

Exhibit NCOPRE C102

IN RE: NON-BINDING ARBITRATION
PURSUANT TO THE FINAL SETTLEMENT STIPULATION,
KANSAS v. NEBRASKA and COLORADO
No. 126 Original, U.S. Supreme Court

NEBRASKA'S N-CORPE AUGMENTATION PLAN

BEFORE JEFFREY C. FEREDAY, ARBITRATOR

JOINT EXPERT REBUTTAL REPORT

DICK WOLFE, P.E.
STATE ENGINEER
AND
DR. WILLEM A. SCHREUDER
PRINCIPIA MATHEMATICA

I. Introduction

This report responds to the expert reports of Steven P. Larson and Samuel P. Perkins, Dale E. Book, and David W. Barfield, dated January 24, 2014, and all responding to Nebraska's N-CORPE Augmentation Plan submitted to the Republican River Compact Administration on June 10, 2013. David Barfield's report incorporates by reference his earlier reports in the Rock Creek arbitration. We hereby incorporate our responses to Kansas' reports filed in the Rock Creek Arbitration.

II. Transit Loss

It has been Colorado's consistent position in this arbitration and prior arbitrations that the pipeline outflow is surface water that should be treated like any other surface water. The RRCA Groundwater Model (Model) is not informed of any surface water diversions, tail water, reservoir releases, or any other surface

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water operations. It is inappropriate to add the outflow of the N-CORPE pipeline outflow to the Model.

This position is in agreement with the ruling of Arbitrator Fereday in the Rock Creek Hearing. In the Arbitrator's Order dated November 25, 2013, Arbitrator Fereday found:

Contrary to Kansas' argument, FSS § IV.H also does not require that the Model be used to assess transit losses. As Special Master McKusick stated, '[f]or the purpose of determining future Compact compliance, the Final Settlement Stipulation provides that the Groundwater Model is the means by which the States will account for consumption of groundwater to the extent the consumption depletes stream flow in the Basin.' Ex. J68, p. 33. As discussed above, the Groundwater Model is used to determine new baseflow depletion as part of the credit calculation.

I am not persuaded by Kansas' arguments that transit losses should be counted in determining Augmentation Credit. Under the FSS, augmentation deliveries less new depletions are credited against a State's CBCU once they are delivered, regardless of whether they show up at a particular stream gage.

Arbitrator's Order at p. 26. The Arbitrator's Order is not binding in this arbitration. However, we understand that the entire record of the prior arbitration will be included in this arbitration. Considering their reports alone and the evidence presented in the prior arbitration the Kansas experts have not shown why a different result is required in this arbitration.

The Kansas experts continue to insist that Nebraska should be charged for transit losses, yet they do not appear to agree on a method of assessing transit losses. Instead, they propose three different approaches to assessing transit losses. Essentially, the Kansas experts argue that it is inappropriate to provide Nebraska with full credit for the amount of water delivered from the N-CORPE pipeline. They argue that Nebraska should instead only be given credit for some reduced amount and that the amount of reduction should be correlated to transit losses. However, Kansas' three expert reports appear to disagree on the method of calculating those losses. The Larson-Perkins report shows graphs but does not explicitly state what the transit loss would be. The Book report provides an analysis using an assumed transit loss of 10% without explaining how this transit loss is determined. The

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Barfield report states that the Model should calculate transit losses for Augmentation Water similar to how transit losses are calculated for Imported Water, but it is unclear what that means since the Model does not calculate transit losses for Imported Water.

It has been Colorado's position in the current and previous proceedings, that it is inappropriate to charge a transit loss for Augmentation Water. This is because neither the Compact nor the FSS consider transit losses in calculating the Virgin Water Supply. Indeed, the term Transit Loss does not occur anywhere in the Compact or FSS.

Transit loss is predicated on the idea that water may be lost between two points. By charging a transit loss for augmentation deliveries, Kansas would effectively create a delivery requirement, since Nebraska's credit would be reduced by the amount of transit loss calculated between those two points.

