

1 IN RE: NONBINDING ARBITRATION PURSUANT TO THE FINAL  
2 SETTLEMENT STIPULATION, KANSAS v. NEBRASKA and COLORADO,

3  
4 No. 126 Original, U.S. Supreme Court

5 Jeffrey C. Fereday, Arbitrator

6 NEBRASKA'S ALTERNATIVE WATER- |  
7 SHORT YEAR PLAN

8 AND

9 NEBRASKA'S ROCK CREEK  
10 AUGMENTATION PLAN.

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11 REPORTER'S TRANSCRIPT  
12 August 26, 2013  
13 Volume I

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15 The above-entitled arbitration was  
16 conducted at Ralph L. Carr Judicial Center, 1300  
17 Broadway, Second Floor, Denver, Colorado, on August  
18 26, 2013, at 9:35 a.m., before Arbitrator Jeffrey C.  
19 Fereday. These proceedings were reported by Jana  
20 Mackelprang, Certified Realtime Reporter, Registered  
21 Professional Reporter, and Notary Public.

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1 P R O C E E D I N G S

2 WHEREUPON, the following proceedings were  
3 taken pursuant to the Federal Rules of Civil  
4 Procedure.

5 \* \* \* \* \*

6 ARBITRATOR FEREDAY: Let's go on the  
7 record.

8 This is the nonbinding arbitration  
9 pursuant to the final settlement stipulation in the case  
10 of Kansas versus Nebraska and Colorado, No. 126  
11 Original, United States Supreme Court.

12 This arbitration, which concerns  
13 Nebraska's alternative water-short year plan and  
14 Nebraska's Rock Creek augmentation plan, also is  
15 governed by the May 17th, 2013, arbitration agreement  
16 between the States.

17 I'm Jeff Fereday of Boise, Idaho. I'm the  
18 Arbitrator in this matter.

19 I would like the parties to introduce  
20 themselves, the parties and their consultants. And I  
21 think I'd like to start with Scott Steinbrecher. Being  
22 since we're on your home turf here, Scott, you've been  
23 gracious enough to organize these chambers here at the  
24 Ralph Carr Judicial Building. So why don't you  
25 introduce yourself. We'll go from Colorado to Kansas

1 and Nebraska, around the room that way, and get  
2 everybody's name on the record, please.

3 And one further introduction before we  
4 start, this is Jana Mackelprang, who is our court  
5 reporter for these proceedings.

6 Scott.

7 MR. STEINBRECHER: Yes, good morning.  
8 Thank you very much.

9 I'm Scott Steinbrecher from the Colorado  
10 Attorney General's Office representing the State of  
11 Colorado today. With me I have Dick Wolfe, state  
12 engineer for the State of Colorado; Mike Sullivan,  
13 deputy state engineer for the State of Colorado; and  
14 Peter Ampe of Hill & Robbins, who represents the  
15 Republican River Water Conservation District here in  
16 Colorado.

17 MR. GRIGGS: Good morning, Mr. Arbitrator.  
18 I'm Burke Griggs, assistant attorney general from the  
19 State of Kansas. I'm technically counsel of record, but  
20 my effective co-counsel is also Chris Grunewald,  
21 assistant attorney general from the State of Kansas.

22 We have with us this morning and  
23 throughout David Barfield, chief engineer, State of  
24 Kansas, Division of Water Resources; Dale Book,  
25 consultant with Spronk Water Engineers; Steve Larson,

1 principal and executive vice president of S.S.  
2 Papadopulos; Mr. David Pope, former chief engineer for  
3 the Division of Water Resources and a consultant; and  
4 Angela Schenk, who is a consultant, also with Spronk  
5 Water Engineers.

6 Thank you.

7 ARBITRATOR FEREDAY: Nebraska.

8 MR. LAVENE: Good morning, Mr. Fereday.

9 My name is Justin Lavene. I'm with the Nebraska  
10 Attorney General's Office.

11 We have a number of individuals here  
12 today. Also with me is Blake Johnson from the Nebraska  
13 Attorney General's Office. Outside counsel here is Tom  
14 Wilmoth at counsel table, and Don Blankenau. Also today  
15 with me is Tom Riley and Marc Groff from Flatwater  
16 Group. I have Director Brian Dunnigan from the  
17 Department of Natural Resources; Deputy Director Jim  
18 Schneider from the Department of Natural Resources; and  
19 Jesse Bradley, also with the Department of Natural  
20 Resources. I also have Jasper Fanning, manager of the  
21 Upper Republican Natural Resources District; and Dan  
22 Smith, manager of the Middle Republican Natural  
23 Resources District.

24 Thank you.

25 ARBITRATOR FEREDAY: Thank you and welcome

1 all.

2                   As you know, these proceedings are being  
3 transcribed. From time to time, we probably will want  
4 to discuss matters off the record, but, generally  
5 speaking, I would prefer that everything be on the  
6 record. If we have organizational or matters such as a  
7 fire drill announcements or the like, certainly we can  
8 be off the record, but generally I prefer that we remain  
9 on the record.

10                   Does anyone have any preliminaries before  
11 we get started with the first witness?

12                   MR. GRIGGS: Yes, Your Honor. I think  
13 this is just housekeeping. I believe that -- I don't  
14 know if I believe it, but it seems to make most sense  
15 that each witness will take the stand and testify to  
16 both of the issues in this arbitration. Is that the way  
17 you were anticipating to run it?

18                   ARBITRATOR FEREDAY: Yes.

19                   MR. GRIGGS: Thank you.

20                   ARBITRATOR FEREDAY: And the preliminary  
21 that I have concerns Kansas's motion and objections, or  
22 its objection and motions, I should say. I have  
23 informed the parties by e-mail that I would allow some  
24 oral argument on this. I understand that there may have  
25 been an accommodation. Is that the case?

1 MR. GRUNEWALD: Mr. Arbitrator, Chris  
2 Grunewald on behalf of the State of Kansas.

3 We did have a chance before the hearing  
4 began to have a short conversation with counsel for  
5 Nebraska. I think it would probably be appropriate to  
6 put on the record what exactly is happening with each of  
7 these items. We'll take them in whatever order you  
8 would like. And I think it's probably best for Nebraska  
9 to speak for exactly what its interpretation of things  
10 is. I would say we're probably not in the position to  
11 drop any of the items, and we would like some feedback,  
12 if you will, on how the proceedings are going to go.

13 ARBITRATOR FEREDAY: Before I have a  
14 comment, how about Mr. Wilmoth?

15 MR. WILMOTH: Which motion would you like  
16 to take up first? We can address them in the order  
17 you'd like.

18 ARBITRATOR FEREDAY: I'd prefer to hear  
19 comment about the objection first and then the motions  
20 for additional exhibits.

21 MR. WILMOTH: The objection being the  
22 objection to Mr. Riley's testimony?

23 ARBITRATOR FEREDAY: Correct, and I guess  
24 the motion to strike that goes along with that.

25 MR. WILMOTH: That's fine. There are two

1 points that supersede or override and govern all of  
2 these issues. The first is, pursuant to the arbitration  
3 agreement, you're not allowed to exclude any evidence.  
4 You can afford it the weight that you'd like to afford  
5 it.

6           Mr. Riley's testimony, we believe, is a  
7 factual matter. We're prepared to stipulate today that  
8 Rock Creek is not, in fact, baseflow dominated, that  
9 that's really the Kansas position. I don't think it is.  
10 I think, if necessary, I can get at least two witnesses  
11 to tell me that, since we did already in deposition. So  
12 I'm not sure what the real question is there, but to the  
13 extent they're concerned that Mr. Riley is being offered  
14 as an expert, that's not our intention. I think the  
15 motion is effectively moot because of those things.

16           The other issues were Mr. Ross's  
17 testimony, a motion to allow Mr. Ross to testify.  
18 Nebraska has no objection to that. I would like to note  
19 for the record, however, that it was made available --  
20 the opportunity to view the Rock Creek site has been  
21 made available to Kansas for months. To the extent that  
22 there's any implication that Nebraska didn't allow that  
23 until the last 24 hours or 36 hours after the exhibits  
24 were filed, that should be clarified. So I think that  
25 motion also is moot.

1           The final matter was the exhibits, what I  
2 believe are named group exhibits; and we have no  
3 objection to those being offered for the same reasons I  
4 said before. I don't think there's any ability to  
5 exclude any evidence in this proceeding, only to afford  
6 the weight you deem appropriate.

7           ARBITRATOR FEREDAY: Any further response?

8           MR. GRUNEWALD: Just a brief response on  
9 that.

10           With respect to the objection to  
11 Mr. Riley's testimony, as long as the record is clear  
12 that Mr. Riley is not being offered as an expert, and  
13 this is not being considered an expert opinion, that  
14 goes a long way to addressing Kansas's main concern.  
15 However, we do still feel that the statement that's  
16 being made is the sort of statement that is essentially  
17 an expert opinion. For that reason, we feel it's  
18 inappropriate to be included by that fact witness.

19           We don't agree with Nebraska's  
20 characterization that, Mr. Arbitrator, you have no  
21 ability to exclude items from consideration. We believe  
22 you have the power to control the proceeding. And so  
23 for that reason, we would ask that it still not be  
24 considered and be excluded in whatever manner you think  
25 is appropriate.

1                   With regard to his statements in his  
2 direct testimony, I would like to fold in something.  
3 This isn't something that we talked about with Nebraska,  
4 so we're happy to accommodate in whatever order you want  
5 to deal with it. But there was an exhibit table and the  
6 exhibit table provided an opportunity for objections by  
7 the States, and there are two Nebraska exhibits that are  
8 connected to Mr. Riley's testimony, and that's the video  
9 that's intended to be presented this morning with a  
10 narrative description of the audio commentary on the  
11 video. Kansas didn't receive that video -- this is the  
12 narrative, not the video itself -- until after six p.m.  
13 last night. This morning we appreciate your  
14 accommodation and everyone's to be able to view it this  
15 morning.

16                   With respect to that video, we're not  
17 objecting to it being included at this time, but we  
18 would be asking the Arbitrator to afford Kansas the  
19 opportunity to explore additional matters in testimony  
20 as presented here from the matters that are being raised  
21 by Mr. Riley in that video and in that exhibit. And so  
22 with respect to those matters, some of them are ones  
23 that we're going to address with our group exhibit,  
24 which we understand Nebraska is not objecting to  
25 including.

