansas and Nebraska in proportion to the annual diversions made by the Kansas Bostwick Irrigation District and the Nebraska Bostwick Irrigation District during the time period each year when irrigation releases are being made from Harlan County Lake. For any year in which no irrigation releases were made from Harlan County Lake, the annual net evaporation charged to Kansas and Nebraska will be based on the average of the above calculation for the most recent three years in which irrigation releases from Harlan County Lake were made. In the event Nebraska chooses to substitute supply for the Superior Canal from Nebraska's allocation below Guide Rock in Water-Short Year Administration years, the amount of the substitute supply will be included in the calculation of the split as if it had been diverted to the Superior Canal at Guide Rock.

(2) Evaporation Computations for Bureau of Reclamation Reservoirs

The Bureau of Reclamation computes the amount of evaporation loss on a monthly basis at Reclamation reservoirs. The following procedure is utilized in calculating the loss in Acre-feet.

An evaporation pan reading is taken each day at the dam site. This measurement is the amount of water lost from the pan over a 24-hour period in inches. The evaporation pan reading is adjusted for any precipitation recorded during the 24-hour period. Instructions for determining the daily pan evaporation are found in the "National Weather Service Observing Handbook No. 2 – Substation Observations." All dams located in the Kansas River Basin with the exception of Bonny Dam are National Weather Service Cooperative Observers. The daily evaporation pan readings are totaled at the end

of each month and converted to a “free water surface” (FWS) evaporation, also referred to as “lake” evaporation. The FWS evaporation is determined by multiplying the observed pan evaporation by a coefficient of .70 at each of the reservoirs. This coefficient can be affected by several factors including water and air temperatures. The National Oceanic and Atmospheric Administration (NOAA) has published technical reports describing the determination of pan coefficients. The coefficient used is taken from the “NOAA Technical Report NWS 33, Map of coefficients to convert class A pan evaporation to free water surface evaporation”. This coefficient is used for the months of April through October when evaporation pan readings are recorded at the dams. The monthly FWS evaporation is then multiplied by the average surface area of the reservoir during the month in acres. Dividing this value by twelve will result in the amount of water lost to evaporation in Acre-feet during the month.

During the winter months when the evaporation pan readings are not taken, monthly evaporation tables based on the percent of ice cover are used. The tables used were developed by the Corps of Engineers and were based on historical average evaporation rates. A separate table was developed for each of the reservoirs. The monthly evaporation rates are multiplied by the .70 coefficient for pan to free water surface adjustment, divided by twelve to convert inches to feet and multiplied by the average reservoir surface area during the month in acres to obtain the total monthly evaporation loss in Acre-feet.

To obtain the net evaporation, the monthly precipitation on the lake is subtracted from the monthly gross evaporation. The monthly precipitation is calculated by multiplying the sum of the month's daily precipitation in inches by the average of the end of the month lake surface area for the previous month and the end of the month lake surface area for the current month in acres and dividing the result by 12 to obtain the precipitation for the month in acre feet.

f) Non-Federal Reservoir Evaporation:

For Non-Federal Reservoirs with a storage capacity less than 200 Acre-feet, the presumptive average annual surface area is 25% of the area at the principal spillway elevation. Net evaporation for each such Non-Federal Reservoir will be calculated by multiplying the presumptive average annual surface area by the net evaporation from the nearest climate and evaporation

station to the Non-Federal Reservoir. A State may provide actual data in lieu of the presumptive criteria.

Net evaporation from Non-Federal Reservoirs with 200 Acre-feet of storage or greater will be calculated by multiplying the average annual surface area (obtained from the area-capacity survey) and the net evaporation from the nearest evaporation and climate station to the reservoir. If the average annual surface area is not available, the Non-Federal Reservoirs with 200 Acre-feet of storage or greater will be presumed to be full at the principal spillway elevation.

B. Specific Formulas for Each Sub-basin and the Main Stem

All calculations shall be based on the calendar year and shall be rounded to the nearest 10 Acre-feet using the conventional rounding formula of rounding up for all numbers equal to five or higher and otherwise rounding down.

Abbreviations:

CBCU	= Computed Beneficial Consumptive Use
CWS	= Computed Water Supply
D	= Non-Federal Canal Diversions for Irrigation
Ev	= Evaporation from Federal Reservoirs
EvNFR	= Evaporation from Non-Federal Reservoirs
FF	= Flood Flow
GW	= Groundwater Computed Beneficial Consumptive Use (includes irrigation and non-irrigation uses)
IWS	= Imported Water Supply Credit from Nebraska
M&I	= Non-Irrigation Surface Water Diversions (Municipal and Industrial)
P	= Small Individual Surface Water Pump Diversions for Irrigation
RF	= Return Flow
VWS	= Virgin Water Supply
c	= Colorado
k	= Kansas
n	= Nebraska
ΔS	= Change in Federal Reservoir Storage
%	= Average system efficiency for individual pumps in the Sub-basin
% BRF	= Percent of Diversion from Bureau Canals that returns to the stream
###	= Value expected to be zero

3. North Fork of Republican River in Colorado ²

CBCU Colorado = 0.6 x Haigler Canal Diversion Colorado + 0.6 x Dc + % x Pc + 0.5 x M&Ic + EvNFRc + GWc

CBCU Kansas = GWk

CBCU Nebraska = 0.6 x Haigler Canal Diversion Nebraska + GWn

Note: The diversion for Haigler Canal is split between Colorado and Nebraska based on the percentage of land irrigated in each state

VWS = North Fork of the Republican River at the State Line, Stn. No. 06823000 + CBCUc + CBCUk + CBCUn + Nebraska Haigler Canal RF- IWS

Note: The Nebraska Haigler Canal RF returns to the Main Stem

CWS = VWS - FF

Allocation Colorado = 0.224 x CWS

Allocation Nebraska = 0.246 x CWS

Unallocated = 0.53 x CWS

4. Arikaree River ₂

CBCU Colorado = 0.6 x Dc + % x Pc + 0.5 x M&Ic + EvNFRc + GWc

CBCU Kansas = 0.6 x Dk + % x Pk + 0.5 x M&Ik + EvNFRk + GWk

CBCU Nebraska = 0.6 x Dn + % x Pn + 0.5 x M&In + EvNFRn + GWn

VWS = Arikaree Gage at Haigler Stn. No. 06821500 + CBCUc + CBCUk + CBCUn - IWS

² The RRCA will investigate whether return flows from the Haigler Canal diversion in Colorado may return to the Arikaree River, not the North Fork of the Republican River, as indicated in the formulas. If there are return flows from the Haigler Canal to the Arikaree River, these formulas will be changed to recognize those returns.

$$\begin{aligned} \text{CWS} &= \text{VWS} - \text{FF} \\ \text{Allocation Colorado} &= 0.785 \times \text{CWS} \\ \text{Allocation Kansas} &= 0.051 \times \text{CWS} \\ \text{Allocation Nebraska} &= 0.168 \times \text{CWS} \\ \text{Unallocated} &= -0.004 \times \text{CWS} \end{aligned}$$

5. Buffalo Creek

$$\begin{aligned} \text{CBCU Colorado} &= 0.6 \times \text{Dc} + \% \times \text{Pc} + 0.5 \times \text{M\&In} + \text{EvNFRc} + \text{GWc} \\ \text{CBCU Kansas} &= \text{GWk} \\ \text{CBCU Nebraska} &= 0.6 \times \text{Dn} + \% \times \text{Pn} + 0.5 \times \text{M\&In} + \text{EvNFRn} + \text{GWn} \\ \text{VWS} &= \text{Buffalo Creek near Haigler Gage Stn. No. 06823500} + \\ &\quad \text{CBCUc} + \text{CBCUk} + \text{CBCUn} - \text{IWS} \\ \text{CWS} &= \text{VWS} - \text{FF} \\ \text{Allocation Nebraska} &= 0.330 \times \text{CWS} \\ \text{Unallocated} &= 0.670 \times \text{CWS} \end{aligned}$$

6. Rock Creek

$$\begin{aligned} \text{CBCU Colorado} &= \text{GWc} \\ \text{CBCU Kansas} &= \text{GWk} \\ \text{CBCU Nebraska} &= 0.6 \times \text{Dn} + \% \times \text{Pn} + 0.5 \times \text{M\&In} + \text{EvNFRn} + \text{GWn} \\ \text{VWS} &= \text{Rock Creek at Parks Gage Stn. No. 06824000} + \text{CBCUc} + \\ &\quad \text{CBCUk} + \text{CBCUn} - \text{IWS} \\ \text{CWS} &= \text{VWS} - \text{FF} \\ \text{Allocation Nebraska} &= 0.400 \times \text{CWS} \end{aligned}$$

Unallocated = 0.600 x CWS

7. South Fork Republican River

CBCU Colorado = 0.6 x Hale Ditch Diversion + 0.6 x Dc + % x Pc + 0.5 x M&Ic + EvNFRc + Bonny Reservoir Ev + GWc

CBCU Kansas = 0.6 x Dk + % x Pk + 0.5 x M&Ik + EvNFRk + GWk

CBCU Nebraska = 0.6 x Dn + % x Pn + 0.5 x M&In + EvNFRn + GWn

VWS = South Fork Republican River near Benkelman Gage Stn. No. 06827500 + CBCUc + CBCUk + CBCUn + ΔS Bonny Reservoir – IWS

CWS = VWS - ΔS Bonny Reservoir - FF

Allocation Colorado = 0.444 x CWS

Allocation Kansas = 0.402 x CWS

Allocation Nebraska = 0.014 x CWS

Unallocated = 0.140 x CWS

8. Frenchman Creek in Nebraska

CBCU Colorado = GWc

CBCU Kansas = GWk

CBCU Nebraska = Culbertson Canal Diversions x (1-%BRF) + Culbertson Extension x (1-%BRF) + 0.6 x Champion Canal Diversion + 0.6 x Riverside Canal Diversion + 0.6 x Dn + % x Pn + 0.5 x M&In + EvNFRn + Enders Reservoir Ev + GWn

VWS = Frenchman Creek in Culbertson, Nebraska Gage Stn. No. 06835500 + CBCUc + CBCUk + CBCUn + 0.17 x Culbertson Diversion RF + Culbertson Extension RF + 0.78 x Riverside Diversion RF + ΔS Enders Reservoir – IWS

Note: 17% of the Culbertson Diversion RF and 100% of the Culbertson Extension RF return to the Main Stem

$$\text{CWS} = \text{VWS} - \Delta\text{S Enders Reservoir} - \text{FF}$$

$$\text{Allocation Nebraska} = 0.536 \times \text{CWS}$$

$$\text{Unallocated} = 0.464 \times \text{CWS}$$

9. Driftwood Creek

$$\text{CBCU Colorado} = \text{GWc}$$

$$\text{CBCU Kansas} = 0.6 \times \text{Dk} + \% \times \text{Pk} + 0.5 \times \text{M\&Ik} + \text{EvNFRk} + \text{GWk}$$

$$\text{CBCU Nebraska} = 0.6 \times \text{Dn} + \% \times \text{Pn} + 0.5 \times \text{M\&In} + \text{EvNFRn} + \text{GWn}$$

$$\text{VWS} = \text{Driftwood Creek near McCook Gage Stn. No. 06836500} + \text{CBCUc} + \text{CBCUk} + \text{CBCUn} - 0.24 \times \text{Meeker Driftwood Canal RF - IWS}$$

Note: 24 % of the Meeker Driftwood Canal RF returns to Driftwood Creek

$$\text{CWS} = \text{VWS} - \text{FF}$$

$$\text{Allocation Kansas} = 0.069 \times \text{CWS}$$

$$\text{Allocation Nebraska} = 0.164 \times \text{CWS}$$

$$\text{Unallocated} = 0.767 \times \text{CWS}$$

10. Red Willow Creek in Nebraska

$$\text{CBCU Colorado} = \text{GWc}$$

$$\text{CBCU Kansas} = \text{GWk}$$

$$\text{CBCU Nebraska} = 0.1 \times \text{Red Willow Canal CBCU} + 0.6 \times \text{Dn} + \% \times \text{Pn} + 0.5 \times \text{M\&In} + \text{EvNFRn} + 0.1 \times \text{Hugh Butler Lake Ev} + \text{GWn}$$

Note:

Red Willow Canal CBCU = Red Willow Canal Diversion x (1- % BRF)

90% of the Red Willow Canal CBCU and 90% of Hugh Butler Lake Ev charged to Nebraska’s CBCU in the Main Stem

VWS = Red Willow Creek near Red Willow Gage Stn. No. 06838000 + CBCUc + CBCUk + CBCUn + 0.9 x Red Willow Canal CBCU + 0.9 x Hugh Butler Lake Ev + 0.9 x Red Willow Canal RF + ΔS Hugh Butler Lake – IWS

Note: 90% of the Red Willow Canal RF returns to the Main Stem

CWS = VWS - ΔS Hugh Butler Lake - FF

Allocation Nebraska = 0.192 x CWS

Unallocated = 0.808 x CWS

11. Medicine Creek

CBCU Colorado = GWc

CBCU Kansas = GWk

CBCU Nebraska = 0.6 x Dn above and below gage + % x Pn above and below gage + 0.5 x M&In above and below gage + EvNFRn above and below gage + GWn

Note: Harry Strunk Lake Ev charged to Nebraska’s CBCU in the Main Stem.

CU from Harry Strunk releases in the Cambridge Canal is charged to the Main stem (no adjustment to the VWS formula is needed as this water shows up in the Medicine Creek gage).

VWS = Medicine Creek below Harry Strunk Lake Gage Stn. No.

$06842500 + \text{CBCUc} + \text{CBCUk} + \text{CBCUn} - 0.6 \times \text{Dn below gage} - \% \times \text{Pn below gage} - 0.5 * \text{M\&In below gage} - \text{EvNFRn below gage} + \text{Harry Strunk Lake Ev} + \Delta\text{S Harry Strunk Lake} - \text{IWS}$

Note: The CBCU surface water terms for Nebraska which occur below the gage are added in the VWS for the Main Stem

CWS = VWS - $\Delta\text{S Harry Strunk Lake}$ - FF

Allocation Nebraska = $0.091 \times \text{CWS}$

Unallocated = $0.909 \times \text{CWS}$

12. Beaver Creek

CBCU Colorado = $0.6 \times \text{Dc} + \% \times \text{Pc} + 0.5 \times \text{M\&Ic} + \text{EvNFRc} + \text{Gwc}$

CBCU Kansas = $0.6 \times \text{Dk} + \% \times \text{Pk} + 0.5 \times \text{M\&Ik} + \text{EvNFRk} + \text{Gwk}$

CBCU Nebraska = $0.6 \times \text{Dn above and below gage} + \% \times \text{Pn above and below gage} + 0.5 \times \text{M\&In above and below gage} + \text{EvNFRn above and below gage} + \text{Gwn}$

VWS = Beaver Creek near Beaver City gage Stn. No. 06847000 + $\text{BCUc} + \text{CBCUk} + \text{CBCUn} - 0.6 \times \text{Dn below gage} - \% \times \text{Pn below gage} - 0.5 * \text{M\&In below gage} - \text{EvNFRn below gage} - \text{IWS}$

Note: The CBCU surface water terms for Nebraska which occur below the gage are added in the VWS for the Main Stem

CWS = VWS - FF

Allocation Colorado = $0.200 \times \text{CWS}$

Allocation Kansas = $0.388 \times \text{CWS}$

Allocation Nebraska = $0.406 \times \text{CWS}$

Unallocated = 0.006 x CWS

13. Sappa Creek

CBCU Colorado = GWc

CBCU Kansas = 0.6 x Dk + % x Pk + 0.5 x M&Ik + EvNFRk + GWk

CBCU Nebraska = 0.6 x Dn above and below gage + % x Pn above and below gage + 0.5 x M&In above and below gage + EvNFRn above and below gage + GWn

VWS = Sappa Creek near Stamford gage Stn. No. 06847500 – Beaver Creek near Beaver City gage Stn. No. 06847000 + CBCUc + CBCUk + CBCUn – 0.6 x Dn below gage - % x Pn below gage – 0.5 * M&In below gage - EvNFRn below gage – IWS

Note: The CBCU surface water terms for Nebraska which occur below the gage are added in the VWS for the Main Stem

CWS = VWS - FF

Allocation Kansas = 0.411 x CWS

Allocation Nebraska = 0.411 x CWS

Unallocated = 0.178 x CWS

14. Prairie Dog Creek

CBCU Colorado = GWc

CBCU Kansas = Almena Canal Diversion x (1-%BRF) + 0.6 x Dk + % x Pk + 0.5 x M&Ik + EvNFRk + Keith Sebelius Lake Ev + GWk

CBCU Nebraska = 0.6 x Dn below gage + % x Pn below gage + 0.5 x M&In below gage + EvNFRn + GWn below gage

VWS = Prairie Dog Creek near Woodruff, Kansas USGS Stn. No.

