RESOLUTION BY THE REPUBLICAN RIVER COMPACT ADMINISTRATION APPROVING A TEMPORARY AUGMENTATION PLAN AND RELATED ACCOUNTING PROCEDURES FOR THE COLORADO COMPACT COMPLIANCE PIPELINE

Whereas, the States of Kansas, Nebraska, and Colorado entered into a Final Settlement Stipulation ("FSS") as of December 15, 2002, to resolve pending litigation in the United States Supreme Court regarding the Republican River Compact ("Compact") in the case of *Kansas v. Nebraska and Colorado*, No. 126 Original;

Whereas, the FSS was approved by the United States Supreme Court on May 19, 2003;

Whereas, the State of Colorado's Computed Beneficial Consumptive Use of the waters of the Republican River Basin exceeded Colorado's Compact Allocation using the five-year running average to determine Compact compliance from 2003 through 2012, as provided in Subsection IV.D of the FSS;

Whereas, the Republican River Water Conservation District is a water conservation district created by Colorado statute to assist the State of Colorado to comply with the Compact;

Whereas, the Republican River Water Conservation District, acting by and through its Water Activity Enterprise ("RRWCD WAE"), has acquired fifteen wells ("Compact Compliance Wells") in the Republican River Basin in Colorado and has constructed collector pipelines, a storage tank, a main transmission pipeline, and an outlet structure capable of delivering groundwater to the North Fork of the Republican River for the sole purpose of offsetting stream depletions in order to comply with the State of Colorado's Compact Allocations;

Whereas, the RRWCD WAE has purchased groundwater rights in the Republican River Basin within Colorado and proposes to pump the historical consumptive use of some or all of these groundwater rights from the Compact Compliance Wells into the pipeline it has constructed and deliver that water into the North Fork of the Republican River near the Colorado/Nebraska State Line to offset stream depletions in order to comply with Colorado's Compact Allocations (the "Colorado Compact Compliance Pipeline" or the "Pipeline");

Whereas, the States of Kansas, Nebraska, and Colorado adopted a Moratorium on New Wells in Subsection III.A of the FSS, with certain exceptions set forth in subsection III.B of the FSS;

Whereas, Subsection III.B.1.k of the FSS provides that the Moratorium shall not apply to 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;

Whereas, Subsection III.B.1.k of the FSS further provides that augmentation plans and related accounting procedures submitted under this Subsection III.B.1.k shall be approved by the Republican River Compact Administration ("RRCA") prior to implementation;

Whereas, Subsection I.F of the FSS also provides that: "The RRCA may modify the RRCA Accounting Procedures, or any portion thereof, in any manner consistent with the Compact and this Stipulation;" and

Whereas, the State of Colorado and the RRWCD WAE submitted an application for approval of an augmentation plan and related accounting procedures for the Pipeline to account for water delivered to the North Fork of the Republican River for the purpose of offsetting stream depletions in order to comply with Colorado's Compact Allocations;

Whereas, the States agreed to operate the Pipeline during 2014; **Whereas**, the States have agreed to another one-year agreement to operate the Pipeline during 2015 on certain terms, which are described below; and

Whereas, Kansas reports that water users in the South Fork Subbasin have expressed to Kansas their dependence on streamflows for the livelihoods, and remain concerned about diminishing flows at the Colorado-Kansas stateline;

Whereas, because of the short-term nature of the temporary augmentation plan, the States have agreed to approve the temporary augmentation plan using the procedures described below instead of adopting revised RRCA Accounting Procedures and Reporting Requirements.