1                   However, that is not the sum total of what  
2 we feel might be appropriate. So if it is appropriate  
3 to deal with it in relation to our objection to  
4 Mr. Riley's narrative as far as direct testimony, then  
5 we would ask for some clarification on what the ability  
6 of Kansas to respond to that would be. If  
7 Mr. Arbitrator would rather deal with that as the  
8 matters come up, that's fine, but we were hoping to  
9 clarify that situation.

10                   ARBITRATOR FEREDAY: Mr. Wilmoth.

11                   MR. WILMOTH: Just to respond,  
12 Mr. Arbitrator. First, I think that's the purpose of  
13 cross-examination. Mr. Riley will be tendered for cross  
14 immediately; and, therefore, I think any of those issues  
15 can be resolved and addressed through cross-examination.

16                   With respect to the inclusion and  
17 exclusion of evidence, I would simply refer counsel and  
18 the Arbitrator to paragraph F.2.B of the arbitration  
19 agreement, which says, "The Arbitrator shall not exclude  
20 evidence but may assign it the weight to which the  
21 Arbitrator deems it is entitled."

22                   Nothing further.

23                   ARBITRATOR FEREDAY: Thank you, gentlemen.  
24 Is there anything further?

25                   MR. GRUNEWALD: With respect to the

1 comments specifically directed at this narrative and the  
2 video, I can at least tell Your Honor that there are  
3 descriptions made referring to other tributaries besides  
4 Rock Creek, in particular South Fork -- the issue of  
5 flows at the state line is raised there -- we're going  
6 to need at least overnight to be able to assemble  
7 anything that we feel appropriate as a factual matter to  
8 address the issue of South Fork flows or other tributary  
9 flows that are relative to the video.

10 So we would be requesting for the  
11 opportunity to do that and come forward tomorrow with  
12 that, with any exhibits that are appropriate.

13 ARBITRATOR FEREDAY: Thank you very much.

14 Yes.

15 MR. WILMOTH: If I may. I'm sorry.

16 The written content of the video was  
17 provided last Wednesday along with every single other  
18 exhibit. There's no secret that the video addresses the  
19 South Fork. So I'm unclear as to why Kansas suggests  
20 that they need additional time to deal with that  
21 discrete issue.

22 ARBITRATOR FEREDAY: Okay. With regard to  
23 Kansas's motion to strike along the lines of Mr. Riley's  
24 testimony, that motion will be denied.

25 On the other hand, Kansas's motion to

1 submit additional exhibits, the group exhibits, and to  
2 proffer Mr. Ross, with regard to his testimony on these  
3 matters having to do with the Rock Creek plan will be  
4 granted. I believe that, yes, the Arbitrator does have  
5 the ability to exclude in very narrow circumstances  
6 either a witness or testimony, but it would be extremely  
7 unusual, given the final settlement stipulation and  
8 even, more importantly, the arbitration agreement.

9           So it's my intent that Kansas be given  
10 full opportunity through cross-examination and, if  
11 necessary, through rebuttal testimony and even a  
12 rebuttal exhibit, or more than one, if that is  
13 appropriate, to respond to Mr. Riley's statements.

14           As to Mr. Riley being an expert, he was  
15 offered as an expert witness -- or designated, I should  
16 say, and named as an expert witness in the papers that  
17 have been filed with me. I am interested in Mr. Riley's  
18 own statements in his deposition about whether he was  
19 offering expert or fact testimony. And, frankly, I'm  
20 not sure Mr. Riley is in a position to say. That is  
21 more of a legal question, perhaps it's a fine line. In  
22 many cases, you gentlemen know that there's a fine line  
23 sometimes.

24           So I will allow -- certainly allow  
25 Mr. Riley to testify along the lines that he has

1 expressed in his prefiled testimony, and allow him to  
2 comment as you intend, to have him comment apparently on  
3 the video.

4                   Generally, I'm inclined to allow evidence  
5 in. And I think, certainly, that is the tenor of the  
6 organizational documents that you folks have entered  
7 into. At the same time, I don't want to see parties  
8 taking advantage, duplicating, or drawing out the  
9 proceedings.

10                   So that will be my ruling. And I think  
11 with that, we should be able to go -- we are on the  
12 record, but go ahead with the first witness.

13                   Mr. Wilmoth.

14                   MR. WILMOTH: Mr. Arbitrator, may I ask a  
15 bit of a housekeeping question?

16                   ARBITRATOR FEREDAY: Certainly.

17                   MR. WILMOTH: You mentioned the concept of  
18 rebuttal testimony. Just for the sake of clarification,  
19 are you contemplating or would you prefer that Nebraska  
20 offer its direct case, if you will; that Kansas and  
21 Colorado present their case; and that there be a  
22 rebuttal phase of this hearing, or are you contemplating  
23 that all parties submit essentially their direct  
24 testimony, and then any real rebuttal testimony they  
25 need to do as part of redirect? Do you have a

1 preference, is my question, sir?

2 ARBITRATOR FEREDAY: Mr. Wilmoth, I really  
3 don't have a preference there. I want to see whatever  
4 is most efficient. And in that regard, I would tend to  
5 disfavor a second phase or go into rebuttal. My  
6 experience is that, especially with prefiled testimony,  
7 that rebuttal, cross-examination, and direct often are  
8 somewhat merged. And so I will have no problem with,  
9 for example, a question to a witness that invites  
10 something along the lines of a rebuttal response, even  
11 though it might be technically his direct testimony.

12 So I hope that helps you.

13 MR. WILMOTH: It does. It's consistent  
14 with how we've prepared. So I appreciate that  
15 clarification.

16 ARBITRATOR FEREDAY: Any other  
17 preliminaries?

18 MR. WILMOTH: I do have just an opening  
19 statement that I'd like to provide, with your  
20 permission, before we call a witness, to try to orient  
21 you to some of the things you'll hear. Then I thought I  
22 would also illuminate for you the order in which we will  
23 call the witnesses.

24 ARBITRATOR FEREDAY: That would be  
25 appreciated. Proceed.

1 MR. WILMOTH: Thank you.

2 Mr. Arbitrator, this arbitration involves  
3 two elements of the final settlement stipulation:  
4 Streamflow augmentation and alternative water-short year  
5 accounting.

6 To appreciate the role streamflow  
7 augmentation plays in the compact context, it's  
8 important to understand that the compact does not  
9 require the delivery of a particular volume of water at  
10 a place and time within the basin.

11 Upstream states are required only to  
12 maintain their computed beneficial consumptive use, or  
13 CBCU, within their respective allocations. And this can  
14 be done in one of two ways: CBCU can be reduced  
15 directly or it can be offset. Each has the same effect  
16 on compact accounting.

17 The Rock Creek augmentation project is  
18 really very simple. It will offset Nebraska's CBCU by  
19 introducing stored groundwater into a tributary where it  
20 flows through a gaining stream and discharges into the  
21 Republican River. As you will see today, the physical  
22 effect of the project is real, and it doesn't take a lot  
23 of complicated analyses to appreciate its value.

24 The FSS contains very few requirements for  
25 augmentation projects, and Nebraska has met those.

1 Nebraska has used the RRCA groundwater model and the  
2 RRCA accounting procedures to determine the augmentation  
3 water supply credit. And Nebraska has ensured that the  
4 project will avoid new net depletions.

5           Kansas does not assert that Nebraska erred  
6 in its technical analysis or modeling results. Rather,  
7 Kansas says Nebraska did the wrong analysis. Kansas  
8 maintains the model must be used not only to evaluate  
9 depletions that are attributable to augmentation levels,  
10 but also to measure transit losses of the augmentation  
11 water as it moves through the surface system. Kansas  
12 also maintains that no new net depletions, as referenced  
13 in the FSS, actually means no increase over historical  
14 consumptive use.

15           But the groundwater model wasn't designed  
16 to measure transit losses through the surface system,  
17 and assigning transit losses would actually be contrary  
18 to the current RRCA accounting procedures. The same may  
19 be said about Kansas's interpretation of the no new net  
20 depletions standard, which is contradicted by the  
21 expressed terms of the FSS.

22           Kansas's concerns are not really rooted in  
23 the particulars of Rock Creek or the Rock Creek  
24 augmentation project. As evidenced by the extensive  
25 testimony provided particularly by Mr. Barfield, Kansas

1 is upset with the overall manner in which Nebraska is  
2 complying with the compact. Kansas has long wanted  
3 Nebraska to stop groundwater pumping. And, indeed, in  
4 1998 Kansas even sued Nebraska to ensure that result.  
5 Kansas successfully convinced the Special Master in that  
6 case that groundwater pumping should be addressed.

7           Ultimately, the States concluded that  
8 litigation through adopting the final settlement  
9 stipulation. The problem is that it's become clear that  
10 Kansas didn't actually get what it really wanted in  
11 final settlement stipulation. The FSS does not require  
12 groundwater pumping to be shut down throughout Nebraska.  
13 Instead, it allows Nebraska to manage its own resources  
14 to ensure that its allocations are greater than its CBCU  
15 where that CBCU remains under its allocations. The FSS,  
16 therefore, expressly incorporates augmentation of  
17 streamflow as a manner in which Nebraska can do that, or  
18 Colorado, for that matter.

19           Since the FSS was signed, it has become  
20 very apparent to us that the flexibility that Kansas  
21 afforded to Colorado and Nebraska has been somewhat  
22 elusive. The only thing that will satisfy Kansas in any  
23 context is a major reduction in groundwater CBCU and a  
24 curtailment of pumping throughout the basin.

25           While Kansas acknowledged the potential

1 for streamflow augmentation in the FSS, it's clear that  
2 now, in fact, they maintain that they possess an  
3 absolute veto power over any such project, and that  
4 neither Nebraska nor Colorado, for that matter, can  
5 proceed to develop a project unless it navigates  
6 whatever roadblocks Kansas chooses to put up.

7           We think the FSS speaks for itself, and it  
8 imposes very minimal requirements. What you will hear,  
9 I think, over the next few days from Kansas is an effort  
10 to convince you that the actual words that are written  
11 in the document are just the tip of the iceberg, and  
12 that there are actually myriad implied requirements and  
13 meanings within those terms that don't actually appear  
14 anywhere.