$$06848500 + \text{CBCUc} + \text{CBCUk} + \text{CBCUn} - 0.6 \times \text{Dn below gage} - \% \times \text{Pn below gage} - 0.5 \times \text{M\&In below gage} - \text{EvNFRn below gage} + \Delta\text{S Keith Sebelius Lake} - \text{IWS}$$

Note: The CBCU surface water terms for Nebraska which occur below the gage are added in the VWS for the Main Stem

$$\text{CWS} = \text{VWS} - \Delta\text{S Keith Sebelius Lake} - \text{FF}$$

$$\text{Allocation Kansas} = 0.457 \times \text{CSW}$$

$$\text{Allocation Nebraska} = 0.076 \times \text{CWS}$$

$$\text{Unallocated} = 0.467 \times \text{CWS}$$

15. The North Fork of the Republican River in Nebraska and the Main Stem of the Republican River between the junction of the North Fork and the Arikaree River and the Republican River near Hardy

$$\text{CBCU Colorado} = \text{GWc}$$

$$\begin{aligned} \text{CBCU Kansas} = & \\ & (\text{Deliveries from the Courtland Canal to Kansas above Lovewell}) \times (1 - \% \text{BRF}) \\ & + \text{Amount of transportation loss of Courtland Canal deliveries to Lovewell that does not return to the river, charged to Kansas} \\ & + (\text{Diversion of Republican River water from Lovewell Reservoir by the Courtland Canal below Lovewell}) \times (1 - \% \text{BRF}) \\ & + 0.6 \times \text{Dk} \\ & + \% \times \text{Pk} \\ & + 0.5 \times \text{M\&Ik} \\ & + \text{EvNFRk} \\ & + \text{Harlan County Lake Ev charged to Kansas} \\ & + \text{Lovewell Reservoir Ev charged to the Republican River} \\ & + \text{GWk} \end{aligned}$$

$$\begin{aligned} \text{CBCU Nebraska} = & \\ & \text{Deliveries from Courtland Canal to Nebraska lands} \times (1 - \% \text{BRF}) \end{aligned}$$

- + Superior Canal x (1- %BRF)
- + Franklin Pump Canal x (1- %BRF)
- + Franklin Canal x (1- %BRF)
- + Naponee Canal x (1- %BRF)
- + Cambridge Canal x (1- %BRF)
- + Bartley Canal x (1- %BRF)
- + Meeker-Driftwood Canal x (1- %BRF)
- + 0.9 x Red Willow Canal CBCU
- + 0.6 x Dn
- + % x Pn
- + 0.5 x M&In
- + EvNFRn
- + 0.9 x Hugh Butler Lake Ev
- + Harry Strunk Lake Ev
- + Swanson Lake Ev
- + Harlan County Lake Ev charged to Nebraska
- + GWn

Notes:

The allocation of transportation losses in the Courtland Canal above Lovewell between Kansas and Nebraska shall be done by the Bureau of Reclamation and reported in their "Courtland Canal Above Lovewell" spreadsheet. Deliveries and losses associated with deliveries to both Nebraska and Kansas above Lovewell shall be reflected in the Bureau's Monthly Water District reports. Losses associated with delivering water to Lovewell shall be separately computed.

Amount of transportation loss of the Courtland Canal deliveries to Lovewell that does not return to the river, charged to Kansas shall be 18% of the Bureau's estimate of losses associated with these deliveries.

Red Willow Canal CBCU = Red Willow Canal Diversion x (1- % BRF)

10% of the Red Willow Canal CBCU is charged to Nebraska's CBCU in Red Willow Creek sub-basin

10% of Hugh Butler Lake Ev is charged to Nebraska's CBCU in the Red Willow Creek sub-basin

None of the Harry Strunk Lake EV is charged to Nebraska's CBCU in the Medicine Creek sub-basin

VWS

=

- Republican River near Hardy Gage Stn. No. 06853500
- North Fork of the Republican River at the State Line, Stn. No. 06823000
- Arikaree Gage at Haigler Stn. No. 06821500
- Buffalo Creek near Haigler Gage Stn. No. 06823500
- Rock Creek at Parks Gage Stn. No. 06824000
- South Fork Republican River near Benkelman Gage Stn. No. 06827500
- Frenchman Creek in Culbertson Stn. No. 06835500
- Driftwood Creek near McCook Gage Stn. No. 06836500
- Red Willow Creek near Red Willow Gage Stn. No. 06838000
- Medicine Creek below Harry Strunk Lake Gage Stn. No. 06842500
- Sappa Creek near Stamford Gage Stn. No. 06847500
- Prairie Dog Creek near Woodruff, Kansas Stn. No. 68-485000

- + CBCUc
- + CBCUn

- + 0.6 x Dk
- + % x Pk
- + 0.5 x M&Ik
- + EvNFRk

- + Harlan County Lake Ev charged to Kansas
- +Amount of transportation loss of the Courtland Canal above the Stateline that does not return to the river, charged to Kansas
- +GWk

- 0.9 x Red Willow Canal CBCU
- 0.9 x Hugh Butler Ev
- Harry Strunk Ev

- + 0.6 x Dn below Medicine Creek gage
- + % x Pn below Medicine Creek gage
- + 0.5 * M&In below Medicine Creek gage
- + EvNFRn below Medicine Creek gage

+ 0.6 x Dn below Beaver Creek gage
 + % x Pn below Beaver Creek gage
 + 0.5 * M&In below Beaver Creek gage
 + EvNFRn below Beaver Creek gage

+ 0.6 x Dn below Sappa Creek gage
 + % x Pn below Sappa Creek gage
 + 0.5 * M&In below Sappa Creek gage
 + EvNFRn below Sappa Creek gage

+ 0.6 x Dn below Prairie Dog Creek gage
 + % x Pn below Prairie Dog Creek gage
 + 0.5 * M&In below Prairie Dog Creek gage
 + EvNFRn below Prairie Dog Creek gage

+ Change in Storage Harlan County Lake
 + Change in Storage Swanson Lake

- Nebraska Haigler Canal RF
 - 0.78 x Riverside Canal RF
 - 0.17 x Culbertson Canal RF
 - Culbertson Canal Extension RF to Main Stem
 + 0.24 x Meeker Driftwood Canal RF which returns to
 Driftwood Creek
 - 0.9 x Red Willow Canal RF

+ Courtland Canal at Kansas-Nebraska State Line Gage Stn
 No. 06852500

- Courtland Canal RF in Kansas above Lovewell Reservoir

-IWS

Notes:

None of the Nebraska Haigler Canal RF returns to the North
 Fork of the Republican River

83% of the Culbertson Diversion RF and none of the
 Culbertson Extension RF return to Frenchman Creek

24 % of the Meeker Driftwood Canal RF returns to
 Driftwood Creek.

10% of the Red Willow Canal RF returns to Red Willow Creek

Courtland Canal RF in Kansas above Lovewell Reservoir =
0.015 x (Courtland Canal at Kansas-Nebraska State Line
Gage Stn No. 06852500)

CWS = VWS - Change in Storage Harlan County Lake - Change in
Storage Swanson Lake - FF

Allocation Kansas = 0.511 x CWS

Allocation Nebraska = 0.489 x CWS

V. Annual Data/ Information Requirements, Reporting, and Verification

The following information for the previous calendar year shall be provided to the members of the RRCA Engineering Committee by April 15th of each year, unless otherwise specified.

All information shall be provided in electronic format, if available.

Each State agrees to provide all information from their respective State that is needed for the RRCA Groundwater Model and RRCA Accounting Procedures and Reporting Requirements, including but not limited to the following:

A. Annual Reporting

1. Surface water diversions and irrigated acreage:

Each State will tabulate the canal, ditch, and other surface water diversions that are required by RRCA annual compact accounting and the RRCA Groundwater Model on a monthly format (or a procedure to distribute annual data to a monthly basis) and will forward the surface water diversions to the other States. This will include available diversion, wasteway, and farm delivery data for canals diverting from the Platte River that contribute to Imported Water Supply into the Basin. Each State will provide the water right number, type of use, system type, location, diversion amount, and acres irrigated.

2. Groundwater pumping and irrigated acreage:

Each State will tabulate and provide all groundwater well pumping estimates that are required for the RRCA Groundwater Model to the other States.

Colorado – will provide an estimate of pumping based on a county format that is based upon system type, Crop Irrigation Requirement (CIR), irrigated acreage, crop distribution, and irrigation efficiencies. Colorado will require installation of a totalizing flow meter, installation of an hours meter with a measurement of the pumping rate, or determination of a power conversion coefficient for 10% of the active wells in the Basin by December 31, 2005. Colorado will also provide an annual tabulation for each groundwater well that measures groundwater pumping by a totalizing flow meter, hours meter or power conversion coefficient that includes: the groundwater well permit number, location, reported hours, use, and irrigated acreage.

Kansas - will provide an annual tabulation by each groundwater well that includes: water right number, groundwater pumping determined by a meter on each well (or group of wells in a manifold system) or by reported hours of use and rate; location; system type (gravity, sprinkler, LEPA, drip, etc.); and irrigated acreage. Crop distribution will be provided on a county basis.

Nebraska – will provide an annual tabulation through the representative Natural Resource District (NRD) in Nebraska that includes: the well registration number or other ID number; groundwater pumping determined by a meter on each well (or group of wells in a manifold system) or by reported hours of use and rate; wells will be identified by; location; system type (gravity, sprinkler, LEPA, drip, etc.); and irrigated acreage. Crop distribution will be provided on a county basis.

3. Climate information:

Each State will tabulate and provide precipitation, temperature, relative humidity or dew point, and solar radiation for the following climate stations:

State	Identification	Name
Colorado		
Colorado	C050109	Akron 4 E
Colorado	C051121	Burlington
Colorado	C054413	Julesburg
Colorado	C059243	Wray
Kansas	C140439	Atwood 2 SW
Kansas	C141699	Colby 1SW
Kansas	C143153	Goodland
Kansas	C143837	Hoxie

Kansas	C145856	Norton 9 SSE
Kansas	C145906	Oberlin1 E
Kansas	C147093	Saint Francis
Kansas	C148495	Wakeeny
Nebraska	C250640	Beaver City
Nebraska	C250810	Bertrand
Nebraska	C252065	Culbertson
Nebraska	C252690	Elwood 8 S
Nebraska	C253365	Gothenburg
Nebraska	C253735	Hebron
Nebraska	C253910	Holdredge
Nebraska	C254110	Imperial
Nebraska	C255090	Madrid
Nebraska	C255310	McCook
Nebraska	C255565	Minden
Nebraska	C256480	Palisade
Nebraska	C256585	Paxton
Nebraska	C257070	Red Cloud
Nebraska	C258255	Stratton
Nebraska	C258320	Superior
Nebraska	C258735	Upland
Nebraska	C259020	Wauneta 3 NW

4. Crop Irrigation Requirements:

Each State will tabulate and provide estimates of crop irrigation requirement information on a county format. Each State will provide the percentage of the crop irrigation requirement met by pumping; the percentage of groundwater irrigated lands served by sprinkler or flood irrigation systems, the crop irrigation requirement; crop distribution; crop coefficients; gain in soil moisture from winter and spring precipitation, net crop irrigation requirement; and/or other information necessary to compute a soil/water balance.

5. Streamflow Records from State-Maintained Gaging Records:

Streamflow gaging records from the following State maintained gages will be provided:

Station No	Name
00126700	Republican River near Trenton
06831500	Frenchman Creek near Imperial
06832500	Frenchman Creek near Enders

06835000	Stinking Water Creek near Palisade
06837300	Red Willow Creek above Hugh Butler Lake
06837500	Red Willow Creek near McCook
06841000	Medicine Creek above Harry Strunk Lake
06842500	Medicine Creek below Harry Strunk Lake
06844000	Muddy Creek at Arapahoe
06844210	Turkey Creek at Edison
06847000	Beaver Creek near Beaver City
	Republican River at Riverton
06851500	Thompson Creek at Riverton
06852000	Elm Creek at Amboy
	Republican River at the Superior-Courtland Diversion Dam

6. Platte River Reservoirs:

The State of Nebraska will provide the end-of-month contents, inflow data, outflow data, area-capacity data, and monthly net evaporation, if available, from Johnson Lake; Elwood Reservoir; Sutherland Reservoir; Maloney Reservoir; and Jeffrey Lake.

7. Water Administration Notification:

The State of Nebraska will provide the following information that describes the protection of reservoir releases from Harlan County Lake and for the administration of water rights junior in priority to February 26, 1948:

Date of notification to Nebraska water right owners to curtail their diversions, the amount of curtailment, and length of time for curtailment.

The number of notices sent.

The number of diversions curtailed and amount of curtailment in the Harlan County Lake to Guide Rock reach of the Republican River.

8. Moratorium:

Each State will provide a description of all new Wells constructed in the Basin Upstream of Guide Rock including the owner, location (legal description), depth and diameter or dimension of the constructed water well, casing and screen information, static water level, yield of the water well in gallons per minute or gallons per hour, and intended use of the water well.

Designation whether the Well is a:

- a. Test hole;
- b. Dewatering Well with an intended use of one year or less;
- c. Well designed and constructed to pump fifty gallons per minute or less;
- d. Replacement Water Well, including a description of the Well that is replaced providing the information described above for new Wells and a description of the historic use of the Well that is replaced;
- e. Well necessary to alleviate an emergency situation involving provision of water for human consumption, including a brief description of the nature of the emergency situation and the amount of water intended to be pumped by and the length of time of operation of the new Well;
- f. Transfer Well, including a description of the Well that is transferred providing the information described above for new Wells and a description of the Historic Consumptive Use of the Well that is transferred;
- g. Well for municipal and/or industrial expansion of use;

Wells in the Basin in Northwest Kansas or Colorado. Kansas and Colorado will provide the information described above for new Wells along with copies of any other information that is required to be filed with either State of local agencies under the laws, statutes, rules and regulations in existence as of April 30, 2002, and;

Any changes in State law in the previous year relating to existing Moratorium.

9. Non-Federal Reservoirs:

Each State will conduct an inventory of Non Federal Reservoirs by December 31, 2004, for inclusion in the annual Compact Accounting. The inventory shall include the following information: the location, capacity (in Acre-feet) and area (in acres) at the principal spillway elevation of each Non-Federal Reservoir. The States will annually provide any updates to the initial inventory of Non-Federal Reservoirs, including enlargements that are constructed in the previous year.

Owners/operators of Non-Federal Reservoirs with 200 Acre-feet of storage capacity or greater at the principal spillway elevation will be required to provide an area-capacity survey from State-approved plans or prepared by a licensed professional engineer or land surveyor.

B. RRCA Groundwater Model Data Input Files

1. Monthly groundwater pumping, surface water recharge, groundwater recharge, and precipitation recharge provided by county and indexed to the one square mile cell size.
2. Potential Evapotranspiration rate is set as a uniform rate for all phreatophyte vegetative classes – the amount is X at Y climate stations and is interpolated spatially using kriging.

C. Inputs to RRCA Accounting

1. Surface Water Information

- a. Streamflow gaging station records: obtained as preliminary USGS or Nebraska streamflow records, with adjustments to reflect a calendar year, at the following locations:

Arikaree River at Haigler, Nebraska
 North Fork Republican River at Colorado-Nebraska state line
 Buffalo Creek near Haigler, Nebraska
 Rock Creek at Parks, Nebraska
 South Fork Republican River near Benkelman, Nebraska
 Frenchman Creek at Culbertson, Nebraska
 Red Willow Creek near Red Willow, Nebraska
 Medicine Creek below Harry Strunk Lake, Nebraska*
 Beaver Creek near Beaver City, Nebraska*
 Sappa Creek near Stamford, Nebraska
 Prairie Dog Creek near Woodruff, Kansas
 Courtland Canal at Nebraska-Kansas state line
 Republican River near Hardy, Nebraska
 Republican River at Superior-Courtland Diversion Dam near Guide Rock,
 Nebraska (new)*

- b. Federal reservoir information: obtained from the United States Bureau of Reclamation:

Daily free water surface evaporation, storage, precipitation, reservoir release information, and updated area-capacity tables.
 Federal Reservoirs:
 Bonny Reservoir

Swanson Lake
Harry Strunk Lake
Hugh Butler Lake
Enders Reservoir
Keith Sebelius Lake
Harlan County Lake
Lovewell Reservoir

- c. Non-federal reservoirs obtained by each state: an updated inventory of reservoirs that includes the location, surface area (acres), and capacity (in Acre-feet), of each non-federal reservoir with storage capacity of fifteen (15) Acre-feet or greater at the principal spillway elevation. Supporting data to substantiate the average surface water areas that are different than the presumptive average annual surface area may be tendered by the offering State.

- d. Diversions and related data from USBR

Irrigation diversions by canal, ditch, and pumping station that irrigate more than two (2) acres
Diversions for non-irrigation uses greater than 50 Acre-feet
Farm Deliveries
Wasteway measurements
Irrigated acres

- e. Diversions and related data – from each respective State

Irrigation diversions by canal, ditch, and pumping station that irrigate more than two (2) acres
Diversions for non-irrigation uses greater than 50 Acre-feet
Wasteway measurements, if available

2. Groundwater Information

(From the RRCA Groundwater model as output files as needed for the accounting procedures)

- a. Imported water - mound credits in amount and time that occur in defined streamflow points/reaches of measurement or compliance – ex: gaging stations near confluence or state lines

- b. Groundwater depletions to streamflow (above points of measurement or compliance – ex: gaging stations near confluence or state lines)

3. Summary

The aforementioned data will be aggregated by Sub-basin as needed for RRCA accounting.

