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**REPUBLICAN RIVER COMPACT ARBITRATION**

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



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



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**BEFORE MR. JEFFREY C. FEREDAY, ARBITRATOR**



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**DIRECT TESTIMONY OF DR. JASPER E. FANNING, MANAGER OF THE UPPER  
REPUBLICAN RIVER NATURAL RESOURCE DISTRICT RE: NEBRASKA'S ROCK  
CREEK AUGMENTATION PLAN**



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1 1. Q: Please state your name for the record.

2 A: I, Dr. Jasper E. Fanning, am the Manager of the Upper Republican Natural Resources  
3 District (“URNRD”). The following is my Direct Testimony, based on personal  
4 knowledge.

5 2. Q: Please describe your experience as it relates to water management.

6 A: I have about 10 years of experience in the areas of water resources management and  
7 planning. I joined the URNRD in 2004 and have been in my current position as Manager  
8 of the NRD since that time. In that capacity, I am responsible for overseeing the day-to-  
9 day operations of the NRD and all of its various projects and programs.

10 3. Q: What formal training or education have you completed?

11 A: My technical expertise and training is in the field of economics. I hold a B.S. in  
12 animal science and agricultural economics from the University of Nebraska; a M.S. in  
13 agricultural economics from Oklahoma State University; and a Ph.D. in agricultural  
14 economics from Kansas State University.

15 4. What is the purpose of your testimony today?

16 A: The purpose of my testimony is to provide background on the development of the  
17 Rock Creek Project (“Project”).

18 5. Q: How familiar are you with the Project area?

19 A: Very familiar. I grew up near Benkelman, Nebraska, a small town along the  
20 Republican River at the western end of the Basin. Our family farm is located about 10 or  
21 so miles east of the Project and I farm land around and that adjoins the property. A map  
22 of the Project area is included as exhibit N20001.

1 6. Q: Was the Project your first venture into streamflow augmentation?

2 A: No. The Project is at least partially the culmination of analysis of both the feasibility  
3 and site suitability of augmentation generally within Nebraska's portion of the  
4 Republican Basin. An analysis was pursued and began being conducted by the Upper,  
5 Middle and Lower Republican NRDs in 2006 with the aid of a grant from the State of  
6 Nebraska's Interrelated Water Management Plan Program Fund. The summary of the  
7 work was reported to the Republican River Compact Administration ("RRCA") by me in  
8 2007. This was preceded by a report I gave in the year 2006 in Phillipsburg, Kansas to  
9 the RRCA.

10 7. Q: So, Dr. Fanning, as the manager of the URNRD, what did you generally conclude  
11 from the study?

12 A: It was established that streamflow augmentation would help maintain Compact  
13 Compliance.

14 8. Q: What factors were used to evaluate potential augmentation sites?

15 A: Approximately 10 sites throughout Nebraska's portion of the Basin were identified  
16 and general criteria for suitable augmentation sites were established. Key criteria that  
17 would have to be met for an effective project included a site with a groundwater aquifer  
18 of sufficient material to yield high capacity wells, that was close to a tributary or the main  
19 stem of the Republican River. Additionally, it was determined that the well field for an  
20 augmentation project should be in a location that had been modeled using the RRCA  
21 groundwater model as having relatively minor impacts on stream flow caused by  
22 groundwater pumping, i.e. a minimal stream flow depletion factor.

23 9. Q: How did that work inform your choices about potential sites for such projects?

24 A: Over the course of approximately four years when augmentation was studied by the

1 NRD's in consultation with the state, the participants in the study determined that land  
2 acquisition would be a driving factor for an augmentation project to eventually be  
3 implemented. Identifying possible sites was helpful, but acquiring an appropriate site  
4 would require either difficult land acquisitions from multiple owners at the sites  
5 evaluated or alternatively decisive action when and if a suitable location was for sale on  
6 the open market. The NRDs, for obvious reasons, did not prefer acquiring a site through  
7 eminent domain.

8 10. Q: When and why did you first identify the Rock Creek augmentation site?

9 A: During a Committee meeting, we were actually examining a different site across the  
10 road from the one we ultimately acquired. At that time, it came to my attention that the  
11 parcel we ultimately acquired was available. In my experience a parcel of this size in  
12 contiguous configuration is fairly uncommon. For this reason, we acted as quickly as  
13 possible to secure the site.

14 11. Q: Please describe the site you acquired.