15           In fact, I think what they're going to  
16 argue, and what you will hear, is that the FSS actually  
17 just really sets up a process by which the States are  
18 forced to engage in an effort to meet whatever standard  
19 Kansas articulates during those negotiations and forces  
20 an interminable series of discussions before anything  
21 can actually be approved.

22           What's most troubling and most frustrating  
23 for the State of Nebraska, and I dare say for the State  
24 of Colorado, is that it appears only Kansas and  
25 Mr. Barfield, in particular, possesses the secret

1 decoder ring that allows us to eliminate what all of  
2 these implied requirements are.

3           Ultimately, as you'll hear, there's really  
4 no satisfying Kansas because they're philosophically  
5 opposed to streamflow augmentation. This is why it's  
6 taking Colorado five years and two arbitrations to get  
7 their augmentation project to where it is now. This is  
8 why we did not proceed any further with efforts before  
9 the RRCA, and felt we had to come forward and prosecute  
10 this arbitration when we did.

11           ARBITRATOR FEREDAY: Mr. Wilmoth, sorry  
12 for interrupting you, but Colorado did find, though,  
13 that its augmentation pipeline project was found to be  
14 deficient at least in some particulars; and it came  
15 back, as I understand, with a slightly better product.  
16 Is that a fair characterization?

17           MR. WILMOTH: I think I'd let Colorado  
18 speak to that point. My point is the fact that it's  
19 taken five years to get there.

20           And the same is true with respect to  
21 Nebraska's proposed Appendix M plan, the alternative  
22 water-short year plan. It's apparent to us now, after  
23 reviewing the documents and conducting depositions, that  
24 the only thing that will qualify in Kansas's eyes as a  
25 legitimate Appendix M plan is a large reduction in

1 groundwater CBCU; i.e., shut down wells throughout the  
2 basin. In refusing to approve Nebraska's Appendix M  
3 plan, Kansas has ignored the very real CBCU reduction  
4 that's been achieved this year through reduction in  
5 surface water CBCU and through the augmentation project  
6 that we'll talk about a little bit today.

7           In sum, Nebraska has met all of the  
8 expressed requirements contained in the FSS. It's only  
9 this infinite number of constantly evolving implied  
10 requirements that Nebraska hasn't addressed. And the  
11 reason Nebraska hasn't done so is because there's no  
12 foundation in the FSS or the compact for these  
13 requirements.

14           The only question that you need to resolve  
15 as the Arbitrator is whether Nebraska's plans met the  
16 explicit terms of the FSS. The strike zone is pretty  
17 narrowly defined here, and we've thrown our pitch and we  
18 hope that you will call that a ball or a strike at the  
19 end of the day. Thank you.

20           With that, I'd like to call our first  
21 witness.

22           ARBITRATOR FEREDAY: Yes, Mr. Grunewald.

23           MR. GRUNEWALD: I'll confess, my  
24 understanding is we weren't going to do opening  
25 statements, and I'd actually characterize that as

1 argument rather than a statement, since it wasn't tied  
2 to specific evidentiary evidence that's going to be  
3 presented. If it's an opening for the proceeding,  
4 Kansas would ask for the opportunity to respond to that  
5 at the appropriate time.

6 ARBITRATOR FEREDAY: You certainly will be  
7 given that opportunity, presumably at the time that you  
8 put on your case. I would welcome that.

9 MR. GRUNEWALD: Thank you.

10 ARBITRATOR FEREDAY: Mr. Wilmoth.

11 MR. WILMOTH: Mr. Arbitrator, Nebraska  
12 would at this time call Dr. Jasper Fanning to the stand.

13 ARBITRATOR FEREDAY: Dr. Fanning, if you'd  
14 raise your right hand, please.

15 JASPER FANNING,  
16 having been first duly sworn to state the whole  
17 truth, testified as follows:

18 ARBITRATOR FEREDAY: Be seated.

19 MR. WILMOTH: May I approach the witness?

20 ARBITRATOR FEREDAY: Certainly you may  
21 approach the witness. And, in general, unless there are  
22 abuses of this in some way, I expect that all of you  
23 will feel free to approach the witness and to handle  
24 documents in an effective but an informal way so we can  
25 move this along.

1 MR. WILMOTH: Thank you.

2 Mr. Arbitrator, I don't know if you're  
3 aware of this agreement, but when we spoke with the  
4 other States about exhibits, my understanding was that  
5 we would provide hard copies to the witnesses and to  
6 yourself, but there were electronic copies forwarded and  
7 we didn't reprint those.

8 ARBITRATOR FEREDAY: Kansas, is that your  
9 understanding?

10 MR. GRIGGS: Yes, that is.

11 ARBITRATOR FEREDAY: If we could just  
12 speak for a moment about exhibits.

13 I have been given two volumes of documents  
14 from Nebraska and two from Kansas. The two from  
15 Nebraska also include a slim bit for Colorado. Are  
16 these exhibits encompassing of what you will be  
17 presenting at least today? And, Mr. Wilmoth, the  
18 document that you just handed me, which is N20000, is  
19 this document in the Nebraska exhibit binder?

20 MR. WILMOTH: Yes, it is.

21 ARBITRATOR FEREDAY: And I take it, it  
22 would be the very first document in there, or nearly the  
23 first?

24 MR. WILMOTH: Yes.

25 ARBITRATOR FEREDAY: Okay. Very good. I

1 find it there in my binder. So with that understanding  
2 and the understanding that the documents that I will be  
3 handed, unless otherwise specified, will be documents  
4 that I already have in the binders, let's proceed.

5 MR. WILMOTH: I don't believe we have any  
6 exhibits that are not. If it would be convenient,  
7 perhaps the court reporter could utilize the copy that I  
8 forwarded you.

9 ARBITRATOR FEREDAY: Yes. I will be  
10 setting them aside to include with the transcript.

11 MR. WILMOTH: There will be a number of  
12 acronyms discussed throughout the proceeding; and,  
13 perhaps, we could convene with the court reporter at the  
14 end of the day and help her understand any of those that  
15 she didn't catch.

16 ARBITRATOR FEREDAY: Acronyms, yes,  
17 indeed. That would be appreciated. I think I know most  
18 of them, but she probably does not. Proceed.

19 DIRECT EXAMINATION

20 BY MR. WILMOTH:

21 Q. Dr. Fanning, I've handed you what's been  
22 marked Nebraska 20000. Do you have that before you?

23 A. Yes, I do.

24 Q. Is that your direct testimony as filed in  
25 this proceeding?

1 A. It is.

2 Q. Do you affirm that testimony here today?

3 A. I do.

4 Q. Thank you.

5 MR. WILMOTH: Mr. Arbitrator, we tender  
6 the witness for cross.

7 ARBITRATOR FEREDAY: Mr. Grunewald.

8 MR. GRUNEWALD: Thank you, Mr. Arbitrator.  
9 This might be one of those times to go off the record in  
10 order to get our electronic materials on the projector.

11 ARBITRATOR FEREDAY: Let's go off the  
12 record, then, in that case.

13 (Discussion off the record.)

14 ARBITRATOR FEREDAY: Back on the record.

15 MR. GRUNEWALD: As you mentioned, I may  
16 just stay over here at the desk.

17 ARBITRATOR FEREDAY: Certainly.

18 I'll just explain that while we were off  
19 the record, counsel has organized a method for  
20 projecting various exhibits so that the witness might  
21 see them. I believe in this case, Dr. Fanning's  
22 prefiled testimony will be projected.

23 CROSS-EXAMINATION

24 BY MR. GRUNEWALD:

25 Q. Dr. Fanning, are you ready?

1           A.       I am.

2           Q.       You're very familiar with the Rock Creek  
3 project; is that right?

4           A.       Yes, that's fair.

5           Q.       The Natural Resources District, the  
6 Republican River Natural Resources District, was  
7 responsible for the creation of the project, the  
8 construction of the project, and it's going to be  
9 responsible for the operation of the project; is that  
10 right?

11          A.       That's correct.

12          Q.       And the Upper Republican Natural Resources  
13 District -- I might just refer to it as the Upper  
14 Republican District as we're talking -- is the entity  
15 that selected the location for the project; is that  
16 right?

17          A.       That's correct.

18          Q.       And the Upper Republican District was  
19 involved in a feasibility study that looked at different  
20 sites for augmentation projects; is that right?

21          A.       That's correct.

22          Q.       And that feasibility study looked at 10  
23 different sites; is that right?

24          A.       Ten that were formally in our report. I  
25 think we ultimately looked at a few more than that, but

1 some of those were pretty cursory and didn't make it  
2 very far.

3 Q. And the Rock Creek site was not one of  
4 those 10 formal sites that was identified; is that  
5 right?

6 A. No, the Rock Creek site was not one of the  
7 10 sites that was formally identified in that  
8 feasibility study.

9 Q. And later the Upper Republican District  
10 identified the Rock Creek land that was for sale as now  
11 the site of the project and decided to purchase it for  
12 augmentation; is that right?

13 A. That's correct.

14 Q. The Rock Creek project has more than one  
15 possible discharge location; is that right?

16 A. There are three different discharge  
17 locations. There's the primary discharge location  
18 that's -- the 24-inch pipe comes down and out a large  
19 energy dissipator, so when we're discharging very high  
20 flow rates. As part of the project, that main discharge  
21 is located upstream so that we could get the cost  
22 savings from not laying the 24-inch pipe the rest of the  
23 way down to the hatchery.

24 There's a 12-inch line that runs into the  
25 fish hatchery. The fish hatchery collects artesian

1 wells and runs those through their ponds. It's a  
2 pass-through system that dumps into Rock Creek at the  
3 bottom end of the hatchery. And that 12-inch line  
4 allows them to take part of our augmentation water and  
5 run it through the hatchery and discharge it at their  
6 flume at the hatchery with the rest of their water, to  
7 increase flows in the hatchery and improve their  
8 production capabilities.