D. Verification

1. Documentation to be Available for Inspection Upon Request

- a. Well permits/ registrations database
- b. Copies of well permits/ registrations issued in calendar year
- c. Copies of surface water right permits or decrees
- d. Change in water right/ transfer historic use analyses
- e. Canal, ditch, or other surface water diversion records
- f. Canal, ditch, or other surface water measurements
- g. Reservoir storage and release records
- h. Irrigated acreage

2. Site Inspection

- a. Accompanied – reasonable and mutually acceptable schedule among representative state and/or federal officials.
- b. Unaccompanied – inspection parties shall comply with all laws and regulations of the State in which the site inspection occurs.

Table 1: Annual Virgin and Computed Water Supply, Allocations and Computed Beneficial Consumptive Uses by State, Main Stem and Sub-basin

Designated Drainage Basin	Col. 1: Virgin Water Supply	Col. 2: Computed Water Supply	Col. 3: Allocations				Col. 4: Computed Beneficial Consumptive Use		
			Colorado	Nebraska	Kansas	Unallocated	Colorado	Nebraska	Kansas
North Fork in Colorado									
Arikaree									
Buffalo									
Rock									
South Fork of Republican River									
Frenchman									
Driftwood									
Red Willow									
Medicine									
Beaver									
Sappa									
Prairie Dog									
North Fork of Republican River in Nebraska and Main Stem									
Total All Basins									
North Fork Of Republican River in Nebraska and Mainstem Including Unallocated Water									
Total									

Table 2: Original Compact Virgin Water Supply and Allocations

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

Table 3A: Table to Be Used to Calculate Colorado's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Colorado				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive	Imported Water Supply Credit	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Col 1 – (Col 2- Col 3)
Year t= -4				
Year t= -3				
Year t= -2				
Year t= -1				
Current Year t= 0				
Average				

Table 3B. Table to Be Used to Calculate Kansas's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Kansas				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive	Imported Water Supply Credit	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Col 1 – (Col 2- Col 3)
Year t= -4				
Year t= -3				
Year t= -2				
Year t= -1				
Current Year t= 0				
Average				

Table 3C. Table to Be Used to Calculate Nebraska's Five-Year Running Average Allocation and Computed Beneficial Consumptive Use for Determining Compact Compliance

Nebraska				
	Col. 1	Col. 2	Col. 3	Col. 4
Year	Allocation	Computed Beneficial Consumptive	Imported Water Supply Credit	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Col 1 – (Col 2- Col 3)
Year T= -4				
Year T= -3				
Year T= -2				
Year T= -1				
Current Year T= 0				
Average				

Table 4A: Colorado Compliance with the Sub-basin Non-impairment Requirement

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
Sub-basin	Colorado Sub-basin Allocation (5-year running average)	Unallocated Supply (5-year running average)	Credits from Imported Water Supply (5-year running average)	Total Supply Available = Col 1 + Col 2 + Col 3 (5-year running average)	Colorado Computed Beneficial Consumptive Use (5-year running average)	Difference Between Available Supply and Computed Beneficial Consumptive Use = Col 4 – Col 5 (5-year running average)
North Fork Republican River Colorado						
Arikaree River						
South Fork Republican River						
Beaver Creek						

Table 4B: Kansas Compliance with the Sub-basin Non-impairment Requirement

	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7
Sub-basin	Kansas Sub-basin Allocation (5-year running average)	Unallocated Supply (5-year running average)	Unused Allocation from Colorado (5-year running average)	Credits from Imported Water Supply (5-year running average)	Total Supply Available = Col 1 + Col 2 + Col 3 + Col 4 (5-year running average)	Kansas Computed Beneficial Consumptive Use (5-year running average)	Difference Between Available Supply and Computed Beneficial Consumptive Use = Col 5 – Col 6 (5-year running average)
Arikaree River							
South Fork Republican River							
Driftwood Creek							
Beaver Creek							
Sappa Creek							
Prairie Dog Creek							

Table 5A: Colorado Compliance During Water-Short Year Administration

Colorado				
	Col. 1	Col. 2	Col. 3	Col 4
Year	Allocation minus Allocation for Beaver Creek	Computed Beneficial Consumptive minus Computed Beneficial Consumptive Use for Beaver Creek	Imported Water Supply Credit excluding Beaver Creek	Difference between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit for All Basins Except Beaver Creek Col 1 – (Col 2 – Col 3)
Year T= -4				
Year T= -3				
Year T= -2				
Year T= -1				
Current Year T= 0				
Average				

Table 5B: Kansas Compliance During Water-Short Year Administration

Kansas						
Year	Allocation			Computed Beneficial Consumptive Use`	Imported Water Supply Credit	Difference Between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit
Column	1	2	3	4	5	6
	Sum Sub-basins	Kansas's Share of the Unallocated Supply	Total Col 1 + Col 2			Col 3 – (Col 4 – Col 5)
Previous Year						
Current Year						
Average						

Table 5C: Nebraska Compliance During Water-Short Year Administration

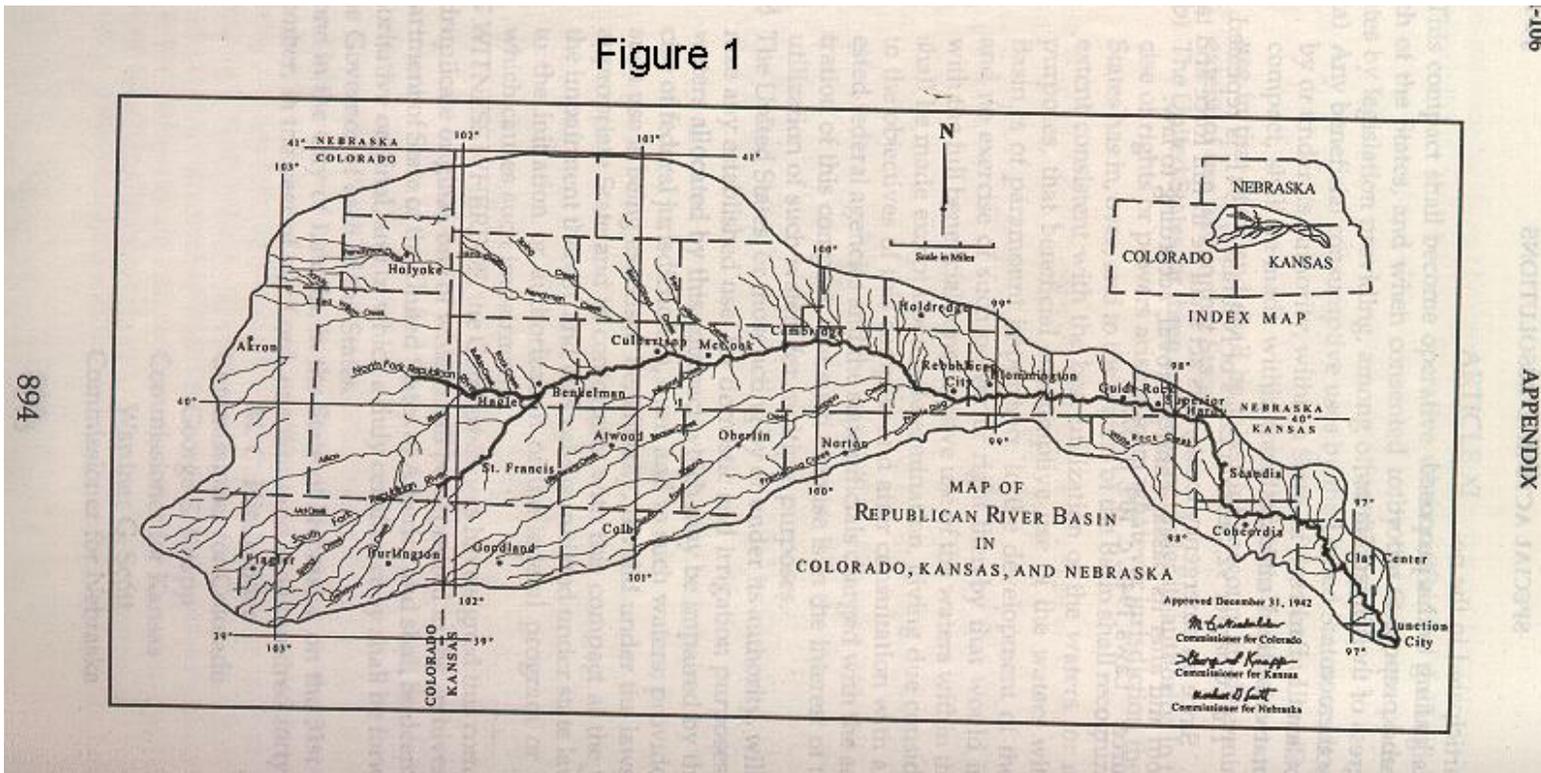
Nebraska								
Year	Allocation			Computed Beneficial Consumptive Use			Imported Water Supply Credit	Difference Between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Above Guide Rock
Column	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8
	State Wide Allocation	Allocation below Guide Rock	State Wide Allocation above Guide Rock	State Wide CBCU	CBCU below Guide Rock	State Wide CBCU above Guide Rock	Credits above Guide Rock	Col 3 – (Col 6 – Col 7)
Previous Year								
Current Year								
Average								

Table 5D: Nebraska Compliance Under a Alternative Water-Short Year Administration Plan

Year	Allocation			Computed Beneficial Consumptive Use			Imported Water Supply Credit	Difference Between Allocation and the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit Above Guide Rock
Column	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8
	State Wide Allocation	Allocation below Guide Rock	State Wide Allocation above Guide Rock	State Wide CBCU	CBCU below Guide Rock	State Wide CBCU above Guide Rock	Credits above Guide Rock	Col 3 – (Col 6- Col 7)
Year = -2								
Year = -1								
Current Year								
Three-Year Average								
Sum of Previous Two-year Difference								
Expected Decrease in CBCU Under Plan								

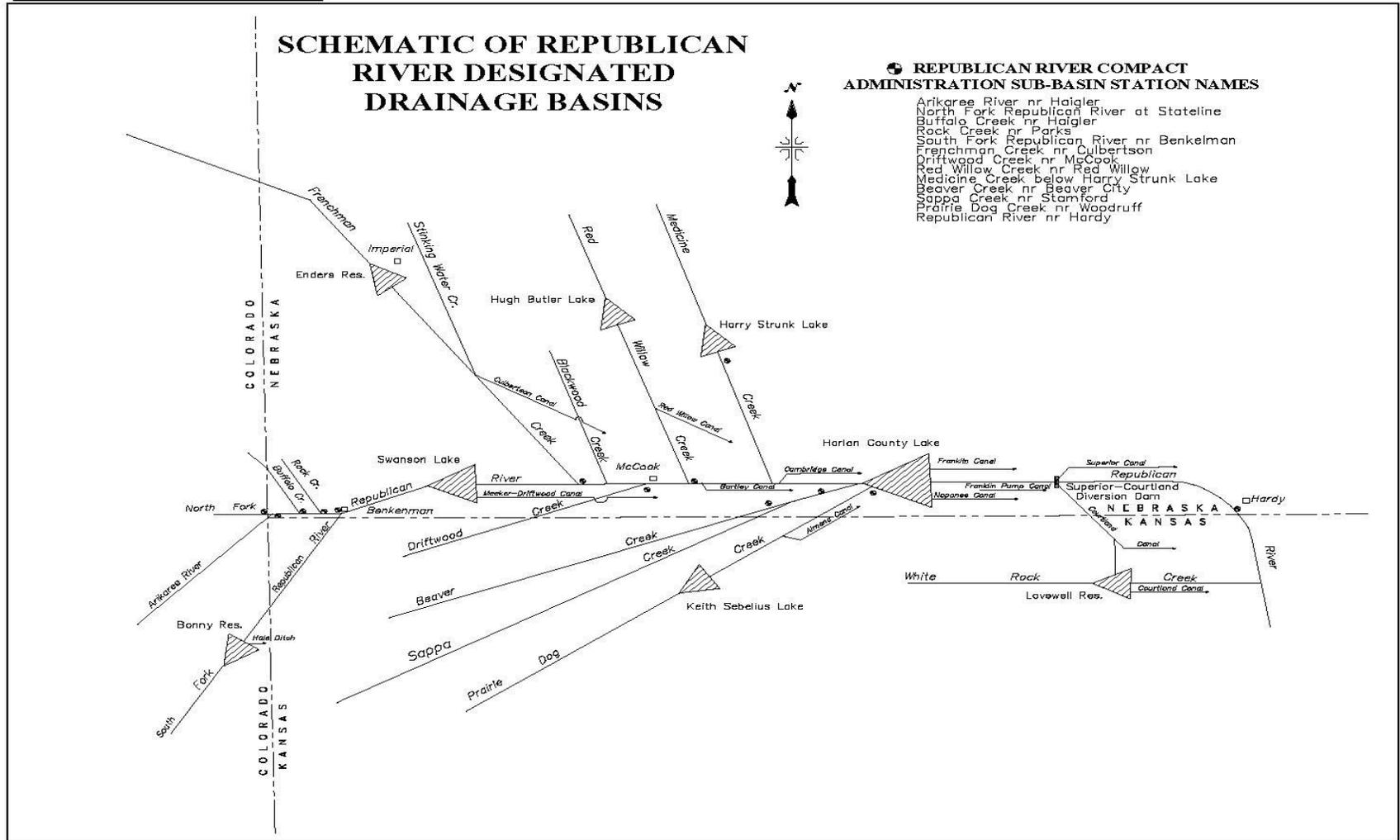
Table 5E: Nebraska Tributary Compliance During Water-Short Year Administration

Year	Sum of Nebraska Sub-basin Allocations	Sum of Nebraska's Share of Sub-basin Unallocated Supplies	Total Available Water Supply for Nebraska	Computed Beneficial Consumptive Use	Imported Water Supply Credit	Difference between Allocation And the Computed Beneficial Consumptive Use offset by Imported Water Supply Credit
	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
Previous Year						Col 3 -(Col 4-Col 5)
Current Year						
Average						



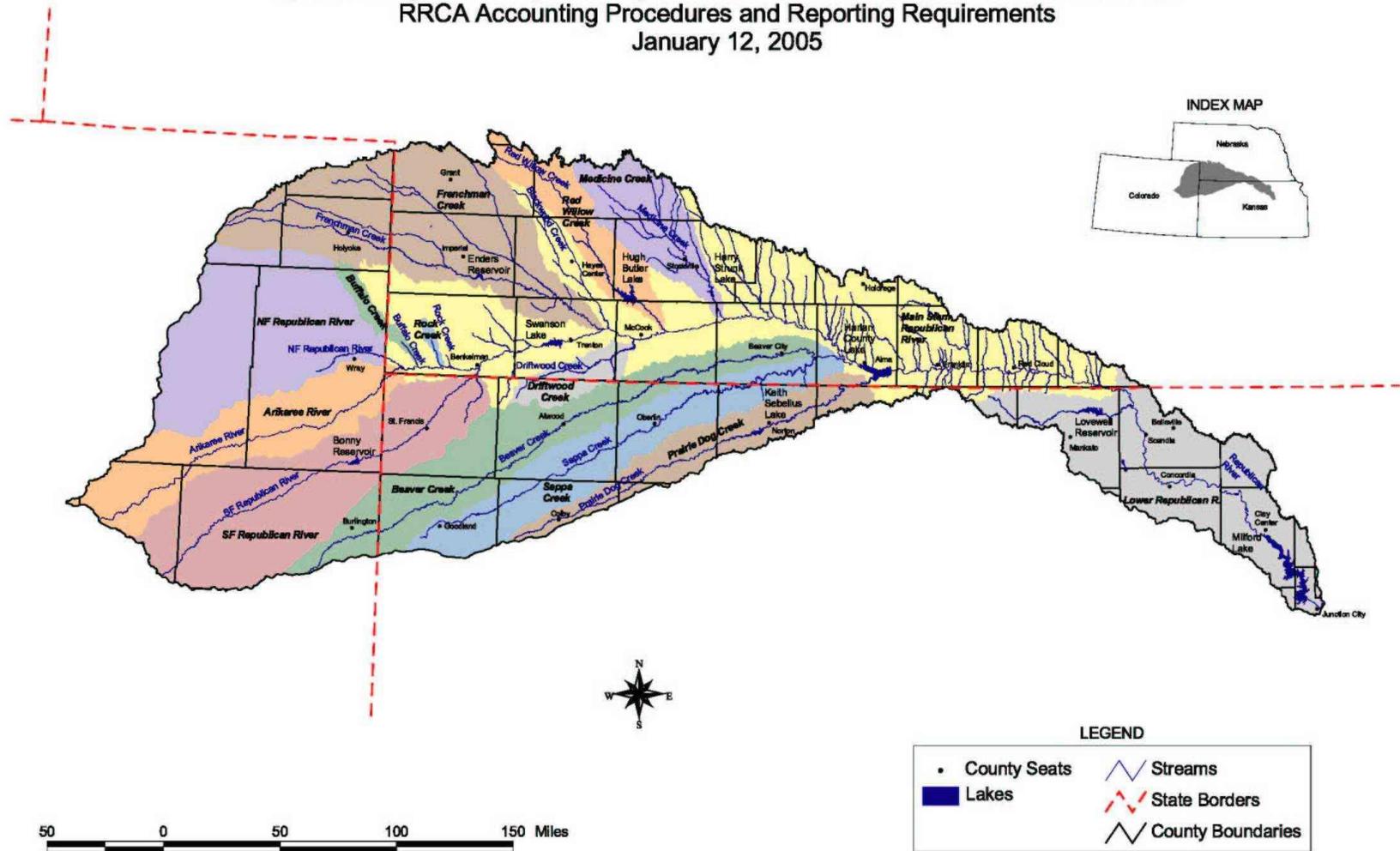
Basin Map Attached to Compact that Shows the Streams and the Basin Boundaries

Figure 2



Line Diagram of Designated Drainage Basins Showing Federal Reservoirs and Sub-basin Gaging Stations

Update of Figure 3 - Map Showing Sub-basins, Streams, and the Basin Boundaries
RRCA Accounting Procedures and Reporting Requirements
January 12, 2005



Map Showing Sub-basins, Streams, and the Basin Boundaries

Attachment 1: Sub-basin Flood Flow Thresholds

Sub-basin	Sub-basin Flood Flow Threshold Acre-feet per Year ³
Arikaree River	16,400
North Fork of Republican River	33,900
Buffalo Creek	4,800
Rock Creek	9,800
South Fork of Republican River	30,400
Frenchman Creek	51,900
Driftwood Creek	9,400
Red Willow Creek	15,100
Medicine Creek	55,100
Beaver Creek	13,900
Sappa Creek	26,900
Prairie Dog	15,700

³ Flows considered to be Flood Flows are flows in excess of the 94% flow based on a flood frequency analysis for the years 1971-2000. The Gaged Flows are measured after depletions by Beneficial Consumptive Use and change in reservoir storage.