Now, therefore, it is hereby resolved that the RRCA approves a temporary augmentation plan and the related accounting procedures for the Colorado Compact Compliance Pipeline subject to the terms and conditions set forth herein. The Colorado Compact Compliance Pipeline project is described in the revised application submitted by the State of Colorado and the RRWCD WAE, which is attached hereto as Exhibit 1. The augmentation plan for the Pipeline and the terms and conditions for the operation of the augmentation plan are described below. The related changes to the accounting procedures and groundwater model are included in the revised RRCA Accounting Procedures and Reporting Requirements ("revised RRCA Accounting Procedures"), which are attached hereto as Exhibit 2, and "Modeling the Colorado Compliance Pipeline in the RRCA Groundwater Model", which is attached hereto as Exhibit 4. The Compact accounting for 2015 will follow the terms and conditions described in this resolution and its exhibits. This temporary approval of the augmentation plan and the related changes to the accounting procedures and groundwater model for the Pipeline is subject to the following terms and conditions:

1. The average annual historical consumptive use of the groundwater rights that will be diverted at the Compact Compliance Wells shall be the amounts determined by the

Colorado Ground Water Commission pursuant to its rules and regulations, as shown on Exhibit 3.

2. Diversions from any individual Compact Compliance Well shall not exceed 2,500 acre-feet during 2015.

3. Diversions during any calendar year under the groundwater rights listed on Exhibit 3 and any additional groundwater rights approved for diversion through the Compact Compliance Wells pursuant to paragraph 11 shall not exceed the total average annual historical consumptive use of the rights, except that banking of groundwater shall be permitted in accordance with the rules and regulations of the Colorado Ground Water Commission, subject to the terms and conditions of this resolution.

4. Diversions from the Compact Compliance Wells shall be measured by totalizing flow meters in compliance with the Colorado State Engineer's rules and regulations for the measurement of groundwater diversions in the Republican River basin, and the measured groundwater pumping from such wells shall be included in the "base" run of the RRCA Groundwater Model in accordance with paragraph III.D.1 of the revised RRCA Accounting Procedures. Net depletions from the Colorado Compact Compliance Wells shall be computed by the RRCA Groundwater Model and included in Colorado's Computed Beneficial Consumptive Use of groundwater pursuant to paragraph III.D.1 of the revised RRCA Accounting Procedures (See Exhibit 2; also Exhibit 4).

5. Deliveries from the Colorado Compact Compliance Pipeline to the North Fork of the Republican River shall be measured by a Parshall flume or other measuring device located at the outlet structure. Authorized representatives of Kansas and Nebraska shall have the right to inspect the Parshall flume and other measurement devices for the Pipeline at any reasonable time upon notice to the RRWCD WAE.

6. The measured deliveries from the Colorado Compact Compliance Pipeline during 2015, to the extent they are in compliance with this resolution, shall offset stream depletions to the North Fork of the Republican River sub-basin on an acre-foot for acre-foot basis in accordance with the revised RRCA Accounting Procedures.

7. The measured deliveries from the Colorado Compact Compliance Pipeline during 2015 shall be added to the RRCA Groundwater Model in all model runs described in the revised RRCA Accounting Procedures (See Exhibit 2; also Exhibit 4). For the purpose of operating this temporary augmentation plan during 2015, the "base" run, the "no NE import" run, and the "no State pumping" run referred to in paragraph III.A.3. (Imported Water Supply Credit Calculation) and paragraph III.D.1. (Groundwater CBCU) of the RRCA Accounting Procedures and the RRCA Groundwater Model will be modified to include the "outflow of the CCP" as described in Exhibit 4.

8. Colorado shall determine the Projected Augmentation Water Supply Delivery ("Projected Delivery") for 2015 to estimate the volume of augmentation water that will be delivered from the Pipeline during 2015 as provided below, and the RRWCD WAE shall make deliveries from the Pipeline as provided below:

   A. Colorado will initially estimate the Projected Delivery required for 2015 based on the largest stream depletions to the North Fork of the Republican River sub-basin during the previous five years without Pipeline deliveries. The RRWCD WAE will begin deliveries from the Colorado Compact Compliance Pipeline during 2015 based on the Projected Delivery and shall make a minimum delivery of 4,000 acre-feet per year as provided below.