9 Q. So those are two discharge locations. Is  
10 there a third discharge location?

11 A. There's a small third discharge location.  
12 There's a small pond. There's always been an earthen  
13 dam at our discharge location, going back to about the  
14 1930s, and there was a pond there on the north side of  
15 that. Part of the process for obtaining the easement  
16 was the landowner wanted to see that pond developed. So  
17 it was constructed so that it would hold -- I can't  
18 remember the exact size -- something less than 15  
19 acre-feet of water. And it has a much smaller discharge  
20 and energy dissipator to it, so when we're running  
21 smaller flows that we don't need to max out the energy  
22 dissipator. And the pressure-sustaining valve is set up  
23 for a range of flows that controls the pressures in the  
24 pipeline. And we can run small amounts of water out  
25 that discharge location.

1                   Then it basically flows through the  
2 earthen dam where that's been cut out from that pond,  
3 into a location that's, I'm going to say, about 60 feet  
4 or so, maybe 80 feet upstream of the main energy  
5 dissipator and discharge location.

6           Q.       And was that agreement reached so that the  
7 landowner could use the water that you guys were putting  
8 out of the pipeline?

9           A.       Say that again.

10          Q.       Was the agreement for putting the third  
11 location in done so the landowner could use the water  
12 that comes out of that?

13          A.       Not to use. It was more about the cost of  
14 the easement for us to have the pipeline across his land  
15 and have unlimited access for the maintenance and  
16 operation of the project. He wanted to see that pond  
17 developed. So they excavated that pond that was  
18 originally there. Actually, they intersect -- they  
19 intersected the groundwater. When Mr. Ross came and  
20 took a tour last Wednesday, the water level you could  
21 see in there was about the same level as what the  
22 groundwater table in that area is.

23          Q.       Is there a document or a manual that  
24 explains how the Upper Republican River District is  
25 going to decide which of these outfalls to use?

1 A. No.

2 Q. The Rock Creek project has the potential  
3 to get bigger; is that right?

4 A. What do you mean by "bigger"?

5 Q. Could more pumps or more wells be added to  
6 the project?

7 A. Yeah, it would be possible to add  
8 additional pumps. The original engineering design  
9 called for 12 locations to reach the same flow that we  
10 were able to hit with 10 well locations. Once they  
11 drilled the wells, the test pump on the 10 wells that we  
12 developed was somewhere between 2500 to 2000 gallons  
13 sustained. And that was the result -- that was the  
14 limitation of the truck that they were using to do the  
15 test pumping. I don't know that we'd know what the  
16 maximum sustained capacity of the wells would be.

17 The pumps that we installed in those wells  
18 only produce from approximately 1100 gallons per minute  
19 up to the high of a little over 1500 gallons per minute,  
20 the average being somewhere around 12,800. With the  
21 pressures we have it operating at right now, the total  
22 of the 10 wells ranges from 12,800 gallons per minute to  
23 thirteen two.

24 Q. If the Upper Republican District decided  
25 it needed more augmentation water come out of the

1 pipeline, then they could upgrade pumps or add  
2 additional wells to the pipeline?

3 A. It's conceivable. At the level that is in  
4 the plan, the 20,000 acre-foot limitation, it's pretty  
5 close to -- eventually, if you increase pressure in the  
6 pipe, you're going to increase your pumping costs, and  
7 you're going to reach the point of no return. You can  
8 only force so much water through the pipe before you  
9 cause it to daylight. While there may be some  
10 opportunity expanded, that is sort of the upper limit of  
11 the design that we chose.

12 Q. Let's talk a little bit about the Upper  
13 Republican's purpose for this project. Each natural  
14 resources district of the Republican River Basin is  
15 allocated a share of Nebraska's groundwater depletions;  
16 is that right?

17 A. Through our integrated management plans,  
18 we each have a share of Nebraska's allowable groundwater  
19 depletions, yes.

20 Q. That's essentially Nebraska's computed  
21 beneficial consumptive use, or CBCU; is that right?

22 A. It's certainly not its entire groundwater  
23 CBCU. It's only the share of CBCU from groundwater  
24 pumping that occurs in three of the NRDs, but certainly  
25 the other modeled areas that lie in the other natural

1 resources districts that have part of their district in  
2 the Republican or to the boundaries of the groundwater  
3 model in the Platte are included in Nebraska's  
4 groundwater CBCU as well. And those allocations do  
5 not -- that sort of all comes off the top, and the  
6 allowable groundwater depletions is what's left over  
7 after that CBCU comes off.

8 Q. What are the other natural resources  
9 districts that have a share or come off the top?

10 A. I'm sure the Little Blue NRD would. Twin  
11 Platte Natural Resources District certainly would.  
12 Probably the Central Platte Natural Resources District,  
13 and Tri-Basin NRD also.

14 Q. Is the share of Nebraska's groundwater  
15 CBCU that's assigned to the Upper Republican, Middle  
16 Republican, and Lower Republican Districts the lion's  
17 share of Nebraska's groundwater CBCU?

18 A. Yes, it's 90 percent or something. I  
19 don't remember the exact percentage.

20 Q. The Rock Creek project has its main  
21 purpose to help the District stay within its share of  
22 allowable groundwater depletions; is that right?

23 A. The purpose of the Rock Creek project is  
24 to offset our groundwater depletions so that we stay  
25 within our cap of the allowable groundwater depletions

1 for our district.

2 Q. Would the project be run at a time there's  
3 a projected shortfall for the Upper Republican's share,  
4 staying within the share?

5 A. Our expectation is that we would operate  
6 it to eliminate a shortfall, yes.

7 Q. Under Nebraska's and the District's  
8 integrated management plans, there's systems set up for  
9 designated compact call years; is that right?

10 A. That's correct.

11 Q. And are compact call years the years when  
12 the District would be expected to run its project?

13 A. Compact call years describe a year which  
14 Nebraska needs to take some action to limit its CBCU to  
15 its allocation. And if the District had a projected  
16 shortfall in that, we would look at operating the  
17 project for those -- to offset those shortfalls.

18 Q. In your direct testimony, you said, I  
19 believe, that there's the possibility of running the  
20 project in noncompact call years; is that right?

21 A. Well, certainly, I think there's the  
22 opportunity any time you're operating the project. For  
23 instance, in 2012, when we were looking at the  
24 conditions on the ground when it was the worst drought  
25 ever, looking forward at the end of 2012, we could see

1 it was likely going to be a high-needs year for compact  
2 compliance. So you could operate the project in the  
3 year of 2012, which didn't have a projected shortfall at  
4 the end of 2012, and provide water in the stream during  
5 the compact call year downstream. So I think, yeah,  
6 it's fair to say that you could operate the project  
7 outside the compact call year, but to provide water for  
8 compact compliance. And part of that, or a large part  
9 of it, would be available downstream in the compact call  
10 year.

11 Q. In your testimony, you mentioned that  
12 water could be pumped and then sent to a downstream  
13 reservoir. Do you remember testifying to that?

14 A. Yes. In fact, we're studying that in part  
15 of the conjunctive management study with Kansas and the  
16 Bureau. Then we have some overlapping conjunctive  
17 management studies that we're doing in Nebraska, and  
18 we're looking at opportunities to use the reservoirs to  
19 store water such as the augmentation water and other  
20 flows for compact compliance purposes, certainly.

21 Q. Which downstream reservoirs were you  
22 referring to in your testimony?

23 A. Well, the downstream reservoirs from the  
24 Rock Creek project would be Swanson Reservoir and  
25 ultimately Harlan Reservoir.

1           Q.       When would Nebraska receive an  
2 augmentation credit for water -- would they receive it  
3 when it's released from the reservoir?

4           A.       That I don't know.

5           Q.       Is it possible to receive it when it's  
6 released from the reservoir?

7           A.       I'm not --

8                   MR. WILMOTH: May I just try to clarify  
9 something here? I believe the testimony is very clear  
10 that Dr. Fanning is not offered to speak about the RRCA  
11 process, the credits. Dr. Schneider will be offered for  
12 that purpose. It's clearly beyond the scope of the  
13 direct, which I understand is something that may evolve,  
14 but I don't think counsel should be allowed to try to  
15 trap this witness into things he's never testified to.

16                   ARBITRATOR FEREDAY: Okay. I don't  
17 know -- I guess that was in the form of an objection. I  
18 will overrule the objection. I believe that this  
19 witness can answer questions about the operation of this  
20 project and its origins. To the extent he does not  
21 know, he certainly should explain that.

22                   I do appreciate, though, the issue of  
23 keeping cross-examination within the scope of direct,  
24 and I would admonish counsel to endeavor to do that. On  
25 the other hand, I don't feel that this is out of place,

1 so proceed.

2 MR. GRUNEWALD: Thank you.

3 Q. (By Mr. Grunewald) Let's move on. Let's  
4 talk about the flows, the streamflows in Rock Creek.  
5 You're aware that the streamflows at the gauge at Parks  
6 have been steadily declining over the past two decades?

7 A. Yes, very similar to most other stream  
8 gauges in the basin.

9 Q. The flows at Parks compared to what they  
10 were in the 1970s are about half of what they were; is  
11 that right?

12 A. Yeah. Incredibly, Rock Creek and Buffalo  
13 Creek and some of those tributaries in our district have  
14 held on and only declined to about half. We haven't  
15 seen any zero flow days on Rock Creek as we have at  
16 other gauges.

17 Q. Do you have an understanding why the  
18 streamflows have been declining at the Parks gauge?

19 A. I think there are multiple factors that  
20 can influence that. Certainly, conservation has reduced  
21 the amount of runoff, certainly changed the amount of  
22 runoff in the Rock Creek Basin. The native range  
23 management that occurs on the 20,000 acres or so that  
24 surround Rock Creek itself has changed drastically since  
25 probably the '40s or the '50s, and that reduces runoff.

1 Obviously, there's impacts from irrigation pumping, as  
2 there are elsewhere throughout the basin.

3 Q. And the District chose to discharge -- the  
4 main discharge for this project is upstream of the  
5 hatchery about a mile; is that right?

6 A. Roughly, yes.

7 Q. And that's a location where the stream is  
8 normally dry in recent years; is that right?

9 A. In very recent years, there has not been  
10 any flow in that stretch. And the reason that we chose  
11 that location was, you know, I think twofold. Again,  
12 cost savings that I mentioned when we discussed this  
13 previously, because we can always decide to add more  
14 pipeline, for whatever reason we decide that that is  
15 worth the investment. But given what we knew about the  
16 location, the old stream channel there, we have the  
17 cemented sandstone outcroppings that narrowly define  
18 that valley. If you dig down in that valley, you hit  
19 what we call a mag soil or a caliche that's sort of  
20 semi-impermeable. There's a lot of perched water in  
21 that location.