Attachment 2: Description of the Consensus Plan for Harlan County Lake

The Consensus Plan for operating Harlan County Lake was conceived after extended discussions and negotiations between Reclamation and the Corps. The agreement shaped at these meetings provides for sharing the decreasing water supply into Harlan County Lake. The agreement provides a consistent procedure for: updating the reservoir elevation/storage relationship, sharing the reduced inflow and summer evaporation, and providing a January forecast of irrigation water available for the following summer.

During the interagency discussions the two agencies found agreement in the following areas:

- The operating plan would be based on current sediment accumulation in the irrigation pool and other zones of the project.
- Evaporation from the lake affects all the various lake uses in proportion to the amount of water in storage for each use.
- During drought conditions, some water for irrigation could be withdrawn from the sediment pool.
- Water shortage would be shared between the different beneficial uses of the project, including fish, wildlife, recreation and irrigation.

To incorporate these areas of agreement into an operation plan for Harlan County Lake, a mutually acceptable procedure addressing each of these items was negotiated and accepted by both agencies.

1. Sediment Accumulation.

The most recent sedimentation survey for Harlan County project was conducted in 1988, 37 years after lake began operation. Surveys were also performed in 1962 and 1972; however, conclusions reached after the 1988 survey indicate that the previous calculations are unreliable. The 1988 survey indicates that, since closure of the dam in 1951, the accumulated sediment is distributed in each of the designated pools as follows:

Flood Pool	2,387 Acre-feet
Irrigation Pool	4,853 Acre-feet
Sedimentation Pool	33,527 Acre-feet

To insure that the irrigation pool retained 150,000 Acre-feet of storage, the bottom of the irrigation pool was lowered to 1,932.4 feet, msl, after the 1988 survey.

To estimate sediment accumulation in the lake since 1988, we assumed similar conditions have occurred at the project during the past 11 years. Assuming a consistent rate of deposition since 1988, the irrigation pool has trapped an additional 1,430 Acre-feet.

A similar calculation of the flood control pool indicates that the flood control pool has captured an additional 704 Acre-feet for a total of 3,090 Acre-feet since construction.

The lake elevations separating the different pools must be adjusted to maintain a 150,000-acre-foot irrigation pool and a 500,000-acre-foot flood control pool. Adjusting these elevations results in the following new elevations for the respective pools (using the 1988 capacity tables).

Top of Irrigation Pool	1,945.70 feet, msl
Top of Sediment Pool	1,931.75 feet, msl

Due to the variability of sediment deposition, we have determined that the elevation capacity relationship should be updated to reflect current conditions. We will complete a new sedimentation survey of Harlan County Lake this summer, and new area capacity tables should be available by early next year. The new tables may alter the pool elevations achieved in the Consensus Plan for Harlan County Lake.

2. Summer Evaporation.

Evaporation from a lake is affected by many factors including vapor pressure, wind, solar radiation, and salinity of the water. Total water loss from the lake through evaporation is also affected by the size of the lake. When the lake is lower, the surface area is smaller and less water loss occurs. Evaporation at Harlan County Lake has been estimated since the lake's construction using a Weather Service Class A pan which is 4 feet in diameter and 10 inches deep. We and Reclamation have jointly reviewed this information and assumed future conditions to determine an equitable method of distributing the evaporation loss from the project between irrigation and the other purposes.

During those years when the irrigation purpose expected a summer water yield of 119,000 Acre-feet or more, it was determined that an adequate water supply existed and no sharing of evaporation was necessary. Therefore, evaporation evaluation focused on the lower pool elevations when water was scarce. Times of water shortage would also generally be times of higher evaporation rates from the lake.

Reclamation and we agreed that evaporation from the lake during the summer (June through September) would be distributed between the irrigation and sediment pools based on their relative percentage of the total storage at the time of evaporation. If the sediment pool held 75 percent of the total storage, it would be charged 75 percent of the evaporation. If the sediment pool held 50 percent of the total storage, it would be charged 50 percent of the evaporation. At the bottom of the irrigation pool (1,931.75 feet, msl) all of the evaporation would be charged to the sediment pool.

Due to downstream water rights for summer inflow, neither the irrigation nor the sediment pool is credited with summer inflow to the lake. The summer inflows would be

assumed passed through the lake to satisfy the water right holders. Therefore, Reclamation and we did not distribute the summer inflow between the project purposes.

As a result of numerous lake operation model computer runs by Reclamation, it became apparent that total evaporation from the project during the summer averaged about 25,000 Acre-feet during times of lower lake elevations. These same models showed that about 20 percent of the evaporation should be charged to the irrigation pool, based on percentage in storage during the summer months. About 20 percent of the total lake storage is in the irrigation pool when the lake is at elevation 1,935.0 feet, msl. As a result of the joint study, Reclamation and we agreed that the irrigation pool would be credited with 20,000 Acre-feet of water during times of drought to share the summer evaporation loss.

Reclamation and we further agreed that the sediment pool would be assumed full each year. In essence, if the actual pool elevation were below 1,931.75 feet, msl, in January, the irrigation pool would contain a negative storage for the purpose of calculating available water for irrigation, regardless of the prior year's summer evaporation from sediment storage.

3. Irrigation withdrawal from sediment storage.

During drought conditions, occasional withdrawal of water from the sediment pool for irrigation is necessary. Such action is contemplated in the Field Working Agreement and the Harlan County Lake Regulation Manual: "Until such time as sediment fully occupies the allocated reserve capacity, it will be used for irrigation and various conservation purposes, including public health, recreation, and fish and wildlife preservation."

To implement this concept into an operation plan for Harlan County Lake, Reclamation and we agreed to estimate the net spring inflow to Harlan County Lake. The estimated inflow would be used by the Reclamation to provide a firm projection of water available for irrigation during the next season.

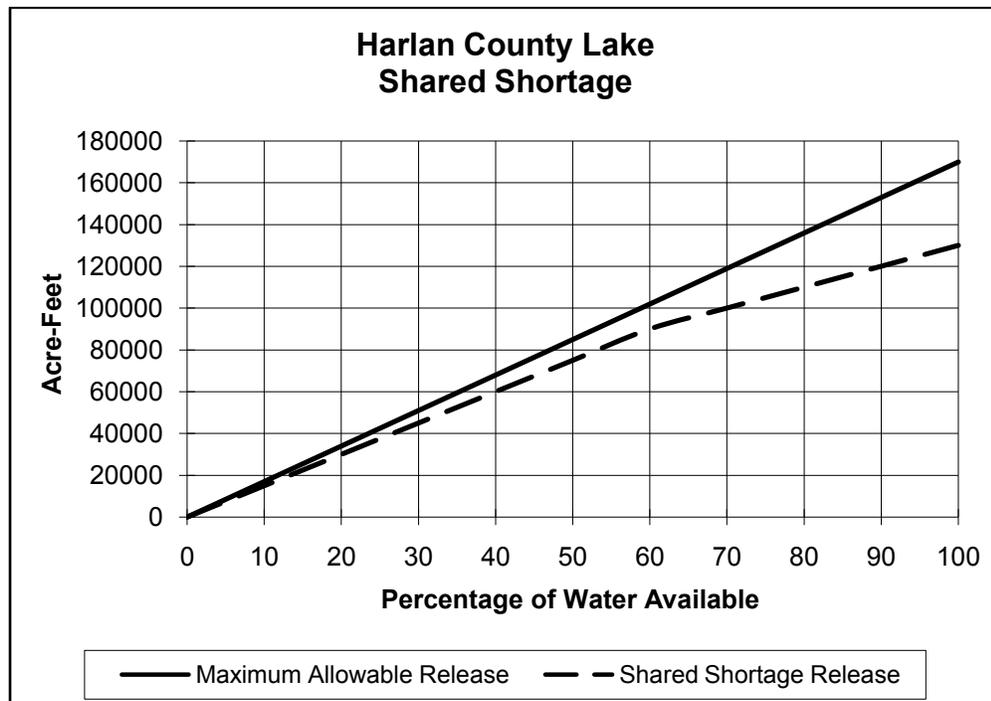
Since the construction of Harlan County Lake, inflows to the lake have been depleted by upstream irrigation wells and farming practices. Reclamation has recently completed an in-depth study of these depleted flows as a part of their contract renewal process. The study concluded that if the current conditions had existed in the basin since 1931, the average spring inflow to the project would have been 57,600 Acre-feet of water. The study further concluded that the evaporation would have been 8,800 Acre-feet of water during the same period. Reclamation and we agreed to use these values to calculate the net inflow to the project under the current conditions.

In addition, both agencies also recognized that the inflow to the project could continue to decrease with further upstream well development and water conservation farming. Due to these concerns, Reclamation and we determined that the previous 5-year inflow values would be averaged each year and compared to 57,600 Acre-feet. The inflow estimate for Harlan County Lake would be the smaller of these two values.

The estimated inflow amount would be used in January of each year to forecast the amount of water stored in the lake at the beginning of the irrigation season. Based on this forecast, the irrigation districts would be provided a firm estimate of the amount of water available for the next season. The actual storage in the lake on May 31 would be reviewed each year. When the actual water in storage is less than the January forecast, Reclamation may draw water from sediment storage to make up the difference.

4. Water Shortage Sharing.

A final component of the agreement involves a procedure for sharing the water available during times of shortage. Under the shared shortage procedure, the irrigation purpose of the project would remove less water than otherwise allowed and alleviate some of the adverse effects to the other purposes. The procedure would also extend the water supply during times of drought by “banking” some water for the next irrigation season. The following graph illustrates the shared shortage releases.



5. Calculation of Irrigation Water Available

Each January, the Reclamation would provide the Bostwick irrigation districts a firm estimate of the quantity of water available for the following season. The firm estimate of water available for irrigation would be calculated by using the following equation and shared shortage adjustment:

$\text{Storage} + \text{Summer Sediment Pool Evaporation} + \text{Inflow} - \text{Spring Evaporation} = \text{Maximum Irrigation Water Available}$
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The variables in the equation are defined as:

- Maximum Irrigation Water Available. Maximum irrigation supply from Harlan County Lake for that irrigation season.
- Storage. Actual storage in the irrigation pool at the end of December. The sediment pool is assumed full. If the pool elevation is below the top of the sediment pool, a negative irrigation storage value would be used.
- Inflow. The inflow would be the smaller of the past 5-year average inflow to the project from January through May, or 57,600 Acre-feet.
- Spring Evaporation. Evaporation from the project would be 8,800 Acre-feet which is the average January through May evaporation.
- Summer Sediment Pool Evaporation. Summer evaporation from the sediment pool during June through September would be 20,000 Acre-feet. This is an estimate based on lower pool elevations, which characterize the times when it would be critical to the computations.

6. Shared Shortage Adjustment

To ensure that an equitable distribution of the available water occurs during short-term drought conditions, and provide for a “banking” procedure to increase the water stored for subsequent years, a shared shortage plan would be implemented. The maximum water available for irrigation according to the above equation would be reduced according to the following table. Linear interpolation of values will occur between table values.

Shared Shortage Adjustment Table

Irrigation Water Available (Acre-feet)	Irrigation Water Released (Acre-feet)
0	0
17,000	15,000
34,000	30,000
51,000	45,000
68,000	60,000
85,000	75,000
102,000	90,000
119,000	100,000
136,000	110,000
153,000	120,000
170,000	130,000

7. Annual Shutoff Elevation for Harlan County Lake

The annual shutoff elevation for Harlan County Lake would be estimated each January and finally established each June.

The annual shutoff elevation for irrigation releases will be estimated by Reclamation each January in the following manner:

1. Estimate the May 31 Irrigation Water Storage (IWS) (Maximum 150,000 Acre-feet) by taking the December 31 irrigation pool storage plus the January-May inflow estimate (57,600 Acre-feet or the average inflow for the last 5-year period, whichever is less) minus the January-May evaporation estimate (8,800 Acre-feet).
2. Calculate the estimated Irrigation Water Available, including all summer evaporation, by adding the Estimated Irrigation Water Storage (from item 1) to the estimated sediment pool summer evaporation (20,000 AF).
3. Use the above Shared Shortage Adjustment Table to determine the acceptable Irrigation Water Release from the Irrigation Water Available.
4. Subtract the Irrigation Water Release (from item 3) from the Estimated IWS (from item 1). The elevation of the lake corresponding to the resulting irrigation storage is the Estimated Shutoff Elevation. The shutoff elevation will not be below the bottom of the irrigation pool if over 119,000 AF of water is supplied to the districts, nor below 1,927.0 feet, msl. If the shutoff elevation is below the irrigation pool, the maximum irrigation release is 119,000 AF.

The annual shutoff elevation for irrigation releases would be finalized each June in accordance with the following procedure:

1. Compare the estimated May 31 IWS with the actual May 31 IWS.
2. If the actual end of May IWS is less than the estimated May IWS, lower the shutoff elevation to account for the reduced storage.
3. If the actual end of May IWS is equal to or greater than the estimated end of May IWS, the estimated shutoff elevation is the annual shutoff elevation.
4. The shutoff elevation will never be below elevation 1,927.0 feet, msl, and will not be below the bottom of the irrigation pool if more than 119,000 Acre-feet of water is supplied to the districts.