In the Rock Creek decision, Arbitrator Fereday specifically found that charging a transit loss is inappropriate as it has no basis in the Compact or FSS. Colorado agrees with this conclusion.

III. Location of Delivery

Assessing transit losses first requires determining where the augmentation water must be delivered. There is no such requirement in the FSS or the Compact. This is further evidenced by the fact that the Kansas Reports appear to disagree on the delivery point and thus the amount of transit loss as demonstrated below.

First, the Larson-Perkins report calculates a transit loss to Harry Strunk Reservoir by calculating the change in modeled baseflow gains on Medicine Creek when the pipeline outflow is added to the Model, versus when the pipeline outflow is not added to the Model.

Second, at his deposition Dr. Perkins indicated that he also used the Model to evaluate a transit loss between Harry Strunk Reservoir and Harlan County Reservoir. Kansas has denied Colorado's initial request to provide these evaluations, but it suggests that Mr. Larson and Dr. Perkins might view the delivery point to be Harlan County Reservoir.

Third, the Book report shows an analysis extending to the Medicine Creek accounting gage (06842500 Medicine Creek below Harry Strunk Reservoir). This suggests that Kansas may view the delivery point to be the downstream end of the Medicine Creek Sub-basin.

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Fourth, the Barfield report states that transit losses should be calculated similar to Imported Water. Since gains from Imported Water Supply are calculated until Guide Rock, this suggests that Kansas views Guide Rock or perhaps Hardy as the delivery point.

None of these delivery points is appropriate because there is no requirement anywhere in the Compact or FSS that augmentation water must be delivered to an arbitrary point selected by Kansas.

IV. Method of Calculating Transit Loss

The Larson-Perkins report shows an analysis that calculates the transit loss above Harry Strunk Reservoir by computing the difference between baseflow gains with and without the pipeline outflow added to the Model. While the Larson-Perkins Report does not explicitly provide the result, the simulations provided show that the proposal would charge Nebraska a transit loss from the pipeline outfall to Harry Strunk Reservoir of between 29.4 and 82.3 percent depending on the volume of pipeline flow.

As mentioned above, Dr. Perkins also used the Model to evaluate a transit loss between Harry Strunk Reservoir and Harlan Country Reservoir. Charging Nebraska for transit losses below Harry Strunk Reservoir would increase those losses. Consequently, the total transit loss could exceed 82.3 percent at times.

The Book report shows an analysis that uses a transit loss of 10% to the Medicine Creek accounting gage below Harry Strunk Reservoir. At his deposition Mr. Book opined that the 10% transit loss is a reasonable estimate of the transit loss based on Mr. Book's professional experience. It does not appear that Mr. Book's value of 10% is based on the Larson-Perkins results or the results of Mr. Barfield's analysis.

The Barfield report does not state the amount of transit loss that should be charged, but only states that it should be calculated in a way similar to the Imported Water Supply Credit (IWS Credit). Given that the amount of imported water by Nebraska that makes its way underground to the Republican River groundwater system is approximately 600,000 acre-feet/year and that the IWS Credit is approximately 20,000 acre-feet/year, Mr. Barfield seems to suggest that a transit loss in excess of 95% would be appropriate.

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V. Augmentation Water as Imported Water

The Barfield report states that the IWS Credit is the appropriate template to develop the Augmentation Water Supply Credit (“AWS Credit”). This is incorrect. The IWS Credit is a method of using the Model to determine how much imported water makes its way underground to the Republican River. There is no reason to use the Model to determine the amount of augmentation deliveries to the surface stream because those can be measured directly.

The IWS Credit is derived from the fact that some surface water diverted from the Platte River system seeps and percolates into the Republican River groundwater system. Some of that groundwater is intercepted by wells, plants or is otherwise consumed. Ultimately, only a small fraction of the imported water actually reaches the Republican River, and is counted as IWS Credit.