   B. Accounting for deliveries will start January 1.

   C. The RRWCD WAE will begin deliveries from the Pipeline on or after January 1 and will make the minimum annual delivery of 4,000 acre-feet during the months of January, February, and March, unless such deliveries cannot be made due to operational conditions beyond the control of the RRWCD WAE. If the minimum annual delivery of 4,000 acre-feet cannot be made during the months of January, February and March due to such operational conditions, Colorado will consult with Nebraska and Kansas to schedule such deliveries later in the year.

   D. Colorado will calculate and provide notice to the Kansas and Nebraska RRCA Members, by April 1, of the Projected Delivery as provided in paragraph 8.A of this resolution. Unless Colorado determines by April 1 that it will not be able to deliver additional required augmentation water in October through December, Colorado shall stop deliveries at the end of March. If Colorado anticipates that deliveries in the months of November and December will not be sufficient to replace stream depletions to the North Fork of the Republican River for Compact compliance, Colorado will maximize deliveries first in January, then sequentially in the months of February, March, and April. Deliveries will be made in May only if there is reason to believe that additional deliveries in the months of October through December will not be sufficient to replace stream depletions to the North Fork of the Republican River for Compact compliance.

   E. Because the final accounting for determining Compact compliance is not done until after the compact year is completed and because Colorado's allocations and computed beneficial consumptive use are dependent upon such factors as runoff, the amount of pumping, precipitation and crop evapotranspiration, Colorado cannot know the precise amount of augmentation water that will be needed in 2015. After the initial minimum delivery of 4,000 acre-feet, Colorado will collect

preliminary data for Compact accounting for 2015 and, no later than September 1, 2015, will update the Projected Delivery required for the remainder of 2015, less the initial minimum delivery of the 4,000 acre-feet that has already been delivered; provided that for 2015, the RRWCD WAE may limit deliveries to the updated Projected Delivery for 2015 or the updated Projected Delivery for 2015 plus a percentage of the deficit owed from the previous 4 years; but not to exceed the average annual historical consumptive use of the groundwater rights as shown on Exhibit 3.

F. After updating the Projected Delivery, as described above, if additional deliveries in excess of the initial delivery of 4,000 acre-feet are necessary to offset projected stream depletions to the North Fork of the Republican River, Colorado and the RRWCD WAE will maximize such additional deliveries first in the month of December, then November and October of 2015. If the total necessary additional deliveries cannot be made within those three months, Colorado will attempt to schedule those deliveries in April and May of 2015, or at such time so as to avoid, to the extent practicable, deliveries during the subject accounting year's irrigation season.

G. Colorado's shortage and Projected Delivery will be calculated in accordance with the FSS.

9. The as-built design for the Colorado Compact Compliance Pipeline, including the location of the Compact Compliance Wells and the river outlet structure, is described in the revised application attached hereto as Exhibit 1. No future changes to the Pipeline that would materially change the location of the Compact Compliance Wells or the river outlet structure shall be made without prior approval of the RRCA.

10. Augmentation credit for deliveries from the Pipeline to the North Fork of the Republican River shall be limited to offsetting stream depletions to the North Fork of the Republican River Colorado sub-basin for the purpose of determining Colorado's compliance with the sub-basin non-impairment requirement (Table 4A) and for calculating Colorado's five-year running average allocation and computed beneficial use for determining Compact compliance (Table 3A).

11. The approval of this augmentation plan and the related accounting procedures for the Pipeline shall not govern the approval of any future proposed augmentation plan and related accounting procedures submitted by the State of Colorado or any other State under Subsection III.B.1.k of the FSS.

12. The approval of this augmentation plan and the related accounting procedures for the Pipeline shall not waive any State's rights to seek damages from any other State for violations of the Compact or the FSS subsequent to December 15, 2002.

13. Except for the approval of the augmentation plan and the related accounting procedures as provided herein, nothing in this Resolution shall relieve the State of Colorado from complying with the obligations set forth in the Compact or FSS.

14. Unless otherwise agreed to by States, operation of the augmentation plan and its related accounting and modeling will automatically cease at 12:00 AM on January 1, 2016.