Attachment 3: Inflows to Harlan County Lake 1993 Level of Development

BASELINE RUN - 1993 LEVEL INFLOW TO HARLAN COUNTY RESERVOIR

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1931	10.2	10.8	13.4	5.0	18.8	15.8	4.3	1.8	1.8	0.0	0.1	0.1	82.1
1932	6.8	16.6	18.5	4.6	3.8	47.6	3.8	2.8	4.8	0.0	0.0	0.4	109.7
1933	0.4	0.0	3.9	30.2	31.0	5.4	1.8	0.0	10.4	0.0	2.6	5.5	91.2
1934	2.1	0.0	3.2	1.8	0.7	7.3	0.8	0.0	1.3	0.0	2.2	0.0	19.4
1935	0.3	0.1	0.7	4.2	0.8	389.3	6.1	19.1	26.1	2.4	5.2	0.9	455.2
1936	0.3	0.0	11.9	0.0	35.9	4.7	0.4	0.0	1.8	0.0	1.6	3.8	60.4
1937	4.8	12.9	6.0	2.5	0.0	12.6	6.3	6.9	2.4	0.0	0.0	12.4	66.8
1938	9.9	7.8	8.7	10.4	18.7	8.6	7.3	7.8	4.9	0.2	0.0	4.7	89.0
1939	2.7	7.5	9.6	12.2	6.6	13.3	5.0	4.1	0.0	0.0	0.0	0.0	61.0
1940	0.0	0.0	12.2	5.2	4.6	23.7	2.8	3.2	0.0	3.6	0.0	1.4	56.7
1941	0.0	10.6	10.6	7.7	17.2	67.1	28.9	19.7	14.9	8.3	6.7	7.1	198.8
1942	3.3	10.6	0.5	34.1	30.8	83.9	11.7	10.9	36.5	3.1	8.7	0.3	234.4
1943	1.2	11.2	14.6	31.4	4.7	28.3	4.8	0.3	0.9	0.0	0.0	11.8	109.2
1944	0.1	4.3	9.0	43.1	31.9	63.9	26.6	15.4	0.5	0.3	3.0	4.5	202.6
1945	4.3	7.8	5.7	9.5	4.1	53.5	5.0	0.9	1.5	5.0	6.0	6.3	109.6
1946	5.9	11.2	9.3	4.9	7.0	3.1	1.6	11.4	28.1	129.9	25.0	12.1	249.5
1947	1.1	3.2	10.4	8.2	11.9	195.4	22.3	5.9	2.9	0.2	0.3	0.3	262.1
1948	6.2	9.8	24.1	5.4	0.2	39.8	13.5	6.8	4.2	0.0	0.1	0.1	110.2
1949	2.0	1.5	25.2	16.3	49.0	57.4	9.2	5.5	2.1	3.0	2.8	0.3	174.3
1950	0.3	5.7	10.8	10.9	28.9	10.1	12.7	9.3	7.8	7.2	3.8	3.1	110.6
1951	3.8	3.4	7.1	5.3	42.0	39.9	42.1	10.1	36.0	15.5	14.8	8.9	228.9
1952	16.4	21.4	26.3	23.8	34.6	4.0	9.3	3.1	1.5	11.7	4.3	0.1	156.5
1953	1.8	4.6	5.3	3.3	15.1	9.5	1.8	0.2	0.0	0.0	2.8	0.1	44.5
1954	1.0	6.8	1.9	3.2	7.1	2.4	0.0	1.2	0.0	0.0	0.0	0.0	23.6
1955	0.0	4.0	6.3	4.8	2.9	6.4	2.7	0.0	1.4	0.0	0.0	0.0	28.5
1956	1.6	3.4	2.9	2.4	1.3	1.5	0.0	0.6	0.0	0.0	0.0	0.0	13.7
1957	0.0	4.1	6.2	12.8	3.5	62.4	21.3	1.2	2.0	3.4	4.5	4.7	126.1
1958	0.8	3.0	14.2	14.0	18.7	1.3	3.4	2.2	0.0	0.4	0.0	0.6	58.6
1959	1.9	15.4	16.4	8.5	13.6	4.2	1.4	1.2	0.0	4.3	1.0	4.5	72.4
1960	1.4	12.3	71.4	23.9	21.7	53.7	14.1	3.2	0.0	0.0	0.2	2.8	204.7
1961	2.3	6.4	7.7	7.4	26.5	24.0	7.2	4.9	0.0	2.3	4.8	1.7	95.2

Attachment 3: Inflows to Harlan County Lake 1993 Level of Development

BASELINE RUN - 1993 LEVEL INFLOW TO HARLAN COUNTY RESERVOIR

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1962	4.5	9.1	16.2	9.9	14.4	42.6	41.6	21.1	2.3	8.7	8.3	5.7	184.4
1963	3.4	18.2	18.2	15.0	12.7	14.7	3.4	6.1	8.7	0.8	5.3	1.8	108.3
1964	5.4	7.6	8.3	8.4	9.9	11.9	7.2	6.5	2.4	1.9	1.4	2.3	73.2
1965	6.0	8.1	11.1	12.8	32.8	40.0	22.9	6.5	37.2	53.7	19.5	11.0	261.6
1966	8.9	21.4	15.7	11.4	12.0	34.7	12.4	2.5	3.5	5.4	6.8	5.7	140.4
1967	7.2	11.5	11.5	12.9	9.1	75.3	43.7	15.3	4.4	7.3	6.9	5.4	210.5
1968	3.9	10.2	8.5	11.6	10.8	12.5	3.1	2.7	1.6	2.0	4.3	3.4	74.6
1969	4.2	10.8	24.5	15.1	18.9	17.5	17.0	12.6	16.6	9.2	11.8	9.9	168.1
1970	3.5	8.7	8.5	10.5	11.1	7.7	4.6	3.2	0.5	3.3	4.7	4.5	70.8
1971	4.1	10.3	12.4	12.8	18.3	7.2	8.4	6.2	1.9	4.2	7.3	7.1	100.2
1972	5.5	8.1	9.2	8.3	14.8	8.5	6.5	4.4	0.1	2.9	7.6	4.1	80.0
1973	11.4	14.2	19.0	16.2	17.4	20.9	9.1	1.9	8.4	19.6	11.9	13.2	163.2
1974	13.2	13.4	12.0	14.3	15.4	17.2	5.5	0.0	0.0	0.0	4.9	5.5	101.4
1975	7.2	8.2	13.6	14.8	12.0	48.1	11.6	7.4	0.1	3.0	6.2	7.3	139.5
1976	7.0	10.2	10.1	16.0	12.1	3.5	2.2	1.8	0.9	1.0	3.2	3.1	71.1
1977	4.4	9.6	12.9	21.2	31.5	12.1	5.9	1.9	10.6	4.1	5.5	5.3	125.0
1978	5.0	6.5	20.6	12.9	11.8	3.8	0.0	1.0	0.0	0.0	0.3	1.6	63.5
1979	1.3	7.6	21.5	18.8	15.9	5.4	10.4	10.6	1.6	0.9	3.6	6.2	103.8
1980	5.7	9.3	11.6	15.2	10.4	2.1	2.5	0.0	0.0	0.0	2.5	2.2	61.5
1981	5.5	6.0	11.6	14.9	22.5	6.4	11.5	16.3	4.3	2.5	6.7	6.2	114.4
1982	5.3	12.5	17.9	14.3	26.8	27.1	8.9	2.7	0.0	6.5	6.3	15.5	143.8
1983	6.5	9.7	27.2	16.4	41.4	74.2	10.7	7.6	3.8	3.1	6.7	5.2	212.5
1984	6.8	14.6	17.2	32.9	40.6	15.5	8.1	4.5	0.0	5.5	4.8	6.2	156.7
1985	6.9	14.1	13.6	11.9	27.4	9.9	10.0	2.0	6.0	8.5	5.6	5.8	121.7
1986	9.1	9.4	12.2	11.7	34.3	13.0	13.5	4.6	3.3	5.9	5.4	7.1	129.5
1987	5.9	9.2	19.7	24.1	24.3	11.7	19.0	5.7	2.3	2.7	8.2	7.0	139.8
1988	6.2	13.7	11.6	15.2	15.2	7.0	17.9	10.4	0.6	2.0	5.9	5.4	111.1
1989	5.4	5.9	10.5	9.1	11.4	11.8	14.0	6.2	0.2	3.1	3.1	3.5	84.2
1990	6.6	7.7	13.2	9.7	15.5	1.4	4.3	10.7	0.6	3.2	2.0	2.7	77.6
1991	2.4	8.0	9.0	10.6	15.2	3.9	1.9	0.5	0.0	0.0	2.7	4.8	59.0
1992	8.0	8.8	12.7	8.5	4.5	6.1	6.5	9.4	2.4	6.9	6.7	5.2	85.7
1993	5.2	14.4	71.6	22.7	21.0	17.0	68.0	37.5	23.3	16.8	30.1	17.7	345.3
Avg	4.5	8.8	14.1	13.0	17.2	30.6	11.0	6.2	5.4	6.3	5.0	4.7	126.8

Attachment 4: Evaporation Loss Harlan County Lake 1993 Level of Development

BASELINE - 1993 LEVEL FLOWS - HARLAN COUNTY EVAPORATION													
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1931	0.7	0.9	1.6	2.9	4.2	7.4	6.9	5.2	2.7	2.1	1.2	0.4	36.2
1932	0.6	0.8	1.5	2.7	4.1	5.0	6.8	5.0	2.7	2.1	1.2	0.4	32.9
1933	0.6	0.8	1.4	2.5	3.8	7.8	6.1	4.2	2.7	2.1	1.2	0.4	33.6
1934	0.6	0.8	1.4	2.4	4.5	6.5	8.0	6.2	2.7	2.0	1.2	0.4	36.7
1935	0.6	0.8	1.3	2.3	2.2	3.6	9.7	6.2	3.1	2.5	1.4	0.5	34.2
1936	0.7	0.9	1.6	2.9	5.5	6.8	8.7	6.5	2.7	2.1	1.2	0.4	40.0
1937	0.6	0.8	1.4	2.5	3.6	4.0	6.2	6.5	2.7	2.1	1.2	0.4	32.0
1938	0.6	0.9	1.5	2.7	3.4	4.9	6.5	5.7	2.7	2.1	1.2	0.4	32.6
1939	0.6	0.8	1.4	2.6	4.3	4.9	6.8	4.6	2.7	2.1	1.2	0.4	32.4
1940	0.6	0.8	1.4	2.4	3.5	5.0	6.5	4.6	2.7	2.1	1.2	0.4	31.2
1941	0.6	0.8	1.4	2.5	3.9	4.2	6.7	5.3	2.8	2.1	1.3	0.5	32.1
1942	0.6	0.9	1.5	2.8	4.0	5.2	8.3	5.1	3.2	2.5	1.5	0.5	36.1
1943	0.7	1.0	1.8	3.2	4.3	5.7	7.9	6.3	2.7	2.1	1.2	0.4	37.3
1944	0.6	0.8	1.4	2.7	4.2	5.3	7.0	5.8	3.5	2.6	1.5	0.5	35.9
1945	0.7	1.0	1.8	3.1	3.8	3.0	6.7	5.7	2.9	2.2	1.3	0.5	32.7
1946	0.6	0.9	1.6	2.8	3.5	5.1	5.6	4.4	2.9	2.7	1.8	0.6	32.5
1947	1.0	1.5	2.9	3.2	3.4	-1.2	5.8	5.3	3.7	1.7	0.5	0.1	27.9
1948	0.8	0.7	1.5	3.6	3.1	2.4	4.2	4.7	3.0	2.7	0.8	0.3	27.8
1949	0.1	0.9	0.7	1.8	1.1	0.7	6.5	4.1	3.1	1.7	1.5	0.4	22.6
1950	0.7	0.1	0.8	2.8	2.0	5.6	0.8	2.8	4.5	2.3	1.6	0.6	24.6
1951	0.5	0.2	2.1	0.7	-0.1	1.9	3.5	4.1	0.4	3.1	2.2	0.9	19.5
1952	1.1	1.2	1.9	2.5	5.2	6.2	1.5	3.4	3.6	2.9	1.1	-0.1	30.5
1953	0.5	1.0	1.5	2.9	4.7	4.5	4.6	6.6	5.3	3.3	0.1	0.0	35.0
1954	0.7	0.6	2.2	3.6	0.3	4.9	6.7	1.6	3.6	1.6	1.5	0.6	27.9
1955	0.5	1.0	2.1	4.6	3.4	-0.5	7.3	6.9	2.7	2.6	1.4	0.4	32.4
1956	0.6	1.1	1.9	2.8	3.9	4.5	5.0	3.7	4.7	3.7	1.3	0.5	33.7
1957	0.7	1.0	1.3	0.5	-0.6	-1.1	6.1	3.7	2.3	1.7	1.2	0.4	17.2
1958	0.7	0.1	1.0	0.6	2.3	4.4	1.0	1.9	3.3	3.3	1.0	0.6	20.2
1959	0.4	1.0	1.1	2.1	1.0	3.5	5.0	4.8	2.3	0.7	1.5	0.6	24.0
1960	0.1	0.7	2.0	2.7	0.9	0.1	4.9	3.6	3.9	2.0	1.3	0.4	22.6
1961	0.9	1.0	1.4	2.7	-1.1	0.6	5.1	2.9	1.2	2.4	0.7	0.1	17.9

Attachment 4: Evaporation Loss Harlan County Lake 1993 Level of Development

BASELINE - 1993 LEVEL FLOWS - HARLAN COUNTY EVAPORATION

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1962	0.6	0.6	0.9	3.7	3.4	1.5	0.3	1.6	2.0	2.0	1.7	0.3	18.6
1963	0.7	1.4	1.3	4.5	4.6	6.3	6.1	3.1	-0.8	2.7	1.5	0.4	31.8
1964	0.8	0.8	1.7	3.2	5.6	1.2	6.9	3.0	3.0	3.3	1.2	0.6	31.3
1965	0.4	0.7	1.2	2.8	1.5	-0.5	2.0	2.8	-3.9	1.7	2.1	0.4	11.2
1966	0.9	0.8	2.9	2.7	7.5	2.8	5.8	3.7	2.7	2.8	1.5	0.4	34.5
1967	0.7	1.2	2.5	3.0	2.0	-2.9	1.6	4.5	3.5	2.0	1.6	0.4	20.1
1968	0.9	1.2	2.8	2.6	3.2	4.9	4.7	1.8	2.3	0.7	1.2	0.2	26.5
1969	0.4	0.6	2.4	3.3	0.1	3.8	-0.7	2.9	2.2	-1.0	1.5	0.4	15.9
1970	0.7	1.4	2.3	2.8	4.7	4.4	6.5	5.9	0.9	1.0	1.5	0.7	32.8
1971	0.7	0.2	2.0	2.9	0.7	5.1	3.4	4.5	1.4	1.5	0.2	0.5	23.1
1972	0.8	1.3	2.0	1.7	1.1	0.0	3.3	1.8	2.1	1.7	-0.4	0.1	15.5
1973	0.5	1.1	-0.7	2.5	3.4	6.7	-1.7	4.2	-3.0	0.2	0.2	0.2	13.6
1974	0.7	1.5	2.6	1.5	3.7	2.5	9.1	2.6	3.4	1.4	1.1	0.3	30.4
1975	0.7	0.7	2.0	2.1	0.8	1.1	4.3	2.7	3.0	3.4	0.7	0.6	22.1
1976	0.8	1.2	1.7	0.7	1.5	5.0	5.9	5.7	-0.2	1.4	1.4	0.7	25.8
1977	0.7	1.3	0.2	1.1	0.0	4.6	4.0	0.6	2.0	1.6	1.0	0.4	17.5
1978	0.5	0.7	1.2	3.4	3.9	6.2	7.1	4.5	4.5	3.0	1.1	0.5	36.6
1979	0.5	0.6	1.1	3.9	4.4	4.6	3.5	5.1	4.1	2.8	1.4	0.7	32.7
1980	0.5	0.6	1.2	3.4	3.7	4.7	6.8	6.0	3.9	2.7	1.3	0.6	35.4
1981	0.5	0.6	1.2	3.8	3.2	4.8	4.2	3.7	2.9	1.7	1.3	0.7	28.6
1982	0.5	0.7	1.2	3.9	3.8	3.9	5.1	3.8	2.9	2.2	1.4	0.8	30.2
1983	0.5	0.7	1.4	2.9	4.2	5.3	8.6	7.2	4.6	1.8	1.5	0.6	39.3
1984	0.6	0.8	1.4	2.9	4.2	5.8	7.2	5.7	4.7	1.4	1.4	0.7	36.8
1985	0.5	0.7	1.3	2.3	4.0	4.5	5.6	3.5	3.8	1.5	1.5	0.7	29.9
1986	0.6	0.7	1.3	2.8	4.4	5.8	6.7	4.0	2.7	1.3	1.4	0.7	32.4
1987	0.5	0.8	1.3	3.1	4.2	6.2	6.9	3.5	3.1	2.2	1.4	0.7	33.9
1988	0.5	0.7	1.3	3.5	4.9	6.6	4.6	4.8	3.5	2.2	1.4	0.7	34.7
1989	0.5	0.7	1.2	4.2	4.5	4.4	4.8	3.6	3.0	2.5	1.4	0.7	31.5
1990	0.5	0.7	1.2	3.0	3.5	5.6	6.4	4.0	5.0	3.4	1.4	0.6	35.3
1991	0.5	0.7	1.2	2.8	3.3	5.5	6.0	5.0	5.1	3.2	1.3	0.6	35.2
1992	0.6	0.7	1.2	1.8	3.2	2.2	4.1	3.5	4.2	2.9	1.9	1.0	27.3
1993	0.6	0.5	1.0	2.2	3.1	4.6	4.2	4.9	4.5	4.4	3.1	1.2	34.3
Avg	0.6	0.8	1.5	2.7	3.2	3.9	5.3	4.3	2.8	2.2	1.3	0.5	29.1

Attachment 5: Projected Water Supply Spread Sheet Calculations

Trigger Calculations Based on Harlan County Lake Irrigation Supply	Units-1000 Acre-feet		Irrigation Trigger		119.0		Assume that during irrigation release season HCL Inflow = Evaporation Loss						
			Total Irrigation Supply		130.0								
			Bottom Irrigation		164.1								
			Evaporation Adjust		20.0								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
1993 Level AVE inflow	6.3	5	4.7	4.5	8.8	14.1	13.0	17.2	30.6	11.0	6.2	5.4	126.8
1993 Level AVE evap (1931-93)	2.2	1.3	0.5	0.6	0.8	1.5	2.7	3.2	3.9	5.3	4.3	2.8	29.1
Avg. Inflow Last 5 Years	10.8	13.0	12.3	12.9	16.6	22.4	19.4	18.1	14.8	16.5	11.0	4.7	172.6