In order to determine how much of the imported water reaches the Republican River through the groundwater system, the Model is needed. The Model is run with surface water imports to the Mound Area on and off, and the difference in the predicted baseflow gains are calculated. That difference is the IWS Credit. The Model thus allows the cause and effect between imported water and baseflow gains to be isolated. Of the approximately 600,000 acre-feet of water that finds its way from the Platte River system to the Republican River groundwater system each year, only about 20,000 acre-feet actually reach the Republican River and its tributaries and is counted as IWS Credit. This IWS Credit cannot be determined by measurements because a measurement cannot establish what the baseflow gains would have been in the absence of the imported water.

The N-CORPE project pipeline outflow will be released directly to the river, resulting in increased surface flow. The increase in surface flow can be measured at the outfall of the pipeline, and the groundwater Model is not needed to determine how much surface flow will result from the N-CORPE operations.

If Nebraska had constructed a pipeline to directly import surface water from the Platte River system to Medicine Creek, there is no doubt that 100% of the pipeline would have been considered imported water, and the Model would not be needed to quantify any aspect of that pipeline’s operations. It seems incongruous that Kansas would suggest that the outflow of the N-CORPE pipeline should be treated any differently than the outflow from a pipeline delivering surface water from the Platte River system, so long as the Model is used to calculate depletions from the wells used to supply the pipeline. It has been Colorado’s consistent position that the pipeline outflow is surface water that should be treated like any

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other surface water. The Model is not informed of any surface water diversions, tail water, reservoir releases, or any other surface water operations. Therefore, it is inappropriate to add the outflow of the N-CORPE pipeline outflow to the Model.

VI. Limits to the AWS Credit

The wells that are used to supply augmentation water for the N-CORPE project are not subject to the moratorium described in Subsection III.A. of the FSS. As such, they are not limited by the requirement of not causing any new net depletions. *See* FSS § III.B.1.k. Kansas experts conceded this point during their depositions. However, we believe it would still be reasonable to impose a maximum annual credit limit. For the N-CORPE project, Nebraska has agreed to cap both the pumping and AWS Credit to a maximum amount of 60,000 acre-feet per year. Nebraska has agreed to Arbitrator Fereday's recommendation on Rock Creek that the AWS Credit should be the pipeline deliveries minus the new depletions caused by the augmentation wells. This is acceptable to Colorado.

VII. Dewatering of the Basin

Mr. Barfield expresses the concern that approval of the N-CORPE project would lead to ongoing dewatering of the Republican River Basin. Groundwater levels in many parts of the Basin have been declining for decades. Groundwater levels in Kansas have shown some of the largest declines anywhere in the Basin due to pumping by Kansas irrigators. By contrast, groundwater levels in the Mound Area in Nebraska and specifically in the vicinity of the N-CORPE well field are actually higher today than they were 100 years ago due to water imported from the Platte River system.

The N-CORPE project is a proactive step by Nebraska to improve the water supply in the Republican River Basin. A significant fraction of the water provided by the N-CORPE pipeline is water imported from the Platte River system that would otherwise have returned to the Platte River system. Water users in the Republican River Basin and specifically surface water users in Kansas will derive a significant benefit from this improved water supply.

Mr. Barfield's concerns about dewatering the basin by the N-CORPE project are therefore misdirected.

VIII. Summary and Conclusion

The N-CORPE project by its very nature is prospective. The project is sufficiently detailed for all three states to understand how it will be operated and

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incorporated into the RRCA Accounting Procedures. The project allows Nebraska the necessary flexibility to operate in such a way as to meet its obligations under the Republican River Compact under varying future conditions.

Where Colorado had questions or concerns about earlier drafts of the N-CORPE proposal, Nebraska has been responsive and has provided clarification or adjusted the N-CORPE proposal to address Colorado's concerns. Furthermore, Nebraska has agreed to reasonable reporting requirements and limits on operations.

We understand that Nebraska may agree to minor modifications of the N-CORPE proposal in order to accommodate the recommendations in the ruling of Arbitrator Fereday from the Rock Creek hearing. Colorado would support approval of the N-CORPE project even with these modifications.



Dr. Willem A. Schreüder,
President
Principia Mathematica



Dick Wolfe, P.E.
Colorado State Engineer
Colorado Division of Water
Resources