15 A: We bought about 4,000 acres in Dundy County a few miles from the headwaters of  
16 Rock Creek, a perennially flowing stream that is a tributary of the Republican River.  
17 With assistance from the Department of Natural Resources ("DNR") we evaluated the  
18 site using the criteria established under the augmentation project study and determined  
19 that in many ways it was an ideal site for an augmentation project: The saturated  
20 thickness of the underlying aquifer was substantial and yields high capacity wells, it was  
21 just a few miles from a Republican tributary and the RRCA groundwater model showed  
22 relatively minor impacts on stream flow caused by groundwater pumping. Also, by  
23 purchasing the property, the NRD would be retiring from irrigation approximately 3,260  
24 acres on which irrigation applications had been substantial.

1 12. Q: Did you seek assistance from the DNR to understand the potential benefits of an  
2 augmentation project using the RRCA Accounting Procedures?

3 A: Yes. In January 2011, I requested that Dr. Jim Schneider provide me some general  
4 guidance on the potential benefits of an augmentation project on Rock Creek as an  
5 illustration for the board in their deliberation to purchase the land. He prepared a letter  
6 outlining the minimum benefit of the Project under current compact accounting using  
7 conservative assumptions since the pipeline had not been designed and the outfall  
8 location not yet selected. See N20003. The URNRD ultimately concluded that, based on  
9 the aforementioned non-exclusive assumptions, the district would benefit substantially  
10 from the Project.

11 13. Q: What did your district do next?

12 A: On Jan. 21, 2011, the URNRD authorized staff to pursue a contract for the purchase  
13 of the property. On Feb. 1, 2011, the URNRD Board of Directors approved a contract and  
14 the purchase of the property for \$10 million. Closing documents were signed April 5,  
15 2011.

16 14. Q: Once you acquired the land, what did you do to develop the Project?

17 A: Immediately after getting the initial property purchase of 3,260 irrigated acres under  
18 contract, in early 2011, the NRD began the process of designing the augmentation  
19 infrastructure with our consulting engineer, Miller & Associates.

20 15. Q: What was the outcome of the design process?

21 A: Ten well locations were chosen and developed throughout the property and a design  
22 was selected that minimized trunc lines from the wells to the main, 24" pipeline. The  
23 main pipeline would take a direct, southern route to the Rock Creek channel where water  
24 would be discharged into the Rock Creek channel. Slightly less than one year after the

1 NRD closed on the initial property purchase of 3,260 irrigated acres, bids for pipeline  
2 construction were requested. On April 3, 2012 a bid for pipeline was awarded to Garney  
3 Construction based in Kansas City, Missouri.

4 16. Q: Have you acquired any additional lands related to the Project?

5 A: An additional 1,920 certified irrigated acres adjoining the initial property to the  
6 Northwest were purchased by the NRD in mid April 2013. Those acres have also been  
7 retired from irrigation and previously received very significant applications of irrigation  
8 water when producing crops before the NRD purchased them.

9 17. Q: How do the needs of the district square with those of the State?

10 A: The needs of the URNRD are concurrent with the needs of the State relative to  
11 compact compliance and the State's apportionment of compact compliance obligations to  
12 each of the NRDs in the Basin based on its compliance forecasting and action procedures.  
13 As such, we communicated our projections of the Project's capacity to the state with a  
14 mutual understanding that augmentation was an acceptable means of maintaining  
15 compliance with the compact. This understanding is formalized in the URNRD's  
16 Integrated Management Plan, jointly developed with the DNR and approved in 2010 that  
17 provides guidelines and obligations necessary to assure the URNRD does its part to help  
18 the State maintain compliance with the compact. The Integrated Management Plan states  
19 intent to implement programs including augmentation and lists augmentation as a  
20 potential management action in a Compact Call Year when the State projects action is  
21 needed to maintain compliance.

22 18. Q: How did you determine the scale of the Project?

23 A: The capacity of the final design was chosen to be approximately 2 times the  
24 URNRD's largest historical shortfall (which is 10,000 acre-feet) or approximately 20,000

1 acre-feet. Of course the overall system capacity could be altered with additional wells or  
2 larger pumps installed in the existing wells. Given the URNRD's goal of 20,000 acre-foot  
3 capacity under the Project, the need for 10 wells, each with the capacity to pump 1,100  
4 gallons per minute to 1,500 gallons per minute, was identified. The design also  
5 accommodates potential future expansion of two additional wells. They are currently  
6 undeveloped because 10 wells are now sufficient to meet the URNRD's and State's needs  
7 and because the well capacities were higher than original engineering estimates.  
8 Construction of the Project began in spring 2012 and was substantially completed in late  
9 2012.