Year 2001-2002 Oct - Jun Trigger and Irrigation Supply Calculation										
Calculation Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Previous EOM Content	236.5	235.9	238.6	242.9	248.1	255.1	263.8	269.6	276.2	
Inflow to May 31	73.6	67.3	62.3	57.6	53.1	44.3	30.2	17.2	0.0	
Last 5 Yrs Avg Inflow to May 31	125.6	114.8	101.7	89.5	76.6	59.9	37.5	18.1	0.0	
Evap to May 31	12.8	10.6	9.3	8.8	8.2	7.4	5.9	3.2	0.0	
Est. Cont May 31	297.3	292.6	291.6	291.7	293.0	292.0	288.1	283.6	276.2	
Est. Elevation May 31	1944.44	1944.08	1944.00	1944.01	1944.11	1944.03	1943.72	1943.37	1942.77	
Max. Irrigation Available	153.2	148.5	147.5	147.6	148.9	147.9	144.0	139.5	132.1	
Irrigation Release Est.	120.1	117.4	116.8	116.8	118.1	117.1	116.8	116.8	116.8	
Trigger - Yes/No	NO	YES								
130 kAF Irrigation Supply - Yes/No	NO									

Attachment 5: Projected Water Supply Spread Sheet Calculations

Year 2002				
Jul - Sep				
Final Trigger and				
Total Irrigation Supply				
Calculation				
Calculation Month		Jul	Aug	Sep
Previous EOM Irrigation Release Est.		116.8	116.0	109.7
Previous Month Inflow		5.5	0.5	1.3
Previous Month Evap		6.3	6.8	6.6
Irrigation Release Estimate		116.0	109.7	104.4
Final Trigger - Yes/No		YES		
130 kAF Irrigation Supply - Yes/No		NO	NO	NO

Attachment 6: Computing Water Supplies and Consumptive Use Above Guide Rock

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Total Main Stem VWS	Hardy gage	Superior-Courtland Diversion Dam Gage	Courtland Canal Diversions	Superior Canal Diversions	Courtland Canal Returns	Superior Canal Returns	Total Bostwick Returns Below Guide Rock	NE CBCU Below Guide Rock	KS CBCU Below Guide Rock	Total CBCU Below Guide Rock	Gain Guide Rock to Hardy	VWS Guide Rock to Hardy	Main Stem Virgin Water Supply Above Guide Rock	Nebraska Main Stem Allocation Above Hardy	Kansas Main Stem Allocation Above Hardy	Nebraska Guide Rock to Hardy Allocation	Kansas Guide Rock to Hardy Allocation
							Col F+ Col G			Col I + Col J	+ Col B - Col C+ Col K - Col H	+ Col L + Col K	Col A - Col M	.489 x Col N	.511 x Col N	.489 x Col M	.511 x Col M

Attachment 7: Calculations of Return Flows from Bureau of Reclamation Canals

Col 1	Col 2	Col 3	Col 4	Col 5	Col 6	Col 7	Col 8	Col 9	Col 10	Col 11
Canal	Canal Diversion	Spill to Waste-way	Field Deliveries	Canal Loss	Average Field Loss Factor	Field Loss	Total Loss from District	Percent Field and Canal Loss That Returns to the Stream	Total Return to Stream from Canal and Field Loss	Return as Percent of Canal Diversion
Name Canal	Headgate Diversion	Sum of measured spills to river	Sum of deliveries to the field	+Col 2 - Col 4	1 -Weighted Average Efficiency of Application System for the District*	Col 4 x Col 6	Col 5 + Col 7	Estimated Percent Loss*	Columns 8 x Col 9	Col 10/Col 2
Example	100	5	60	40	30%	18	58	82%	48	48%
Culbertson					30%					
Culbertson Extension					30%					
Meeker-Driftwood					30%					
Red Willow					30%					
Bartley					30%					
Cambridge					30%					
Naponne					35%					
Franklin					35%					
Franklin Pump					35%					
Almena					30%					
Superior					31%					
Nebraska Courtland					23%					
Courtland Canal Above Lovewell (KS)					23%					
Courtland Canal Below Lovewell					23%					

*The average field efficiencies for each district and percent loss that returns to the stream may be reviewed and, if necessary, changed by the RRCA to improve the accuracy of the estimates.

No. 126, Original

In The
SUPREME COURT OF THE UNITED STATES

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

And

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

JOINT MOTION OF THE STATES FOR ENTRY OF PROPOSED
CONSENT JUDGMENT AND APPROVAL AND ADOPTION OF
FINAL SETTLEMENT STIPULATION

COME NOW the Parties and respectfully move the United States Supreme Court to enter the Parties' Proposed Consent Judgment approving and adopting the Final Settlement Stipulation executed by all the Parties to this case and presented to the Special Master on December 15, 2002, and dismiss the above-styled Original Action with prejudice.

Dated December 15, 2002.

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No. 126, Original

In The

SUPREME COURT OF THE UNITED STATES

STATE OF KANSAS,

Plaintiff,

v.

STATE OF NEBRASKA

And

STATE OF COLORADO,

Defendants.

BEFORE THE HONORABLE VINCENT L. MCKUSICK
SPECIAL MASTER

FINAL SETTLEMENT STIPULATION

December 15, 2002

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Appendices

- A. Proposed Consent Judgment
- B. Final Settlement Stipulation Implementation Schedule
- C. RRCA Accounting Procedures
- D. Maps – Upstream of Guide Rock, Nebraska and Moratorium Exception Areas
- E. Nebraska Laws, Rules and Regulations re: Prohibition on Well Construction
- F. Nebraska Calculation of Historic Consumptive Use
- G. Kansas Laws, Rules and Regulations re: Prohibition on Well Construction
- H. Colorado Laws, Rules and Regulations re: Prohibition on Well Construction
- I. Confidentiality Agreement
- J. Status of Agreement on RRCA Groundwater Model as of November 15, 2002
- K. Harlan County Lake Operation Consensus Plan
- L. Implementation of Additional Water Administration
- M. Alternative Water-Short Year Administration

The States of Kansas, Nebraska and Colorado, hereby enter into this Final Settlement Stipulation as of December 15, 2002:

I. General

- A. The States agree to resolve the currently pending litigation in the United States Supreme Court regarding the Republican River Compact by means of this Stipulation and the Proposed Consent Judgment attached hereto as Appendix A.
- B. The States agree to undertake the obligations set forth in this Stipulation. The States shall implement the obligations and agreements in this Stipulation in accordance with the schedule attached hereto as Appendix B.
- C. Upon the Court's approval of this Stipulation and entry of the Proposed Consent Judgment, the States agree that all claims against each other relating to the use of the waters of the Basin pursuant to the Compact with respect to activities or conditions occurring before December 15, 2002, shall be waived, forever barred and dismissed with prejudice. These claims shall include all claims for Compact violations, damages, and all claims asserted or which could have been asserted in the pending proceeding, No. 126, Original.
- D. With respect to activities or conditions occurring after December 15, 2002, the dismissal will not preclude a State from seeking enforcement of the provisions of the Compact, this Stipulation and the Proposed Consent Judgment. Nor will the dismissal preclude any State in such future action from asserting any legal theories it raised in the present proceeding, or any other legal theories, with respect to activities or conditions occurring after the date of such dismissal. The States agree that this Stipulation and the Proposed Consent Judgment are not intended to, nor could they, change the States' respective rights and obligations under the Compact. The States reserve their respective rights under the Compact to raise

any issue of Compact interpretation and enforcement in the future.

- E. Specific information-sharing requirements are set forth in the RRCA Accounting Procedures, attached hereto as Appendix C. The States will provide each other with the opportunity to inspect and copy their records pertaining to water use in the Basin, other than privileged materials, upon request. The States will cooperate in arranging verification as reasonably necessary.
- F. The RRCA may modify the RRCA Accounting Procedures, or any portion thereof, in any manner consistent with the Compact and this Stipulation.
- G. Headings in this Stipulation are provided for convenience only and shall not affect the substance of any provision.
- H. This Stipulation supersedes the Settlement Principles signed by the States on April 30, 2002.
- I. The provisions of Subsection IV.C. relating to the development of the RRCA Groundwater Model shall be in effect and enforceable between December 15, 2002 and July 1, 2003 or until the Court's approval or disapproval of this Stipulation, whichever is later.
- J. Within six months of the final dismissal of this case, the RRCA shall revise its existing rules and regulations as necessary to make them consistent with this Stipulation and the RRCA Accounting Procedures.

II. Definitions

Wherever used in this Stipulation the following terms are defined as:

Acre-foot: The quantity of water required to cover an acre to the depth of one foot, equivalent to forty-three thousand, five hundred sixty (43,560) cubic feet;

Actual Interest: A State will be deemed to have an actual interest in a dispute if resolution of the dispute could require action by the State, result in increasing or decreasing the amount of water available to a State, affect the State's ability to monitor or administer water use or water availability, or increase the State's financial obligations;

Addressed by the RRCA: A matter is deemed to be addressed by the RRCA when the RRCA has taken final action by vote on such request or failed to take action by vote on the request after a Reasonable Opportunity to investigate and act on the request;

Allocation(s): The water supply allocated to each State from the Computed Water Supply;

Annual: As defined in the RRCA Accounting Procedures Section II;

Basin: Republican River Basin as defined in Article II of the Republican River Compact;

Beneficial Consumptive Use: That use by which the Water Supply of the Basin is consumed through the activities of man, and shall include water consumed by evaporation from any reservoir, canal, ditch, or irrigated area;

Compact: The Republican River Compact, Act of February 22, 1943, 1943 Kan. Sess. Laws 612, codified at Kan. Stat. Ann. § 82a-518 (1997); Act of February 24, 1943, 1943 Neb. Laws 377, codified at 2A Neb. Rev. Stat. App. § 1-106 (1995), Act of March 15, 1943, 1943 Colo. Sess. Laws 362, codified at Colo. Rev. Stat. §§ 37-67-101 and 37-67-102 (2001); Republican River Compact, Act of May 26, 1943, ch. 104, 57 Stat. 86;

Computed Beneficial Consumptive Use: The stream flow depletion resulting from the activities of man as listed in the definition of Computed Beneficial Consumptive Use in the RRCA Accounting Procedures Section II;

Computed Water Supply: As defined in the RRCA Accounting Procedures Section II;

Conservation Committee: The conservation measures study committee established in Subsection VI.B.1;

Court: The United States Supreme Court;

Designated Drainage Basins: The drainage basins of the specific tributaries and Main Stem of the Republican River as described in Article III of the Compact;

Dewatering Well: A Well constructed solely for the purpose of lowering the groundwater elevation;

Federal Reservoirs: Bonny Reservoir, Swanson Lake, Enders Reservoir, Hugh Butler Lake, Harry Strunk Lake, Keith Sebelius Lake, Harlan County Lake, Lovewell Reservoir;

Flood Flows: The amount of water deducted from the Virgin Water Supply as part of the computation of the Computed Water Supply due to a flood event as determined by the methodology described in the RRCA Accounting Procedures, Subsection III.B.1.;

Guide Rock: A point at the Superior-Courtland Diversion Dam on the Republican River near Guide Rock, Nebraska; the Superior-Courtland Diversion Dam gage plus any flows through the sluice gates of the dam, specifically excluding any diversions to the Superior and Courtland Canals, shall be the measure of flows at Guide Rock;

Historic Consumptive Use: That amount of water that has been consumed under appropriate and reasonably efficient practices to accomplish without waste the purposes for which the appropriation or other legally permitted use was lawfully made;

Imported Water Supply: The water supply imported by a State from outside the Basin resulting from the activities of man;

Imported Water Supply Credit: The accretions to stream flow due to water imports from outside of the Basin as computed by the RRCA Groundwater Model. The Imported Water Supply Credit of a State shall not be included in the Virgin Water Supply and shall be counted as a credit/offset against the Computed Beneficial Consumptive Use of that State's Allocation, except as provided in Subsection V.B.2. of this Stipulation and Subsections III.I. – J. of the RRCA Accounting Procedures;

Main Stem: The Designated Drainage Basin identified in Article III of the Compact as the North Fork of the Republican River in Nebraska and the main stem of the Republican River between the junction of the North Fork and the Arikaree River and the lowest crossing of the river at the Nebraska-Kansas state line and the small tributaries thereof, and also including the drainage basin Blackwood Creek;

Main Stem Allocation: The portion of the Computed Water Supply derived from the Main Stem and the Unallocated Supply derived from the Sub-basins as shared by Kansas and Nebraska;

Modeling Committee: The joint groundwater modeling committee established in Subsection IV.C.;

Moratorium: The prohibition and limitations on construction of new Wells in the geographic area described in Section III;

Non-Federal Reservoirs: Reservoirs other than Federal Reservoirs that have a storage capacity of 15 Acre-feet or greater at the principal spillway elevation;

Northwest Kansas: Those portions of the Sub-basins within Kansas;

Proposed Consent Judgment: The document attached hereto as Appendix A;

Reasonable Opportunity: The RRCA will be deemed to have had a reasonable opportunity to investigate and act on a regular request when, at a minimum, the issue has been discussed at the next regularly scheduled annual meeting. If the RRCA agrees that an issue requires additional investigation, the RRCA may specify a period of time that constitutes a reasonable opportunity for completion of such investigation and final action on the particular issue. The RRCA will be deemed to have had a reasonable opportunity to investigate and act on a “fast-track” request when the issue has been discussed at a meeting of the RRCA no later than 30 days after the “fast-track” issue has been raised. If the RRCA agrees that a “fast track” issue requires additional investigation, the RRCA may specify a period of time that constitutes a reasonable opportunity for completion of such investigation and final action on the particular issue;

Replacement Well: A Well that replaces an existing Well that a) will not be used after construction of the new Well and b) will be abandoned within one year after such construction or is used in a manner that is excepted from the Moratorium described in Subsections III.B.1.c.- f. of this Stipulation;

RRCA: The Republican River Compact Administration, the administrative body composed of the State officials identified in Article IX of the Compact;

RRCA Accounting Procedures: The document titled “The Republican River Compact Administration Accounting Procedures and Reporting Requirements” and all attachments thereto, attached hereto as Appendix C;

RRCA Groundwater Model: The groundwater model developed under the provisions of Subsection IV.C. of this Stipulation;

State: Any of the States of Colorado, Kansas and Nebraska;

States: The States of Colorado, Kansas and Nebraska;

Stipulation: This Final Settlement Stipulation to be filed in *Kansas v. Nebraska and Colorado*, No. 126, Original, including all Appendices attached hereto;

Sub-basin: Any of the Designated Drainage Basins, except for the Main Stem, identified in Article III of the Compact;

Submitted to the RRCA: A matter is deemed to have been submitted to the RRCA when a written statement requesting action or decision by the RRCA has been delivered to the other RRCA members by a widely accepted means of communication and receipt has been confirmed;

Test hole: A hole designed solely for the purposes of obtaining information on hydrologic and/or geologic conditions;

Trenton Dam: The dam located at 40 degrees, 10 minutes, 10 seconds latitude and 101 degrees, 3 minutes, 35 seconds longitude, approximately two and one-half miles west of the town of Trenton, Nebraska;

Unallocated Supply: The “water supplies of upstream basins otherwise unallocated” as set forth in Article IV of the Compact;

Upstream of Guide Rock, Nebraska: Those areas within the Basin lying west of a line proceeding north from the Nebraska-Kansas state line and following the western edge of Webster County, Township 1, Range 9, Sections 34, 27, 22, 15, 10 and 3 through Webster County, Township 2, Range 9, Sections 34, 27 and 22; then proceeding west along the southern edge of Webster County, Township 2, Range 9, Sections 16, 17 and 18; then proceeding north following the western edge of Webster County, Township 2, Range 9, Sections 18, 7 and 6, through Webster County, Township 3, Range 9, Sections 31, 30, 19, 18, 7 and 6 to its intersection with the northern boundary of Webster County. Upstream of Guide Rock, Nebraska shall not

include that area in Kansas east of the 99° meridian and south of the Kansas-Nebraska state line. Attached to this Stipulation in Appendix D is a map that shows the areas upstream of Guide Rock, Nebraska. In the event of any conflict between this definition and Appendix D, this definition will control;

Virgin Water Supply: The Water Supply within the Basin undepleted by the activities of man.

Water Supply of the Basin or Water Supply within the Basin: The stream flows within the Basin, excluding Imported Water Supply;

Well: Any structure, device or excavation for the purpose or with the effect of obtaining groundwater for beneficial use from an aquifer, including wells, water wells, or groundwater wells as further defined and used in each State's laws, rules, and regulations.