22 So we knew that, given those  
23 characteristics in the valley, that it was pretty  
24 unlikely to lose the water that we discharged at that  
25 location. And I think we verified that when we turned

1 on the project.

2 Q. So you believe that the losses from the  
3 distance where the current main discharge is to where  
4 the hatchery begins and where you chose not to put the  
5 pipe were de minimus?

6 A. Well, it's certainly de minimus to the  
7 sense that you're not able to measure them with enough  
8 accuracy to find the losses. When we first started  
9 operating the pipeline, over the course of a week to 10  
10 days, we got the discharge rate up to approximately 27  
11 cfs. Prior to the operation of the pipeline, there was  
12 7 cfs at the Rock Creek gauge. After several days of  
13 operation at 27 cfs, the discharge recorded by USGS at  
14 the Parks gauge was 34 cfs. So this original 7 plus our  
15 27 is 34. Certainly, it didn't appear that there was  
16 much losses of our water in that stretch at that point  
17 in time.

18 Q. So your expectation would be whatever  
19 you're discharging out of that pipe should add to  
20 whatever flow existed already at Rock Creek, which  
21 should show up at the Parks gauge?

22 A. When we operated the project, it showed  
23 our water was showing up at the Parks gauge, yes.

24 Q. You expect that to happen throughout the  
25 year?

1 A. Yes.

2 Q. What amount did you quantify as de minimis  
3 losses?

4 A. I don't think I have a straight definition  
5 in terms of a quantity that would be de minimis. I  
6 would think something that's almost so small you can't  
7 measure it would be de minimis.

8 Q. What's the limit of that measurement that  
9 you're referring to?

10 A. The USGS, I believe they only record on  
11 their gauge a whole cfs. At the Parks gauge, I've never  
12 seen a tenth of cfs. So certainly 1 cfs there.

13 Q. Were the measurements that you were  
14 talking about when you were constructing the pipeline,  
15 was that the extent of the analysis you did on potential  
16 stream losses?

17 A. We spoke with some engineers,  
18 hydrologists, talked about it, and ultimately concluded  
19 that that was a discharge location at which we didn't  
20 think we would lose any meaningful amount of water,  
21 yeah.

22 Q. Were there any studies of documents  
23 provided about stream losses as part of that  
24 investigation?

25 A. No, there was not.

1 Q. Are you expecting that losses are going to  
2 remain de minimis for the operation and lifespan of the  
3 project?

4 A. Yeah, I believe so.

5 Q. Now, the goal, part of the operational  
6 goal for the project is to make sure that you could  
7 maximize the volume of water that would be in the stream  
8 as the streamflow gets to the Parks gauge; is that  
9 right?

10 A. Well, certainly we're trying to offset  
11 groundwater pumping depletions. And the Parks gauge is  
12 the first measuring point of water in that area. So it  
13 makes sense that you want to maximize the amount of  
14 water at the Parks gauge.

15 Q. So the Parks gauge measurement should be  
16 the controlling comparison for offsetting purposes?

17 A. I believe so.

18 Q. And you mentioned that the pipeline is in  
19 operation and has been brought up to full capacity. And  
20 did you say full capacity is 27 cfs or 28 cfs?

21 A. It's roughly 28-point-some cfs, 29 cfs.  
22 It works like I said, the pipeline, the peak flows with  
23 our current pump system is about 13,200. It's been  
24 averaging about 12,800 gallons a minute.

25 Q. It was about full capacity in March; is

1 that what you said?

2 A. That's correct.

3 Q. You've been measuring the outflow from the  
4 pipeline since March?

5 A. Yes.

6 Q. And you use a flow meter?

7 A. There's an ultrasonic mag meter at each of  
8 the three discharge locations. Of course, their specs  
9 are plus or minus .5 percent accuracy on those. There's  
10 also a mag meter at each of the well locations that's  
11 tied into our SCADA system, so we know volumes that were  
12 pumped by well and when. And so we have those also.  
13 Considering our pipeline pass pressure tests, we're  
14 pretty confident we're not losing any water in between.

15 Q. How frequently are the measurements taken  
16 for the outflow?

17 A. For the outflow, it's a totalizing. So  
18 it's a continuous recording of outflows. On that I  
19 can't remember the interrogation frequency. It's rather  
20 small, multiple times per minute, as I recall, that it's  
21 interrogating the mag meter for flow rates. The SCADA  
22 system interrogates through the 10 wells in  
23 approximately every three minutes or so, the outflow at  
24 the well locations.

25 Q. And your district collects all of those

1 records on a constant basis; is that right?

2 A. Yeah, the SCADA system captures all that  
3 information at the well locations, and we can download  
4 that from the SCADA system.

5 Q. And the District is turning those records  
6 over to the Nebraska Department of Natural Resources?

7 A. Yes, I assume it will be just like all the  
8 other pumping information. We provided them the total  
9 volume pumped by each well.

10 Q. And once you went to full capacity in  
11 March, did it remain at full capacity all the way  
12 through to the present day?

13 A. There have been times that a lightning  
14 strike might cause an electrical flicker and one well go  
15 down, but outside of that, yes. In fact, at one point  
16 in time, we were running about 12,400 or 12,500 gallons  
17 per minute on average, but we changed some of the  
18 pressure-sustaining valve settings to reduce the amount  
19 of cavitation that we could potentially be getting in  
20 the rather expensive PSV valve, and that increased the  
21 flow from about 12.5 to roughly 12.8.

22 Q. In your direct testimony, you talked about  
23 the amount of discharge that the Upper Republican  
24 intended to reach for this year, I believe; is that  
25 right?

1           A.       Yeah, could you please point me to that,  
2 if you're looking at something specifically, please.

3           Q.       Sure. I believe it's question 22. If you  
4 happen to have a paper copy, it's page 8. There's a  
5 question there that refers to discharges and an offset  
6 requirement. Do you see that?

7           A.       Yes.

8           Q.       You were trying to offset 10,680  
9 acre-feet; is that right?

10          A.       That's correct.

11          Q.       You made some testimony here about  
12 144 percent figure. Is that figure that relates to the  
13 RRCA compact accounting?

14          A.       It does. On the Rock Creek subbasin, by  
15 adding water without receiving an augmentation water  
16 supply credit and just having that essentially going to  
17 the computed water supply calculation, Nebraska gets  
18 69.3 percent of that allocation that's created by the  
19 additional flows. And so by not receiving the credit  
20 and using simply the subbasin accounting means that we  
21 have to pump approximately 44 percent more water to make  
22 up for that piece of the water that ultimately Kansas, I  
23 think, would receive as its allocation.

24          Q.       You said, I think, about 69 percent, is  
25 what you just said, about two-thirds, a little more

1 than?

2 A. Right.

3 Q. So that amount is based on the assumption  
4 that all the augmentation water is making it to the  
5 Parks gauge; is that right?

6 A. That's correct.

7 Q. Now, if some of the flow that hits Rock  
8 Creek is then lost before it gets to the gauge at Hardy,  
9 which is essentially the last stop before Kansas, then  
10 that loss is going to be a reduction in Nebraska's and  
11 Kansas's allocation on the main stem?

12 A. I'm sorry, could you state that one more  
13 time or read that back for me?

14 Q. Sure. I'll be happy to state it again, if  
15 that's okay.

16 ARBITRATOR FEREDAY: Yes, please.

17 Q. (By Mr. Grunewald) If water that goes from  
18 the Parks gauge then goes downstream to Hardy, and  
19 there's a stream gauge in there, if there are losses in  
20 that water, that will come out of the computed water  
21 supply for Nebraska and Kansas on the main stem; is that  
22 right?

23 A. I think through the current compact  
24 accounting, the tributary gauges are subtracted from the  
25 Hardy gauge. We don't actually track the molecules of

1 water to know whether Rock Creek water is lost or South  
2 Fork water is lost, but the total volume of the  
3 tributaries gauge is subtracted from the Hardy gauge.  
4 And so any loss from that total water, whether it's the  
5 Rock Creek or other water, is subtracted from the Hardy  
6 gauge, yes.

7 Q. Now, let's switch topics again and talk  
8 about the wells that are being used for the Rock Creek  
9 augmentation project. You're aware that the groundwater  
10 levels in the area of the Rock Creek project have been  
11 declining for several decades, right?

12 A. There have been groundwater declines in  
13 that area. That's why we had a groundwater management  
14 area put in place since 1978.

15 Q. If the groundwater water levels continue  
16 to decline around the augmentation field, isn't it  
17 possible that there are going to be losses to the  
18 augmentation water?

19 A. Pretty unlikely given the distance of the  
20 wells in the Rock Creek subbasin from the actual  
21 discharge location.

22 MR. WILMOTH: Again, Mr. Fereday, I'd like  
23 to be clear that we did offer a witness who is an expert  
24 on this matter for the kind of questions that are being  
25 asked.

1                   ARBITRATOR FEREDAY: I appreciate that. I  
2 think, Mr. Grunewald, this witness, at least from my  
3 reading of his testimony, did not have anything to say  
4 about the condition of the groundwater aquifer in this  
5 area or declines therein. So I would suggest that maybe  
6 we move on; although, if this relates to his description  
7 of the amount of water that they can produce, then you  
8 may proceed, but, again, I think Mr. Wilmoth's comment  
9 is well taken.

10                   MR. GRUNEWALD: Very well, Your Honor. If  
11 I might ask a couple questions around this and show why  
12 I think it's relevant for Dr. Fanning to be testifying  
13 in this area.

14                   ARBITRATOR FEREDAY: Certainly, proceed,  
15 please. And by the way, I will say that I am operating  
16 under the stipulation agreement, and I recognize what it  
17 says. And I expect that the respective counsel and  
18 their witnesses will understand that there will be very  
19 little excluded from this record.

20                   MR. GRUNEWALD: Thank you.

21                   (Brief discussion off the record.)

22                   Q.       (By Mr. Grunewald) Dr. Fanning, the Upper  
23 Republican District is in charge of deciding when to  
24 operate the project; is that right?