15. Colorado agrees to collect data related to pumping of Pipeline wells and delivery of water through the outfall structure of the Pipeline on at least a daily basis and provide such data to Kansas and Nebraska on a monthly basis; and by January 30, 2015, will provide all spreadsheets and calculations related to the initial "Projected Delivery" of augmentation water as described in Exhibit 1. Colorado will provide to Kansas all updates to that projection within one week of the completion of any update.

16. The States agree that this one-year agreement does not obligate any State to support or approve any augmentation plan, including the CCP, at any time in the future.

17. The States agree that this one-year operation of the augmentation plan will not be considered precedent for the RRCA's approval of the CCP or any other augmentation proposal in the future, including a different version of the CCP if one should be submitted for consideration by the RRCA.

18. Kansas does not agree to implementation of the Bonny Reservoir Accounting Proposal.

19. The States do not waive any objections, positions, or arguments related to the CCP, augmentation plans or their approval under the FSS, or the Bonny Reservoir Accounting Proposal.

20. The States further agree that if any changes to the RRCA accounting procedures or RRCA groundwater model applicable to the compact accounting for 2015 are mandated by any order or decree of the United States Supreme Court, such changes will be implemented in the Compact Accounting for 2015.

21. The States agree to direct Principia Mathematica to model operations of the CCP during 2014 and 2015 according to Kansas' "Method 3," described in the attached document entitled "Kansas Method to Determine the CCP Credit," and provide preliminary results to the RRCA by November 30, 2014, and subsequent results to the RRCA by April 30, 2015 for the 2014 operation; and preliminary results to the RRCA by September 30, 2015 and subsequent results to the RRCA by April 30, 2016 for the 2015 operations; and

22. The States agree that Colorado and Kansas have agreed on the attached scope (Attachment 1) for discussions to occur during 2015.

23. The States agree that if a plan to address South Fork Republican River issues is agreed upon by Colorado and Kansas by November 1, 2015, the Colorado Compliance Pipeline is hereby authorized by the RRCA to operate under the same terms as defined in the this Resolution of the RRCA approving the same. If implementation of that plan requires action by the RRCA, Kansas and Colorado agree to submit a resolution to the RRCA for vote by all three states.

Approved by the RRCA this 22nd day of October, 2014.

Dr. James C. Schneider
Acting Nebraska Member
Acting Chairman, RRCA

10-22-14
date

David Barfield, P.E.
Kansas Member

10/22/2014
date

Dick Wolfe, P.E.
Colorado Member

10-22-14
date

Scope of Discussion Topics

October 22, 2014

Colorado and Kansas agree in good faith to discuss the following items with the goal of reaching agreement by November 1, 2015:

1. Identify options to increase streamflow on the South Fork at the stateline.

2. RRCA modeling and accounting for Bonny Reservoir

3. Access to the unallocated portion of the South Fork Republican River.

4. An action plan to resolve the above issues.

David W Barfield — 10/22/2014

David Barfield, P.E.
Kansas Member — date

Dick Wolfe — 10-22-14

Dick Wolfe, P.E.
Colorado Member — date

Kansas Method to Determine the CCP Credit

Modeling the Colorado Compliance Pipeline (the "CCP") in the RRCA Groundwater Model (the "Model") consists of two parts. The first involves fifteen wells that will be pumped via a collector system and storage tank into the pipeline (the "CCP Wells"). The water rights for these wells were changed from existing irrigation wells that will be retired. The historic consumptive use from those wells has been transferred to the CCP Wells. The second part involves the surface water outflow from the pipeline.

Modeling of Well Pumping

The irrigation wells that were acquired as part of the CCP will be removed from the irrigation well data set used to represent irrigation wells in the Republican River Basin in Colorado. Because the irrigation wells will no longer be pumped, they will not be included when calculating pumping and return flows from agricultural wells.

Instead, production for each CCP Well will be recorded and supplied as monthly input values by well based on actual production of each well. The pumping of each well will be considered to be fully consumptive and the appropriate volume added to the Republican River Pre-Processor ("rrpp") pumping input files (".pmp" files) for each month. Since there are no irrigation return flows associated with these wells, nothing will be added to the ".rcg" files.