III. Existing Development

A. Moratorium on New Wells

1. Except as provided below, the States hereby adopt a prohibition on the construction of all new Wells in the Basin upstream of Guide Rock, Nebraska (hereinafter "Moratorium"). The Moratorium may be modified, in whole or in part, by the RRCA if it determines that new information demonstrates that additional groundwater development in all or any part of the Basin that is subject to the Moratorium would not cause any State to consume more than its Allocations from the available Virgin Water Supply as calculated pursuant to Section IV of this Stipulation. New information shall mean results from the RRCA Groundwater Model or any other appropriate information. Attached hereto in Appendix E, are such laws, rules and regulations in Nebraska concerning the prohibition on construction of new Wells in the Basin.

2. Nothing in this Stipulation, and specifically this Subsection III.A., shall extend the Moratorium or create an additional Moratorium in any of the States in any other river basin or in any other groundwater supply located outside of the Basin.
3. Notwithstanding the provision in Subsection III.A.1. of this Stipulation permitting the RRCA to modify the prohibition on construction of new Wells, the States will not increase the level of development of Wells as of July 1, 2002 in the following Designated Drainage Basins, subject to the exceptions set forth in Subsection III.B.1-2.:

North Fork of the Republican River in Colorado
Arikaree River
South Fork of the Republican River
Buffalo Creek
Rock Creek

That portion of the North Fork and Main Stem of the Republican River in Nebraska that lies upstream of Trenton Dam.

Any of the States may seek to amend this provision of this Stipulation by making application to the Court upon any change in conditions making modification of this Subsection III.A.3. necessary or appropriate.

B. Exceptions to Moratorium on New Wells

1. The Moratorium shall not apply to the following:
 - a. Any and all Wells in the Basin located within the current boundaries of the following Natural Resource Districts in Nebraska:
 - i. The Tri-Basin Natural Resource District;
 - ii. The Twin Platte Natural Resource District;
and

iii. The Little Blue Natural Resource District.

Attached to this Stipulation in Appendix D is a map that shows the areas described in this Subsection III.B.1.a. In the event of any conflict between this Subsection and Appendix D, this Subsection will control;

b. Any and all Wells in the Basin in Nebraska located in the following described areas:

- i. Lincoln County, Township 9, Range 27, Sections 5-7;
- ii. Lincoln County, Township 9, Range 28, Sections 1-23, 28-30;
- iii. Lincoln County, Township 9, Range 29, Sections 1-18, 21-26;
- iv. Lincoln County, Township 9, Range 30, Sections 1-6, 8-13;
- v. Lincoln County, Township 9, Range 31, Sections 1-2;
- vi. Lincoln County, Township 10, Range 27, Sections 19-24, 27-33;
- vii. Lincoln County, Township 10, Range 28, Sections 1-36;
- viii. Lincoln County, Township 10, Range 29, Sections 1-36;
- ix. Lincoln County, Township 10, Range 30, Sections 1-36;

- x. Lincoln County, Township 10, Range 31, Sections 1-18, 20-27 and 34-36;
- xi. Lincoln County, Township 10, Range 32, Sections 1-4 and 10-13;
- xii. Lincoln County, Township 11, Range 28, Sections 28-35;
- xiii. Lincoln County, Township 11, Range 29, Sections 19-36;
- xiv. Lincoln County, Township 11, Range 30, Sections 19-36;
- xv. Lincoln County, Township 11, Range 31, Sections 19-36;
- xvi. Lincoln County, Township 11, Range 32, Sections 19-36;
- xvii. Lincoln County, Township 11, Range 33, Sections 19-30, 32-36;
- xviii. Lincoln County, Township 11, Range 34, Sections 21-27;
- xix. Frontier County, Township 6, Range 24, Sections 1-36;
- xx. Frontier County, Township 7, Range 24, Sections 1-36; and,
- xxi. Frontier County, Township 8, Range 24, Sections 19-21 and 27-36.

Attached to this Stipulation in Appendix D is a map that shows the areas described in this Subsection III.B.1.b. In the event of any conflict

between this Subsection and Appendix D, this Subsection will control.

- c. Test holes;
- d. Dewatering Wells with an intended use of one year or less;
- e. Wells designed and constructed to pump fifty gallons per minute or less, provided that no two or more Wells that pump fifty gallons per minute or less may be connected or otherwise combined to serve a single project such that the collective pumping would exceed fifty gallons per minute;
- f. Wells designed and constructed to pump 15 Acre-feet per year or less, provided that no two or more Wells that pump 15 Acre-feet per year or less may be connected or otherwise combined to serve a single project such that the collective pumping would exceed 15 Acre-feet per year;
- g. Replacement Wells, subject to all limitations or permit conditions on the existing Well, or in the absence of any limitation or permit condition only if the Beneficial Consumptive Use of water from the new Well is no greater than the Historic Consumptive Use of water from the Well it is to replace. Nebraska will calculate Historic Consumptive Use in the manner proposed in Appendix F. Nebraska shall not change its proposed method of calculating Historic Consumptive Use before providing notice to the RRCA;
- h. Wells necessary to alleviate an emergency situation involving the provision of water for human consumption or public health and safety;

- i. Wells to which a right or permit is transferred in accordance with state law, provided however, that the new Well:
 - (i) consumes no more water than the Historic Consumptive Use of water under the right or permit that is being transferred; and
 - (ii) is not a transfer of a right or permit that would cause an increased stream depletion upstream of Trenton Dam.

Nebraska will calculate Historic Consumptive Use in the manner proposed in Appendix F. Nebraska shall not change its proposed method of calculating Historic Consumptive Use before providing notice to the RRCA;

- j. Wells for expansion of municipal and industrial uses. Any new Wells for these purposes shall be counted against the State's Allocation and, to the extent a State is consuming its full Allocation, other uses shall be reduced to stay within the State's Allocation; and
- k. Wells acquired or constructed by a State for the sole purpose of offsetting stream depletions in order to comply with its Compact Allocations. Provided that, such Wells shall not cause any new net depletion to stream flow either annually or long-term. The determination of net depletions from these Wells will be computed by the RRCA Groundwater Model and included in the State's Computed Beneficial Consumptive Use. Augmentation plans and related accounting procedures submitted under this Subsection III.B.1.k. shall be approved by the RRCA prior to implementation.

2. The Moratorium shall not apply to nor create any additional limitations on new Wells in Northwest Kansas and Colorado in the Basin other than those imposed by state laws, rules and regulations in existence as of April 30, 2002. Provided however, that the Historic Consumptive Use of a Well in Colorado or Northwest Kansas that is or would have been accounted for in Compact accounting as a stream depletion reaching the Republican River downstream of Trenton Dam may not be transferred to a Well that would cause a depletion reaching the Republican River upstream of Trenton Dam. Further, neither Colorado nor Kansas shall change their laws, rules or regulations in existence as of April 30, 2002, to the extent that such changes would result in restrictions less stringent than those set forth in Subsection III.B.1. above. Attached hereto in Appendices G and H, respectively, are such laws, rules and regulations in Northwest Kansas and Colorado in existence as of April 30, 2002.

C. Surface Water Limitations

Each of the States has closed or substantially limited its portion of the Basin above Hardy, Nebraska to new surface water rights or permits. Each State agrees to notify each Official Member of the RRCA and the U. S. Bureau of Reclamation at least 60 days prior to a new surface water right or permit being granted or prior to adopting changes to its current restrictions related to granting new surface water rights or permits in the Basin above Hardy, Nebraska and provide the RRCA an opportunity for discussion. Each State, however, reserves the right to allow new surface water rights or permits to use additional surface water if such use can be made within the State's Compact Allocation.

D. Reporting

Beginning on April 15, 2003, or such other date as may be agreed to by the RRCA and on the same date each year thereafter, each State will provide the other States with an annual report for the previous year of all Well construction in

the State within the Basin Upstream of Guide Rock, Nebraska and all denials of Well permits or other requests for Well construction. The report shall include such information as required by the RRCA Accounting Procedures, Section V.

IV. Compact Accounting

- A. The States will determine Virgin Water Supply, Computed Water Supply, Allocations, Imported Water Supply Credit, augmentation credit and Computed Beneficial Consumptive Use based on a methodology set forth in the RRCA Accounting Procedures, attached hereto as Appendix C.
- B. Water derived from Sub-basins in excess of a State's specific Sub-basin Allocations is available for use by each of the States to the extent that:
 - 1. such water is physically available;
 - 2. use of such water does not impair the ability of another State to use its Sub-basin Allocation within the same Sub-basin;
 - 3. use of such water does not cause the State using such water to exceed its total statewide Allocation; and
 - 4. if Water-Short Year Administration is in effect, such use is consistent with the requirements of Subsection V.B.
- C. Determination of stream flow depletions caused by Well pumping and determination of Imported Water Supply Credit will be accomplished by the RRCA Groundwater Model as used in the RRCA Accounting Procedures.
 - 1. Stream flow depletions caused by Well pumping for Beneficial Consumptive Use will be included in the determination of Virgin Water Supply, Computed Water Supply, Allocations and Computed Beneficial Consumptive Use in accordance with the formulas in the RRCA Accounting Procedures provided that the RRCA

may agree to exclude from such accounting minimal stream flow depletions. Stream flow depletions caused by Well pumping for Beneficial Consumptive Use will be counted as Virgin Water Supply and Computed Beneficial Consumptive Use at the time and to the extent the stream flow depletion occurs and will be charged to the State where the Beneficial Consumptive Use occurs.

2. The States agree to devote the necessary time and resources, subject to legislative appropriations, to complete the RRCA Groundwater Model in consultation with the appropriate United States agencies.
3. The States have created a Modeling Committee, comprised of members designated by the States and the United States. Each State may appoint at least one member but no more than three to the Modeling Committee. The United States may designate no more than two representatives to the Modeling Committee. The Modeling Committee shall develop a groundwater model acceptable to the States to accomplish the purposes set forth in this Subsection IV.C. The meetings and other work of the Modeling Committee shall be subject to the Confidentiality Agreement dated October 19, 2001, signed by the States and the United States, attached hereto as Appendix I.

Nothing in this Stipulation shall be construed as limiting the attendance and observation by non-member representatives of the participants at any meeting of the Modeling Committee or participation by non-members in the independent work of the States and United States representatives.

4. The States and the United States have agreed to freely and immediately share all available data, information, expert knowledge, and other information necessary for the Modeling Committee to complete the modeling work as requested by any member of the Modeling Committee. Data and information is considered to be “available” if it

is not otherwise privileged and is (1) used by a State in the modeling process, or (2) is in the possession or control of a State, including its political subdivisions, in the form that the information exists at the time of the request. Data and information “necessary to complete the modeling work” also includes any available information to verify any other data and information. Shared information shall be subject to the Confidentiality Agreement dated October 19, 2001, signed by the States and the United States.

5. If at any time, the members of the Modeling Committee cannot reach agreement on necessary modifications to the RRCA Groundwater Model or any other issues, the Modeling Committee shall report the nature of the dispute to the States promptly and the States shall resolve the dispute as soon as possible.
6. The structure of the RRCA Groundwater Model, together with agreed upon architecture, parameters, procedures and calibration targets as of November 15, 2002, are described in the memorandum attached hereto as Appendix J.
7. The Modeling Committee shall submit the RRCA Groundwater Model to the States in final form with sufficient time for the States to review and agree to the RRCA Groundwater Model by July 1, 2003.
8. Upon agreement by the States to the RRCA Groundwater Model, the States, through the RRCA, shall adopt the RRCA Groundwater Model for purposes of Compact accounting. Following final dismissal of this case, the RRCA may modify the RRCA Groundwater Model or the associated methodologies after discussion with the U.S. Geological Survey.
9. Between December 15, 2002 and July 1, 2003, if the States are unable to agree upon the final RRCA Groundwater Model or if any disputes arise in the

Modeling Committee that the States cannot resolve, the dispute will be submitted to binding expert arbitration for resolution as set forth in this Subsection IV.C.9. No State may invoke binding arbitration unless it has first raised the issue it seeks to have arbitrated in the Modeling Committee and to the States as provided for in Subsection IV.C.5. For purposes of this Subsection IV.C.9., written communications required by this Subsection IV.C.9. shall be provided by both U.S. Mail and by facsimile to both counsel of record and the Official Member of the RRCA for each State and to counsel of record for the United States.

- a. Initiation: Any State may invoke binding arbitration by providing written notice to the other States on or before July 1, 2003. A copy of any notice will be provided to the United States at the same time. Notice for the purposes of this Section shall include a written description of the scope of the dispute, with sufficient detail to provide the States with an understanding of the substance of the dispute and all related issues, a description of all attempts to resolve the dispute and sufficient information for the other States to identify the technical skills that should be possessed by potential arbitrators necessary to resolve the dispute. Upon receipt of notice, each State has five business days to amend the scope of the dispute in writing to address additional issues. If unforeseen issues are identified after the deadline for amending the scope of the dispute, they may be added upon agreement of the States or at the discretion of the arbitrator.
- b. Selection: Upon receipt of notice of a dispute, the States shall confer within the deadlines set forth below to choose an arbitrator(s) and the States will in good faith attempt to agree on an arbitrator(s).

- i. Within seven business days of receipt of the initial notice, each State shall submit the names of proposed arbitrators, including qualifications, to the other States. Within seven business days of receipt of the proposed names, the States will meet, in person or by telephone conference, and confer to agree on an arbitrator(s).
- ii. If the States are unable to agree on an arbitrator(s), within seven business days each State will propose an arbitrator(s), not to exceed two and shall submit the proposed names to the other States and the United States in writing within the time set forth below. Upon receipt of each State's list of proposed arbitrators, within seven business days each State will rank and comment on each proposed arbitrator and submit those comments in writing to the Special Master. The United States, as amicus, may submit rankings and comments to the Special Master. The Special Master will initially eliminate any proposed arbitrators from consideration based upon objections by any State of conflict and/or bias. If all of a State's choices are eliminated by conflict and/or bias, a State may submit the name of an additional arbitrator and each State and the United States may provide comments and objections based on conflict and/or bias within a time limit set by the Special Master.
- iii. Any person submitted as a possible arbitrator by any State shall not be an employee or agent of any State, shall be a person knowledgeable in groundwater modeling, and shall disclose any actual or potential conflict of interest and all current

or prior contractual and other relationships with any person or entity who could be directly affected by resolution of the dispute. Any person who has a contractual relationship with any State shall be automatically disqualified for conflict of interest unless the other States expressly agree in writing to submission of that person's name to the Special Master. Any other contested claims of conflict or bias will be resolved by the Special Master.

- iv. The Special Master will then choose an arbitrator(s) from the remaining non-conflicted choices.
- c. First Arbitration Meeting: Upon selection of an arbitrator(s), the arbitrator(s) shall, within seven business days, hold an initial meeting or conference with the States and the United States, as amicus, to determine a schedule and procedures for exchange of information necessary to resolve the dispute, and for submission and resolution of the pending dispute. The arbitrator(s) may also include disputes arising under Subsection IV.C.4. The arbitrator(s) will be subject to the Confidentiality Agreement dated October 19, 2001, signed by the States and the United States.
- d. Costs: The arbitrator(s)' costs shall be paid equally by the States, subject to appropriations by the States respective legislatures. Each State and the United States, as amicus, shall bear its own costs.
- e. Reporting: The arbitrator(s)' decision will be provided to the States and the United States, as amicus, within ten business days of the close of submissions to the arbitrator(s) unless otherwise shortened or extended by agreement of all of the

States. The arbitrator(s)' written report of decision and findings will be submitted to the States and the United States, as amicus, within thirty days of providing the arbitrator(s)' decision.

f. Implementation: If the dispute is one involving the ongoing work of the Modeling Committee, the decision of the arbitrator(s) as to the resolution of the dispute shall be implemented by the Modeling Committee and their efforts shall proceed. If the dispute resolves the final RRCA Groundwater Model, the decision of the arbitrator(s) as to the final RRCA Groundwater Model shall be adopted by the RRCA for the purposes of Compact accounting.

- D. Except as described in Subsection V.B., all Compact accounting shall be done on a five-year running average in accordance with the provisions of the RRCA Accounting Procedures, attached as Appendix C. Flood flows will be removed as specified in the RRCA Accounting Procedures.
- E. The States agree to pursue in good faith, and in collaboration with the United States, system improvements in the Basin, including measures to improve the ability to utilize the water supply below Hardy, Nebraska on the main stem. The States also agree to undertake in collaboration with the United States a system operations study and after completion of the study the States will revisit the five-year running average set forth in Subsection IV.D.
- F. Beneficial Consumptive Use of Imported Water Supply shall not count as Computed Beneficial Consumptive Use or Virgin Water Supply. Credit shall be given for any remaining Imported Water Supply that is reflected in increased stream flow, except as provided in Subsection V.B. Determinations of Beneficial Consumptive Use from Imported Water Supply (whether determined expressly or by implication), and any Imported Water Supply Credit shall be calculated in accordance

with the RRCA Accounting Procedures and by using the RRCA Groundwater Model.