25                   A.       That's correct.

1 Q. And the District and the Department of  
2 Natural Resources have to decide whether the operation  
3 is meeting the goals for compact compliance; is that  
4 right?

5 A. Well, again, understanding the forecasting  
6 mechanism that we use through the IMPs, or the  
7 integrated management plans, the Department performs a  
8 forecast that projects whether or not there will be a  
9 shortfall. And if there is, to what extent there would  
10 be a shortfall on a district-by-district basis. So we  
11 consult and collaborate with DNR. Once they've  
12 performed that forecast -- and, for instance, in 2013,  
13 their forecast for our district was 10,680 acre-feet --  
14 it's in our responsibility to decide how we're going to  
15 offset that 10,680 acre-foot shortfall. This year we  
16 chose to use the Rock Creek project.

17 We could take other actions. We could use  
18 a different augmentation project. We could retire  
19 pumping right along the river for one year through dry  
20 year leases, and we submit a plan ultimately telling the  
21 Department what we're going to do. So, as we did in  
22 2013, we decide how we want to take care of the  
23 shortfall. And, certainly, the Rock Creek augmentation  
24 project and the operation of that project is one of the  
25 tools that we can utilize to do that.

1 Q. If there are any problems with operation  
2 or, say, the lifespan of the project, it's the District  
3 that's going to be responsible for deciding what to do,  
4 not the Department of Natural Resources; is that right?

5 A. I think that's fair.

6 Q. The Department of Natural Resources can't  
7 order you guys to turn it on; is that right?

8 A. You know, I've never analyzed that  
9 legally, but I would assume they would have a hard time  
10 ordering us to do that.

11 Q. And so the health of the project is  
12 ultimately the responsibility of the District; is that  
13 right?

14 A. That's right.

15 Q. Let's turn to the amount of pumping, maybe  
16 in a related vein. You talked about the capacity of the  
17 pipeline. Is it fair to say the physical limit is  
18 really the only limit on how much water the District  
19 could use the project to generate?

20 A. In terms of the project, how it's  
21 constructed, I think, yeah, it was -- again, there was a  
22 plan, a conceptual plan, that the project was designed  
23 and built around. And so we ultimately constructed it  
24 with the physical limitation that had that upper bounds  
25 on it. So, yeah, that is the physical limitation there

1 of, again, rough number, 20,000 acre-feet is the  
2 physical limitation of the pipeline as it's constructed.

3 Q. In terms of a limit for the project, the  
4 Upper Republican District doesn't have something in its  
5 plan that caps the amount of water coming out of the  
6 project on the basis of something other than the  
7 physical limit; is that right?

8 A. That's right.

9 Q. Has the District ever considered setting  
10 up a limit baseline for historic consumptive use for the  
11 lands that were associated with the wells that were  
12 retired from irrigation?

13 A. I think, again, we're multi-purpose  
14 districts. For our evaluation in developing the  
15 project, we took into consideration the existing  
16 supplies and demands in the Rock Creek subbasin and  
17 surrounding watershed. So to say that we didn't look at  
18 some of those things would be inaccurate. I mean, we  
19 definitely, just in our overall management of  
20 groundwater, we look at the amount of supply and set an  
21 allocation based on that.

22 So, certainly, it's probably -- I  
23 certainly couldn't say it's the intent of our board to  
24 come in and pump more water than what's historically  
25 been pumped. I think through the retirement of roughly

1 3300 -- it's like 3,260--some irrigated acres in our  
2 initial land purchase. And couple that with the fact  
3 that they stepped out and purchased another roughly 1920  
4 certified irrigated acres, essentially adjacent to that  
5 well field site, shows that they're trying to balance  
6 the supplies and demands of the project. But there's  
7 nothing formal that says we're required to use the  
8 historical consumptive use in Nebraska water law.

9 Q. And your direct testimony referred to an  
10 exhibit. I believe it's Exhibit N20003. And I'll just  
11 refer to the exhibit. It's a letter that was sent from  
12 Dr. Schneider, at the Department of Natural Resources,  
13 to you in January of 2011. Do you remember testifying  
14 about that in your direct testimony?

15 A. Yes.

16 Q. And in that letter, the concept of  
17 historic consumptive use was referred to; is that right?

18 A. It was.

19 Q. And have you ever written separately about  
20 the District's intention to keep the amount of  
21 augmentation water limited to approximately the historic  
22 consumptive use of the land?

23 A. I think we've had concerns from landowners  
24 in the area, without that much knowledge or expertise  
25 and concerned about the impact our well field could have

1 on their adjoining wells. Our engineer did some  
 2 modeling to kind of show what the impact area would be  
 3 and the extent that that impact might be, and it showed  
 4 that there was really nothing to be worried about in  
 5 that area. Nonetheless, landowners have those types of  
 6 concerns. And, certainly, in communicating with the  
 7 landowners and the patrons of our district, I think it  
 8 corresponds with our goals and missions in terms of  
 9 groundwater management to try to, again, balance those  
 10 uses and supplies.

11           So we've been able to show the public the  
 12 way that we have set up the additional land retirement,  
 13 whether it's really part of the project or just another  
 14 action taken by the District to balance those uses and  
 15 supplies. Ultimately, we've been able to show to those  
 16 people with those concerns that we're retiring enough  
 17 use that if this project, A, gets credited the way that  
 18 we think it should, basically for all of the water that  
 19 it offsets depletions by, if that's 100 percent, that we  
 20 have enough retirement to show that the historical  
 21 consumptive use will cover what pumping we will do.

22           And, certainly, with the other actions the  
 23 District has taken, it's also, I think, fair to say that  
 24 our district thinks over the long term that we'll be  
 25 able to utilize it for less than what we designed it

1 because of our participation in other augmentation  
2 projects.

3 Q. You mentioned communicating with the  
4 patrons. You do that through a monthly newsletter, in  
5 part, right?

6 A. We definitely do newsletters.

7 Q. We've put up on the screen Kansas  
8 Exhibit 31, a copy of a newsletter. You can slide over  
9 to -- track 1 or page 1 is over on the right-hand side.  
10 Scroll up a little and see. Does that look like the  
11 newsletter that your district put out in May 2013?

12 A. Yes, that appears to be Nate's newsletter.

13 Q. Let's go over on page 2, which we've now  
14 put up on the screen. There's a section of the  
15 newsletter called Jasper's Journal. That's the section  
16 you wrote, right?

17 A. I would say I generally review it before  
18 it's published.

19 Q. You agree with what's written in there, I  
20 hope?

21 A. Usually.

22 Q. Let's take a look and see if there's  
23 something wrong with what's in this one. Over here, I  
24 have it as the fifth paragraph -- so it's on the column  
25 on the right-hand side.

1 MR. WILMOTH: Excuse me, Mr. Grunewald, is  
2 it possible to expand that at all?

3 MR. GRUNEWALD: It's tough.

4 Q. (By Mr. Grunewald) There's the third  
5 sentence, the fifth paragraph says, "On average, the  
6 amount of water pumped under the project will, at most,  
7 not be significantly different than what otherwise would  
8 have been pumped had the land remained in irrigated  
9 production."

10 Do you still agree with that statement?

11 A. That statement makes some certain  
12 assumptions, that the future will be similar to what  
13 we've seen in history. The way that we set the project  
14 up was to look at our historical shortfalls, which ours  
15 was something less than 10,000 acre-feet. Looking back  
16 at kind of that 2002 through 2006 period, our district's  
17 shortfall was 9,000-some-odd acre-feet. So we thought  
18 it would be wise to set up the project that could be  
19 something that was capable of taking care of as much as  
20 twice that. So that's roughly 10,000 to 20,000  
21 acre-feet limitation on the maximum.

22 Given that, the historical distribution  
23 from that '02 through '06 period, as I recall, the  
24 average shortfall in that period of time works out so  
25 that if you apply the historical distribution forward

1 and set the max at 20 instead of 10, that the average  
2 pumping in those times is roughly 15,000 acre-feet. And  
3 so assuming that the pumping occurs a third of the time,  
4 an average is 15,000 acre-feet, yeah, we've set aside  
5 over 5,000 certified irrigated acres that were  
6 previously irrigated.

7 Q. And to connect the dots here, when you  
8 say, set aside 5,000 acres, the allocation annualized  
9 per year for an acre of irrigated land in the Upper  
10 Republican District is about a foot? Is that how you  
11 get --

12 A. If you look at the historical pumping that  
13 occurred on the acres that we retired, they have  
14 averaged, since their development, in the neighborhood  
15 of 15 and a half inches per acre, if you look at those.  
16 I wasn't directly involved in the analysis that was set  
17 forth in the plan that was submitted, so they may not  
18 have -- whatever methodology the State used in putting  
19 together that plan, they may not have grabbed all of the  
20 historical use on those wells. So what they submitted  
21 may be different than the full record that would show --  
22 because the acres that were retired, since we have  
23 pooling and carry-forward and stuff, had no  
24 carry-forward. So they used their full allocation and  
25 had been involved in pooling contracts. So they were

1 relatively high-use acres relative to the rest of our  
2 district.

3 Q. You mentioned the average appeared to be  
4 about 15 inches per acre; is that what you said?

5 A. Yeah, looking, as I recall, looking back  
6 at the wells that we retired, with no carry-forward, our  
7 average allocation from '78 forward -- and all these  
8 wells would have been developed prior to '78; for sure  
9 on the 23 wells that we retired as our original purchase  
10 had been developed in '74, '75 time frame. So they all  
11 would have had an allocation going forward from '78.  
12 And our average allocation from '78 to current times is  
13 roughly 15 and a half inches.

14 Q. So the use was 15 and a half, and the  
15 allocation was 15 and a half; is that what you're  
16 saying?

17 A. Pretty close, yeah, within a tenth or two  
18 one way or the other.

19 Q. Thank you.

20 MR. GRUNEWALD: I've got no further  
21 questions.

22 ARBITRATOR FEREDAY: Mr. Wilmoth. And  
23 would the parties like to take a break now? I prefer  
24 that you continue, but if there's an interest in taking  
25 a break, we can do that.

1 MR. WILMOTH: I'd like to suggest a break  
2 for one natural reason and also for another reason. I'd  
3 like to confer with Mr. Steinbrecher. We haven't really  
4 talked about whether he has any questions, and I think  
5 we could speed this up.