Those pumping values for the CCP Wells will be ON in all of the model simulations except the simulation with pumping in Colorado turned OFF. Therefore, the impacts of the CCP Wells on baseflow will be evaluated as part of the evaluation of other Colorado pumping. No changes are required to "rrpp" to simulate the CCP Wells.

Only the consumptive use of the retired irrigation wells is transferred to the CCP Wells. It was previously demonstrated that due to the distance between the wells and the North Fork of the Republican River, the changes in the timing of the pumping results in no net increase in depletions of baseflow in the Republican River.

Modeling of Pipeline Outflow

The outflow of the CCP will NOT be added to the stream network for all the Model simulations; instead, CCP outflow will be added only to the CCP Credit model run, which is otherwise the same as the all-ON base case model run.

For the CCP Credit model run, the outflow from the CCP must be added to the stream network as a tributary to Segment 153. In order to do so, a new segment must be created in the stream network with a segment number less than 153. To avoid renumbering all of the segments in the stream network and the corresponding change required to the accounting that would occur as a result of renumbering all the segments, a change will be made to the stream network that avoids renumbering.

Muddy Creek in Nebraska is represented as Segments 122 and 125. The model cells representing Segment 122 will be added to Segment 125, and the routing updated so that the flow from Segments 33 and 66 that previously went to Segment 122 will go to Segment 125 instead.

Segment 122 will then be re-purposed to represent the outflow from the CCP. The new Segment 122 will have a single cell with a stream conductance of zero. The monthly CCP outflow volume will be set as the inflow to Segment 122. The stream routing will be updated so that the outflow from Segments 122 and 130 will go to Segment 153. The result will be that the inflow into Segment 153 will be the sum of the simulated baseflow in the North Fork of the Republican River at the Colorado-Nebraska State Line and the CCP outflow.

The North Fork accounting point at the Colorado-Nebraska State Line will be redefined to be the inflow to Segment 153, Reach 1 from its current definition as inflow to Segment 130, Reach 28, so that the CCP outflow will appear at the North Fork accounting point.

The monthly CCP outflow volume will be added only to the CCP Credit simulation.

A change to the "mkstr" program will be required in order to add the CCP outflow to the stream package file for every month. The existing Model version 12s.str stream template file will be updated to reflect the change to Segments 122 and 125 and changes to the routing of segments 63, 66, 122 and 130. A new version of the "mkstr" program called "mkstr2" will be used to read monthly CPP volumes from the file "flow.dbf" and add it to Segment 122.

CCP Credit

The acct program calculates State pumping impacts and mound import credits based on baseflow computed by the groundwater model. The acct program may require minor changes to calculate CCP Credit. The acct program will read computed baseflows for the following cases:

Base: all pumping and IWS ON, CCP flow OFF;
CO: CO pumping OFF, CCP flow OFF;
KS: KS pumping OFF, CCP flow OFF;
NE: NE pumping OFF, CCP flow OFF;
IWS: IWS pumping OF, CCP flow OFF;
CCP: all pumping and IWS ON, CCP flow ON

In addition to State pumping impacts and mound import credits, CCP Credit is calculated as the difference in computed baseflow between the CCP case and the Base case.

Changes to Procedures

The CCP Wells and CCP outflow will be processed along with the annual updates to the Model and the CCP data supplied along with the backup information for other components of the Colorado data.

The Model will be updated to Version 12s3 to reflect changes in the stream network required to add the outflow from the CCP to the stream network. Version 12s3 will use the updated "mkstr2" program that will require an additional "flow.dbf" input file to specify the monthly CCP outflow volume. No changes are required to the other programs used to run the Model.

The CCP will require no changes to the "acct" program that summarizes the Model results for incorporation into the accounting spreadsheets other than those required to compute CCP Credit (above). Changes to the accounting spreadsheets to account for the Augmentation Water Supply resulting from the CCP are described elsewhere.