- G. Measurement techniques, data collection and reporting to facilitate implementation of the Stipulation are set forth in the RRCA Accounting Procedures.
- H. Augmentation credit, as further described in Subsection III.B.1.k., shall be calculated in accordance with the RRCA Accounting Procedures and by using the RRCA Groundwater Model.

V. Guide Rock

A. Additional Water Administration

1. To provide for regulation of natural flow between Harlan County Lake and Superior-Courtland Diversion Dam, Nebraska will recognize a priority date of February 26, 1948 for Kansas Bostwick Irrigation District, which is the same priority date as the priority date held by the Nebraska Bostwick Irrigation District's Courtland Canal water right.
2. When water is needed for diversion at Guide Rock and the projected or actual irrigation supply is less than 130,000 Acre-feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan attached as Appendix K to this Stipulation, Nebraska will close junior, and require compliance with senior, natural flow diversions of surface water between Harlan County Lake and Guide Rock. A description of the implementation of the water administration obligations in this Subsection V.A.2.is attached hereto as Appendix L. The RRCA may modify Appendix L in any manner consistent with this Stipulation and the Compact.

3. Nebraska will protect storage water released from Harlan County Lake for delivery at Guide Rock from surface water diversions.
4. Kansas and Nebraska, in collaboration with the United States, agree to take actions to minimize the bypass flows at Superior-Courtland Diversion Dam. A description of the process for meeting the obligations in this Subsection V.A.4 is attached hereto as Appendix L. The RRCA may modify this process in any manner consistent with this Stipulation and the Compact.

B. Water-Short Year Administration

1. Identification of Water-Short Year Administration:
 - a. Water-Short Year Administration will be in effect in those years in which the projected or actual irrigation supply is less than 119,000 acre feet of storage available for use from Harlan County Lake as determined by the Bureau of Reclamation using the methodology described in the Harlan County Lake Operation Consensus Plan. If system operations enhancements below Harlan County Lake increase the useable supply to the Bostwick Irrigation Districts, the trigger for Water-Short Year Administration will be adjusted as agreed to by the States and the United States in order to equitably share the benefits of such enhancements. Following the determination that Water-Short Year Administration is in effect, the States will take the actions described in Subsections V.B.2-4.
 - b. Each year between October 1 and June 30, the Bureau of Reclamation will provide each of the States with a monthly or, if requested by any one of the States, a more frequent update of the projected or actual irrigation supply from Harlan County Lake for that irrigation season. The determination that Water-Short Year

Administration is in effect, pursuant to Subsection V.B.1.a., will become final for that year as of June 30.

2. Nebraska action in Water-Short Year Administration:
 - a. During Water-Short Year Administration, Nebraska will limit its Computed Beneficial Consumptive Use above Guide Rock to not more than Nebraska's Allocation that is derived from sources above Guide Rock, and Nebraska's share of any unused portion of Colorado's Allocation (no entitlement to Colorado's unused Allocation is implied or expressly granted by this provision). To accomplish this limitation, Nebraska may use one or more of the following measures:
 - i. supplementing water for Nebraska Bostwick Irrigation District by providing alternate supplies from below Guide Rock or from outside the Basin;
 - ii. adjusting well allocations for alluvial Wells above Guide Rock;
 - iii. adjusting multi-year well allocations for non-alluvial Wells above Guide Rock;
 - iv. reducing use of storage by Nebraska Bostwick Irrigation District above Guide Rock;
 - v. dry year leasing of water rights that divert at or above Guide Rock, or;
 - vi. any other measures that would help Nebraska limit Computed Beneficial Consumptive Use above Guide Rock to not more than that portion of Nebraska's allocation that is derived from sources above

Guide Rock and would (1) produce water above Harlan County Lake; (2) produce water below Harlan County Lake and above Guide Rock that can be diverted during the Bostwick irrigation season; or (3) produce water that can be stored and is needed to fill Lovewell Reservoir.

- b. Nebraska may offset any Computed Beneficial Consumptive Use in excess of its Allocation that is derived from sources above Guide Rock with Imported Water Supply Credit. If Nebraska chooses to exercise its option to offset with Imported Water Supply Credit, Nebraska will receive credit only for Imported Water Supply that: (1) produces water above Harlan County Lake; (2) produces water below Harlan County Lake and above Guide Rock that can be diverted during the Bostwick irrigation season; (3) produces water that can be stored and is needed to fill Lovewell Reservoir; or (4) Kansas and Nebraska will explore crediting water that is otherwise useable by Kansas.
- c. During Water-Short Year Administration, Nebraska will also limit its Computed Beneficial Consumptive Use in the Sub-basins to the sum of Nebraska's specific Sub-basin Allocations and 48.9% of the sum of the Unallocated Supply from those same Sub-basins.
- d. In years projected to be subject to Water-Short Year Administration, Nebraska will advise the other States and the United States no later than April 30 of measures Nebraska plans to take for that year and the anticipated water yield from those measures. In each Water-Short Year Administration year, Nebraska will advise the other States and the United States no later than June 30 of the measures it has taken or will take

for the year and the anticipated water yield from those measures.

- e. For purposes of determining Nebraska's compliance with Subsection V.B.2.:
 - i. Virgin Water Supply, Computed Water Supply, Allocations and Computed Beneficial Consumptive Use will be calculated on a two-year running average, as computed above Guide Rock, with any Water-Short Year Administration year treated as the second year of the two-year running average and using the prior year as the first year; or
 - ii. as an alternative, Nebraska may submit an Alternative Water-Short Year Administration Plan to the RRCA in accordance with the procedures set forth in Appendix M. The RRCA may modify Appendix M in any manner consistent with this Stipulation and the Compact.
- f. If, in the first year after Water-Short Year Administration is no longer in effect, the Compact accounting shows that Nebraska's Computed Beneficial Consumptive Use as calculated above Guide Rock in the previous year exceeded its annual Allocation above Guide Rock, and, for the current year, the expected or actual supply from Harlan County Lake, calculated pursuant to Subsection V.B.1.a., is greater than 119,000 Acre-feet but less than 130,000 Acre-feet, then Nebraska must either make up the entire amount of the previous year's Computed Beneficial Consumptive Use in excess of its Allocation, or the amount of the deficit needed to provide a projected supply in Harlan County Lake of at least 130,000 Acre-feet, whichever is less.

terracing on the water supply and water uses within the Basin, the States agree to undertake a study, in cooperation with the United States, of the impacts of Non-Federal Reservoirs and land terracing on the Virgin Water Supply.

1. The States, in cooperation with the United States, shall form a committee by January 31, 2003, to be known as the Conservation Committee. By April 30, 2004, the Conservation Committee will:
 - a. Evaluate the available methods and data relevant to studying the impacts of Non-Federal Reservoirs and land terracing practices on water supplies, including a review of any existing studies and their applicability to the Basin;
 - b. Determine the general types of data that are available and relevant to the study;
 - c. Determine the availability of data throughout the Basin, and assess the level of accuracy and precision of the data;
 - d. Agree on standards for data;
 - e. Identify additional data necessary to determine the quantitative effects of Non-Federal Reservoirs and land terracing practices on water supply;
 - f. Propose a methodology for assessing area-capacity relationships for Non-Federal Reservoirs; and
 - g. Submit to the RRCA a proposed study plan to determine the quantitative effects of Non-Federal Reservoirs and land terracing practices on water supplies, including whether such effects can be determined for each Designated Drainage Basin.
2. Following the RRCA's acceptance of the proposed study plan described in Subsection VI.B.1.g., the States and the

United States will undertake the study at a cost not to exceed one million dollars of which the United States will be responsible for 75% of the cost and each State will be responsible for one third of the remaining 25%. The States' portion may be provided entirely through in-kind contributions. If the cost of the study exceeds one million dollars, the United States will be responsible for the entire additional amount. The States, in cooperation with the United States, shall agree upon the timetable for the completion of such study, which shall be completed within five years of the date the proposed study plan is accepted by the RRCA.

3. Participation in the joint study does not commit any State or the RRCA to take any action or to include soil and water conservation measures in Compact accounting. Each State specifically reserves its position that it need not account for conservation measures as a Beneficial Consumptive Use under the Compact.
4. Participation in the joint study by the States or the United States is contingent upon the appropriation of funds by their respective State Legislatures and Congress. Participation by the States in this study is contingent upon participation and funding by the United States in accordance with this Subsection VI.B.

VII. Dispute Resolution

A. Initial Submission to the RRCA:

1. Any matter relating to Republican River Compact administration, including administration and enforcement of the Stipulation in which a State has an Actual Interest, shall first be Submitted to the RRCA. The United States and its agencies may attend all meetings of the RRCA. Proposed agendas, including any regular issue that may be raised, shall be distributed by the chairperson to all RRCA members at least 30 days in advance of any

regular meeting and as soon as possible prior to any special meeting.

2. Each member of the RRCA shall have one vote on each issue Submitted to the RRCA. RRCA action must be by unanimous vote. Action of the RRCA shall be by formal resolution or as reflected in the approved minutes. A request for formal resolution may be made by any member.
3. Any dispute that the State raising the issue for RRCA determination believes requires immediate resolution shall be designated as a “fast-track” issue. Any “fast-track” issue will be Addressed by the RRCA within 30 days of being Submitted to the RRCA unless otherwise agreed to by all States. Nothing in this Section shall prohibit the RRCA from Addressing a dispute prior to the expiration of the 30-day period.
4. Any dispute which the State raising the issue for RRCA determination believes does not require immediate resolution shall be designated as a “regular” issue. Any “regular” issue raised no later than 30 days prior to the next regularly scheduled meeting will be Addressed by the RRCA at that meeting.
5. The RRCA will hold regular meetings pursuant to its rules and regulations. Specially scheduled meetings to address any issue that is Submitted to the RRCA and designated as a “fast-track” issue or for any other emergency purposes shall be held if requested by any member. All members shall make a good faith effort to arrange a mutually agreeable date, time, and place for all meetings. A meeting may be conducted only when all members or their designees are available to attend. In the event a member requests a specially scheduled meeting to address a “fast-track” issue or for any other emergency purposes, such meeting shall be held as soon as reasonably possible, but in no event more than 30 days after the request is made unless more time is agreed to by

all members. If scheduling a meeting in person is not possible within 30 days of a request, the members may conduct a telephone conference or use other means available. If any such meeting is not held within thirty days because of the failure of any member other than the requesting member to attend or to agree to the date and place for the meeting, the State represented by the requesting member shall be relieved of any obligation to submit any dispute to the RRCA for potential consideration and resolution pursuant to the Stipulation.

6. Any issue Submitted to the RRCA by a State will include a specific definition of the issue, supporting materials and a designated schedule for resolution.
7. The RRCA will attempt to resolve any dispute submitted to the RRCA pursuant to this Section VII. If such a dispute cannot be resolved by the RRCA at the regular or special meeting at which the issue is addressed or within a schedule agreed to by all States, and the State raising the dispute desires to proceed, the dispute shall be submitted to non-binding arbitration unless otherwise agreed to by all States with an Actual Interest. The States involved in the dispute may agree that the arbitration shall be binding, but no State shall be subject to binding arbitration without its express written consent.

B. General Dispute Resolution Provisions:

1. Unless otherwise agreed to by all States, non-binding arbitration shall be initiated as follows: Any State, pursuant to Subsection VII.A.7., may invoke arbitration by providing written notice to the other States. A copy of any notice will be provided to the United States at the same time. Notice for the purposes of this Section shall include the time frame designation, a written description of the scope of the dispute, with sufficient detail to provide the States with an understanding of the substance of the dispute and all related issues, and sufficient information for the other States with an Actual Interest to

identify the technical skills that should be possessed by potential arbitrators necessary to resolve the dispute.

2. The arbitrator(s) shall be selected as follows: Upon receipt of notice of a dispute, the States shall confer within the deadlines set forth below to choose an arbitrator(s) and the States will in good faith attempt to agree on an arbitrator(s).
3. Any person submitted as a possible arbitrator by any State, or selected by CDR Associates or other such entity, shall not be an employee or agent of any State, shall be a person generally knowledgeable of the principles of the issues in the dispute, and shall disclose any actual or potential conflict of interest and all current or prior contractual and other relationships with any person or entity who could be directly affected by resolution of the dispute. Any person who has a contractual relationship with any State shall be automatically disqualified for conflict of interest unless the other States expressly agree in writing.
4. The arbitrator(s)' decision shall include a determination of the merits of the dispute and determination of a proposed remedy.
5. The arbitrator(s)' decision shall be provided to the States and the United States by facsimile and mail or comparable means.
6. Within 30 days of the issuance of the arbitrator's decision, the States that are parties to the dispute shall give written notice to the other States and the United States as to whether they will accept, accept and reject in part, or reject the arbitrator's decision.
7. No State shall object to admission of the arbitrator(s)' decision in any subsequent proceedings before the Court, but no State shall assert that the decision is conclusive on any issue. Further, no State shall call the arbitrator(s) as

a witness with regard to the dispute.

8. A State that has submitted a disputed issue to the RRCA and to arbitration as provided in this Section VII shall be deemed to have exhausted its administrative remedies with regard to such issue.

C. Fast Track Dispute Resolution Schedule:

1. Upon receipt of notice under Subsection VII.B.1., each State with an interest in the dispute will have ten business days to amend the scope of the dispute to address additional issues, unless all States agree to a longer schedule. If unforeseen issues are identified after the deadline for amending the scope of the dispute, they may be added upon agreement of all States or at the discretion of the arbitrator.
2. Within ten business days of receipt of the initial notice, each State shall submit the names of proposed arbitrators, including qualifications, to the other States. Within seven business days of receipt of the proposed names, the States will meet, in person or by telephone conference, and confer to agree on an arbitrator(s). If the States with an Actual Interest cannot agree on an arbitrator(s), the selection of the arbitrator will be submitted to CDR Associates, of Boulder, Colorado, or such other person or entity that may be agreed to by the RRCA. Every two years the RRCA will review the entity that will select an arbitrator(s), if the States cannot choose. The States will be bound by the selection of an arbitrator by CDR Associates or such other person or entity.
3. Upon selection of an arbitrator(s), the arbitrator(s) shall, within seven business days, hold an initial meeting/conference with the States, to set the schedule for submission and resolution of the pending dispute. The arbitrator shall set a schedule not to exceed six months unless the States agree otherwise. The States agree to provide all information, except privileged

information, requested by the arbitrator(s).

4. The arbitrator(s) shall issue a decision resolving the dispute within the shortest reasonable time, not to exceed 60 days from the date of final submission by the State parties.

D. Regular Dispute Resolution Schedule:

1. The States with an Actual Interest will agree upon the schedule for amending the scope of the dispute.
2. The States will agree upon the method and schedule for selecting an arbitrator(s).
3. The States and the arbitrator(s) will agree on a schedule for submission and resolution of the pending dispute.
4. The States will agree on a schedule for issuance of a decision by the arbitrator(s).

VIII. Non-Severability of Agreement

The agreement of the States to the terms of this Stipulation is based upon the inclusion of all of the terms hereof, and the rights and obligations set forth in this Stipulation are not severable. If for any reason, the Court should decline to approve this Stipulation in the form presented, the entire Stipulation shall be null and void and the terms of this Stipulation may not be used as evidence in any litigation between the States.

IX. Entirety of Agreement

This Stipulation and the Proposed Consent Judgment, together constitute the entire agreement among the parties hereto. No previous representations, inducements, promises or agreements, oral or otherwise, among the parties not contained in the documents identified in this paragraph or made in compliance with the requirements and obligations contained in the documents identified in this paragraph shall be of any force or effect. Nothing in this Section IX shall be construed as preventing the States from modifying the rules and regulations of the RRCA.

X. Retention of Jurisdiction by the Special Master

The Special Master shall retain jurisdiction until adoption of the RRCA Groundwater Model to:

- A. Select an arbitrator, if necessary, pursuant to Subsection IV.C.9.b.ii. - iv.; and
- B. Resolve disputes, not then subject to arbitration pursuant to Subsection IV.C.9., concerning the exchange and availability of data and information consistent with Subsection IV.C.4.

State Approvals of Final Settlement Stipulation
Kansas v. Nebraska & Colorado, No. 126, Original,
United States Supreme Court

The undersigned Governors and Attorneys General for the States of Kansas, Nebraska and Colorado, having authority to commit the States to a final settlement, hereby commit the States to the terms of this Final Settlement Stipulation reached by their respective Settlement Negotiation Teams. Approval of this Final Settlement Stipulation is conditioned upon the inclusion of all of the terms herein, and the rights and obligations set forth in this Final Settlement Stipulation are not severable. If for any reason, the Special Master or the United States Supreme Court should decline to approve this Stipulation in the form presented, the approvals of the undersigned Governors and Attorneys General for the States shall be null and void.



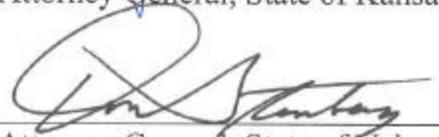
Governor, State of Kansas



Attorney General, State of Kansas



Governor, State of Nebraska



Attorney General, State of Nebraska



Governor, State of Colorado



Attorney General, State of Colorado