6 ARBITRATOR FEREDAY: Let's take five  
7 minutes.

8 (A recess was taken.)

9 ARBITRATOR FEREDAY: Mr. Wilmoth.

10 MR. WILMOTH: Thank you. For the record,  
11 Colorado doesn't have any questions.

12 MR. STEINBRECHER: No.

13 REDIRECT EXAMINATION

14 BY MR. WILMOTH:

15 Q. I just have a couple of quick questions  
16 based on some of the things that were elicited.

17 You mentioned that there was an outlet or  
18 a delivery point, if you will, above the primary?

19 A. That's correct.

20 Q. And that's associated with a pond that a  
21 landowner asked you about?

22 A. Yes, that pond was part of acquiring the  
23 easement for the pipeline.

24 Q. When the water is delivered to that point,  
25 that water is not -- excuse me, let me ask it this way:

1 That point of diversion is not intercepting augmentation  
2 water, is it?

3 A. No.

4 Q. It's above, in fact, the primary point of  
5 delivery?

6 A. It is.

7 Q. Thank you. I'd also like to hand you  
8 what's been marked as Kansas G35.

9 MR. WILMOTH: For the record,  
10 Mr. Arbitrator, this was attached to the motion that was  
11 filed last week, KG35, the group exhibit.

12 Q. (By Mr. Wilmoth) Dr. Fanning, could you  
13 please turn to the stream gauge data.

14 A. Page 4?

15 Q. Yes. Do you see a red line on that graph?

16 A. I do.

17 Q. Does that red line represent the impact of  
18 the augmentation project this year?

19 A. It does. If you see where the chart jumps  
20 from between zero and 10 up to between 20 and 30, that  
21 was when we initially kicked on the approximately six  
22 out of the 10 wells.

23 Q. Was there an additional increase when the  
24 other wells came online?

25 A. There was, and you can see that as you

1 move from roughly late February, as you move into --  
2 through March, towards the end of March; you can see  
3 when all 10 wells were operational.

4 Q. And have you actually visited Rock Creek  
5 during the course of 2013?

6 A. Yes, I have.

7 Q. Is the relatively stable nature of the red  
8 line there consistent with your observations?

9 A. It is.

10 Q. Thank you.

11 MR. WILMOTH: I have nothing further.

12 ARBITRATOR FEREDAY: Mr. Grunewald.

13 MR. GRUNEWALD: If I could,  
14 Mr. Arbitrator, a couple questions.

15 ARBITRATOR FEREDAY: Yes.

16 RE CROSS EXAMINATION

17 BY MR. GRUNEWALD:

18 Q. There was a question just now starting off  
19 with the pond that referred to the landowner in relation  
20 to the easement and the third discharge point. Do you  
21 remember that question?

22 A. Yes.

23 Q. To clarify, the pond is above the main  
24 discharge outfall. Is that what you were testifying to?

25 A. Yes, the main augmentation discharge

1 location is downstream of the pond.

2 Q. Where's the pond in relation to the third  
3 discharge point?

4 A. The third discharge point at the hatchery  
5 is a mile downstream. And the discharge point actually  
6 discharges right into the fish hatchery infrastructure  
7 that it flows from.

8 Q. I'm sorry for not having the discharges.  
9 It would be nice if they were numbered. I consider that  
10 one the second discharge point. There are three.  
11 There's the main discharge point, and we know the pond  
12 is above that. There's a hatchery discharge point  
13 further downstream. Where's the third discharge point  
14 in relation to the pond that you were referring to? Is  
15 it into the pond?

16 A. Into the pond, yes.

17 Q. Thank you. And just following up on the  
18 daily streamflow data, there are spikes that were  
19 referred to. Is that when you said that the pumps were  
20 being turned on?

21 A. Some spikes related to that. I think Rock  
22 Creek Lake, which is a flow-through lake, fairly small  
23 lake in terms of both surface area and capacity; and at  
24 their outlet structure, they have some boards to check  
25 the level of that. So when we first started operating,

1 the level in the lake came up. And until it reached  
2 that equilibrium -- it came up a foot or maybe a foot  
3 and a half in elevation.

4           And Game and Parks was removing boards to  
5 take -- they wanted to maintain the lake elevation  
6 because they have some piers and stuff that actually The  
7 Flatwater Group built or oversaw the construction of  
8 when they redesigned the lake. So to maintain that  
9 water level, they would take out boards. You can see  
10 the big spike there that occurred in early March. That  
11 was the first time they took out, I believe a, 6-inch  
12 board at that time. So you saw a lot of that lake water  
13 rush down the few miles to the gauge there. And then  
14 once it reestablished itself, and we maybe kicked  
15 another well on in there, it came back closer to that  
16 preboard-pulling level of flow.

17           Q.       So is it by the end of March that the  
18 project is putting 27, 28 cfs at the main discharge  
19 outfall?

20           A.       Yeah, we hit it probably about the third  
21 week of March, as I recall.

22           Q.       And from that point on, you'd expect it to  
23 be at the 34 cfs; is that right?

24           A.       Well, no. I think if you look back at the  
25 historical record of the gauge, for instance, the last

1 couple years, like in July and August, the Rock Creek  
2 gauge at Parks would only be about 3 cfs. So I would  
3 only expect it to be 31 or 32 cfs during the summer  
4 months when flows are generally lower.

5 I would expect the amount of gain to be  
6 the same as our output, and that's pretty close. We're  
7 putting in about 20 cfs. Last year at this time, there  
8 was about 3 cfs, and we're seeing 32 cfs at Parks today.

9 Q. You don't have any records of what the  
10 flow was separate from the outfall when it was fully  
11 running at the Parks gauge?

12 A. Say that one more time.

13 Q. You don't have any records of what the  
14 flow was separate from the outfall running at full  
15 capacity during this time period, right?

16 A. We have records prior to the operation for  
17 this period of time, what those flows were, but not --  
18 again, because this flow is part of the Rock Creek flow,  
19 the gauge captures both the existing baseflow as well as  
20 the augmentation surface flow.

21 MR. GRUNEWALD: I have no other questions.

22 ARBITRATOR FEREDAY: Thank you.

23 MR. WILMOTH: We have nothing further, and  
24 we're prepared to call our next witness, but I think  
25 that you might have questions that you'd like resolved.

1 ARBITRATOR FEREDAY: I do.

2 MR. WILMOTH: May I also ask -- we have  
3 exhibits that are referenced in the testimony, and  
4 certainly this one. My intent would be to move them  
5 en masse at the end of this witness' time on the stand.  
6 Is that acceptable?

7 ARBITRATOR FEREDAY: That's acceptable.

8 MR. WILMOTH: Thank you.

9 EXAMINATION

10 BY ARBITRATOR FEREDAY:

11 Q. Dr. Fanning, with regard to this most  
12 recent exhibit, which is the Kansas group exhibit and  
13 the chart that was just inquired about, was your  
14 testimony that you don't know the amount of, I'll call  
15 it, native flow in Rock Creek that comprises the red  
16 line on that chart?

17 A. I think that we know approximately what it  
18 is. We certainly knew what it was at the time we  
19 started our augmentation wells. We can look at the  
20 historical record to see what it has been in recent  
21 years without augmentation flow.

22 Q. Is that the gauge at Parks?

23 A. That's the gauge at Parks. There's also a  
24 flume that catches all of Rock Creek flow at the fish  
25 hatchery. They record that as part of the NPDES permit

1 for discharging into Rock Creek. They collect the  
2 artesian wells and run it through a flume. So we knew  
3 at that point in time when we started operations, once  
4 we hit about 28 cfs, the flume was reading right at 30,  
5 roughly, as I recall.

6 Q. Suggesting that there were 3 cfs?

7 A. It was two and a half cfs roughly, as I  
8 recall at that time, before we started operating.

9 Q. But that data as to the fish hatchery flow  
10 record is not yet before me. That seems pretty clear.

11 A. Yeah, the Rock Creek record is what you  
12 have. Because our augmentation water is entered into  
13 the stream as surface flow, the gauge is going to record  
14 both. And there's no real way without -- without  
15 additional measurements to parse those apart.

16 Q. Do you know what the Rock Creek flow at  
17 Parks was prior to January 1st of 2013?

18 A. It was holding a fairly constant level.  
19 It got down -- in the summer of 2012, as I recall, the  
20 lowest measurement was -- it was either 2 or 3 cfs. As  
21 I recall, 3 cfs. And it worked its way back up last  
22 fall and winter to where it was pretty constant at 7  
23 cfs, 6 to 7.

24 Q. So you expect this gauge reading here  
25 shown between January 1st and late, it looks like,

1     sometime in late January that it's pretty accurate?

2             A.       Yeah, it is.  The flow the day before we  
3     kicked our augmentation wells on, the USGS gauge was  
4     recording 7 cfs.  When we kicked those first wells on,  
5     it matched the 7 plus what we were discharging after  
6     about three days.  USGS came down and took a few more  
7     measurements than they usually would at the USGS gauge  
8     location to make sure that their gauge was recording  
9     accurately at those higher levels.

10            Q.       With regard to the discharge into the  
11     pond, is there any discharge currently going into that  
12     pond from the augmentation?

13            A.       They did a little -- they opened the valve  
14     for a bit to test -- basically to test the system.  
15     There isn't any flow in there.  Once the contractor  
16     completes work, they may discharge some in to settle it,  
17     but it's probably going to take less than 10 acre-feet  
18     to fill the pond.  And then once it's full, it's  
19     anticipated to not need much, if any, maintenance water  
20     to stay at that full level.

21            Q.       So is the discharge into the pond an  
22     accommodation to a landowner --

23            A.       Yes, it is.

24            Q.       -- or is it something else?

25            A.       The root of that was to accommodate the

1 landowner to obtain the easement. Since we had to do  
2 that, we worked it into the design so that if we were  
3 ever operating at extremely low flows that we could  
4 potentially use that as a discharge location into. But  
5 at this time, we aren't planning to actually use it as  
6 an augmentation discharge, even though it could be  
7 technically.

8 Q. You mentioned that, at the hatchery, there  
9 are artesian wells. Am I to assume that those are  
10 artesian in the sense that they flow at the surface?