10 19. Q: What is the total cost of the Project?

11 A: The total cost of the Project, including land purchases, pipeline installation and well  
12 field development, is approximately \$24 million and is being paid for using the  
13 URNRD's occupation tax on irrigated acres. The current rate is \$10 per acre.

14 20. Q: What is the purpose of the Project?

15 A: As indicated before, the purpose of the Project is solely for compact compliance and  
16 will be operated as such. It is possible, depending upon the level of cooperation provided  
17 by irrigation districts and the U.S. Bureau of Reclamation, that the Project could be  
18 operated in a non Compact Call Year, when action isn't required for compact  
19 compliance. But under this scenario water would be stored in a downstream reservoir for  
20 release in a Compact Call Year, thus operations in a non-Call year would still be for  
21 compact compliance. Should storage in a non-Call year not be pursued for any reason, it  
22 is expected that the Project would only be operated to provide water in Compact Call  
23 Years and as necessary during Maintenance Operation Years to ensure no new net  
24 depletions.

1 21. Q: Do you believe this year's operations are a good representation of how the Project  
2 will work into the future?

3 A: Yes. The current year illustrates how the Project will be used in Compact Call Years.  
4 Using forecasting procedures designed to ensure annual compact compliance, the DNR in  
5 November 2012 provided a preliminary projection of depletions to stream flow in the  
6 URNRD exceeding what would be allowable. The projection was finalized by Jan. 1,  
7 2013. The URNRD, pursuant to requirements in the Integrated Management Plan,  
8 submitted a plan to the DNR before Jan. 31, 2013 on what actions it intended to take. Of  
9 course the discharge is substantially higher than what we are required to offset.

10 22. Q: Why are the discharges higher than your offset requirement?

11 A: Under the DNR forecast, we needed to offset or replace 10,680 acre-feet of  
12 streamflow depletions or to put 10,680 acre-feet in the river to replace the amount that the  
13 forecast indicated or projected would exceed our share of Nebraska's allocation. Because,  
14 the current accounting procedures deal with the water as an increase in the Virgin Water  
15 Supply of the subbasin, rather than an offset or replacement of depletions with "wet"  
16 water we have to pump 144% of the amount we need to offset, so that the current  
17 accounting reflects the complete volume we need to offset, providing a windfall to  
18 Kansas.

19 23. Q: Is the Project currently operational?

20 A: The URNRD stated its intent to use the Project earlier this year. On Feb. 18, 2013 the  
21 URNRD began operating the Project. The URNRD is currently on track to offset in 2013  
22 the depletions to stream flow the DNR projected would be in excess of what is allowable  
23 lacking actions taken by the URNRD. We anticipate delivery of something on the order  
24 of 16,000 acre-feet this year.

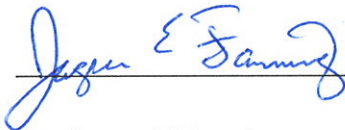


1 24. Q: What benefits would the approval of the plan provide the URNRD?

2 A: Obvious cost savings that would result from not having to over-deliver the amount  
3 necessary to offset or replace stream depletions. Also, conservation of the groundwater  
4 resource itself, by forcing us to over-deliver on the order of 44% through non-approval of  
5 the plan we are required to pay 44% more in both pumping costs and groundwater  
6 resources. Therefore, RRCA approval should eliminate the long-term sustainability  
7 issues raised by Kansas.

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

Executed this 19<sup>th</sup> day of August, 2013.



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Dr. Jasper E Fanning

Respectfully submitted this 21st day of August, 2013.

STATE OF NEBRASKA

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

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CERTIFICATE OF SERVICE

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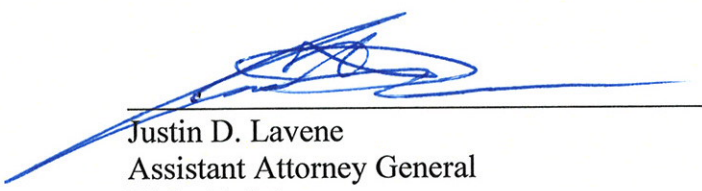
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I, Justin D. Lavene, Assistant Attorney General for the State of Nebraska in the above-captioned matter, hereby certify that on August 21, 2013, I made service of the **DIRECT TESTIMONY OF DR. JASPER E. FANNING, MANAGER OF THE UPPER REPUBLICAN RIVER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

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