11 A. Yes, the natural condition there is --  
12 essentially what they did was they went in and developed  
13 springs and put in basically a screen to collect the  
14 water out of those, so that instead of it flowing at the  
15 surface into the creek, they capture it at the  
16 surface -- and some of those conversions are just  
17 subsurface -- and take it into their aeration system,  
18 pump it into their upstream pond, and it runs on down to  
19 the bottom, into the fish hatchery, out the bottom and  
20 into the flume.

21 Q. On page 8 of your testimony, you mention  
22 that the augmentation project, as you reckon it,  
23 provides a windfall to Kansas. Could you elaborate on  
24 that, please?

25 A. Well, certainly, my understanding of the

1 FSS was that it fully contemplated pumping groundwater  
2 to offset groundwater depletions in the CBCU calculation  
3 as a method of complying with the compact. By not  
4 approving a plan for depletions that it offsets, and  
5 only giving it -- in the Rock Creek subbasin, the virgin  
6 water supply percentage to Nebraska is just 69.3  
7 percent. Ultimately Kansas is forcing us to pump  
8 approximately 144 percent of the water we would have  
9 otherwise had to pump if we got the one-for-one credit  
10 for the depletions that we offset. So it gives them a  
11 windfall, in essence, of a volume of water.

12 Q. One last question. You mentioned that  
13 certain -- I think it was certain subdistricts have  
14 allocations that come off the top of the calculus for  
15 figuring the allowable CBCU that Nebraska is given.  
16 Would you explain what that means?

17 A. Sure. It's not a delivery compact, but  
18 since the accounting occurs retrospectively, the State  
19 had to come up with some method of forecasting forward  
20 what Nebraska's uses could be. And, essentially, even  
21 though it's not a delivery compact, the amount of water  
22 that crosses the state line has an effect --

23 Q. The state line at Hardy?

24 A. Yes, or anywhere else through the Guide  
25 Rock diversion, whatever, has an impact on Nebraska's

1 allocation. So in order to forecast your compliance,  
2 you have to forecast your consumptive uses as well as  
3 what your allocation will be. Nebraska's methodology  
4 accomplishes those things. And to simplify kind of the  
5 in-house or in-state accounting and management actions,  
6 early on we decided the three primary NRDs, the Upper --  
7 my district -- the Middle Republican that Dan Smith  
8 manages, and the Lower Republican Natural Resources  
9 District had the majority of groundwater depletions as  
10 modeled under the RRCA groundwater model.

11 So effectively, administratively within  
12 Nebraska, we decided for groundwater management  
13 purposes -- Tri-Basin has some requirements because they  
14 have a significant portion of the basin, but for all  
15 practical purposes, we're going to assume that all of  
16 the rest of Nebraska's consumptive use, surface water  
17 consumptive use, is going to be whatever it is and we're  
18 not going to manage the groundwater necessarily in those  
19 other NRDs that are really in the Platte Basin; but  
20 their impact, because of the interconnection between the  
21 water in the Platte and the Republican, is in the  
22 groundwater model. Their depletions are relatively  
23 small.

24 So we made the assumption administratively  
25 that Nebraska's surface water use and the groundwater

1 consumptive use in those districts was going to come off  
2 the top of Nebraska's allocation and we would focus on  
3 managing what was left, which would be the groundwater  
4 depletions in the three, upper, middle, and lower NRDs.  
5 And then the State, of course, administers surface water  
6 to make sure that our actions and the water that  
7 generates pass through the system to Kansas.

8 Q. Okay. Thank you.

9 ARBITRATOR FEREDAY: Any further  
10 follow-up?

11 MR. WILMOTH: I have just two questions to  
12 clarify the record on something I think might be a  
13 little muddled.

14 FURTHER REDIRECT EXAMINATION

15 BY MR. WILMOTH:

16 Q. Dr. Fanning, there was a discussion of  
17 three discharge points. Could you please identify those  
18 as you see them?

19 A. As I see them, the main discharge location  
20 or what I'll call discharge location No. 1 is the main  
21 discharge location just downstream of the earthen dam,  
22 approximately 1 mile upstream of the fish hatchery.

23 The second discharge location at the  
24 hatchery is on hatchery property, about a mile  
25 downstream of the main discharge location. And the

1 third is just upstream of the main discharge location  
2 100 feet, let's say 80 to 100 feet, just north of the  
3 old earthen dam, where the pond was and the newly  
4 reconstructed pond is.

5 Q. You earlier testified that the landowner  
6 could benefit from discharge. Point No. 3 is not  
7 intercepting augmentation water; is that true?

8 A. That's correct.

9 Q. With respect to discharge No. 2 at the  
10 hatchery, is it your understanding that the hatchery is  
11 making any consumptive use of any of that water when  
12 they take it?

13 A. No. Their system is a flow-through  
14 system. The amount of water that they can hold in their  
15 ponds isn't increased by the augmentation water because  
16 they can fill their ponds with the artesian wells. It  
17 simply increases the capacity of flow that they have at  
18 any one time.

19 Q. Would you call the hatchery's use of that  
20 water frequent, infrequent, very rare?

21 A. To my knowledge, they've only opened the  
22 valve on that line twice for a rather short period of  
23 time, maybe a week or so. Just when they were initially  
24 filling ponds, they just filled them that much faster.

25 MR. WILMOTH: Thank you. We have nothing

1 further except to offer --

2 ARBITRATOR FEREDAY: Mr. Grunewald.

3 MR. GRUNEWALD: No.

4 MR. WILMOTH: So with your permission,  
5 Mr. Arbitrator, we would offer Dr. Fanning's direct  
6 testimony, N20000 and N20001, which is referenced in the  
7 testimony, and also page 4 of KG35.

8 ARBITRATOR FEREDAY: Thank you. Those  
9 will be received. And as I indicated in my prehearing  
10 order, any document that is referred to in this  
11 proceeding will be admitted into evidence. So I  
12 appreciate, though, the cataloging as we go of which  
13 documents we're referring to here. I think that will  
14 help clarify the record. But those certainly are  
15 received. I have them already in the papers that have  
16 been filed. So thank you very much, Mr. Wilmoth.

17 MR. WILMOTH: Thank you.

18 ARBITRATOR FEREDAY: Your next witness.  
19 Thank you, Dr. Fanning.

20 MR. WILMOTH: Mr. Arbitrator, Nebraska  
21 would call as its next witness Mr. Thomas Riley.

22 ARBITRATOR FEREDAY: Mr. Riley.

23 If you would raise your right hand.  
24  
25



1 proceeding too quickly, just let me know. I'd like you  
2 to be able to get on the same page.

3 ARBITRATOR FEREDAY: Thank you. I think  
4 I'm with you so far.

5 Q. (By Mr. Wilmoth) Mr. Riley, could you  
6 please identify that exhibit which I just handed you.

7 A. Yes. N20013 is a written commentary of  
8 the video that I reference in my direct testimony.

9 Q. And have you provided the Arbitrator and  
10 the States with a copy of the video referenced in your  
11 direct testimony?

12 A. I did not personally, but I believe that  
13 the State did do so.

14 Q. And you produced that video, did you not?

15 A. Executive produced.

16 Q. You had assistance?

17 A. I did.

18 Q. Thank you. And we're going to pull that  
19 video up on the screen now, ideally.

20 A. Thank you for indulging me. So this will  
21 play it.

22 Q. All right. I'll let you know when we're  
23 ready for that.

24 ARBITRATOR FEREDAY: Let the record  
25 reflect that we're about to play a video. And I take it

1 that this narrative is verbatim what we will hear on the  
2 video; is that correct? That's Exhibit 20013?

3 THE WITNESS: That's correct, Mr. Fereday.

4 MR. WILMOTH: For the record, the video is  
5 actually marked N20012, or 20012.

6 Q. (By Mr. Wilmoth) Mr. Riley, does the  
7 video, to the best of your knowledge, represent your  
8 experience at the Rock Creek project?

9 A. Yes, it does. It's an overview of the  
10 project and the basin in general.

11 Q. Thank you.

12 MR. WILMOTH: With your permission,  
13 Mr. Fereday, we would commence -- our plan is to let the  
14 video play through as though Mr. Riley were providing  
15 the testimony live. And, obviously, as we talked  
16 earlier, I will tender Mr. Riley for cross-examination  
17 on any of the points, as appropriate.

18 ARBITRATOR FEREDAY: Certainly. Let's  
19 proceed.

20 (Off the record while viewing the video.)

21 MR. WILMOTH: Thank you. I would tender  
22 Mr. Riley for cross-examination.

23 ARBITRATOR FEREDAY: Thank you.  
24 Mr. Grunewald.

25 MR. GRUNEWALD: Thank you. If we could

1 pause for a moment and trade controls.

2 ARBITRATOR FEREDAY: Let's go off the  
3 record just a moment, please.

4 (Discussion off the record.)

5 ARBITRATOR FEREDAY: Let's go back on the  
6 record.

7 MR. GRUNEWALD: Thank you, Dr. Riley.

8 CROSS-EXAMINATION

9 BY MR. GRUNEWALD:

10 Q. The video you prepared, did you pick the  
11 music?

12 A. No, I'll have to give credit to -- David  
13 Kracman in my office helped pick the music.

14 Q. It seems like you picked different music  
15 for different parts.

16 A. I think there's six or seven different  
17 pieces of music.

18 Q. I'd like to call your attention, in your  
19 direct testimony, to the portion of it that we covered  
20 earlier at the very beginning of the hearing. You might  
21 have been present for it. There's a portion -- I'm  
22 sorry -- if we can show a little bit of the bottom of  
23 page 3 and the top of page 4.

24 Can you see that on the screen?

25 MR. WILMOTH: Excuse me, Mr. Grunewald,

1 this is the same thing that he has a copy of.

2 MR. GRUNEWALD: Fair enough.

3 Q. (By Mr. Grunewald) Question No. 7, do you  
4 see that? "Please describe the nature of Rock Creek."

5 A. Yes.

6 Q. And you made some statements there. That  
7 first statement regarding the baseflow dominated stream  
8 that gains streamflow, do you see that?

9 A. Yes, I do.

10 Q. Now, assessment of a stream reach as to  
11 whether it's a gaining stream reach or a losing stream  
12 reach or a combination of gaining and losing, is that  
13 the sort of work you do professionally on behalf of  
14 clients?

15 A. I certainly do on occasion make those  
16 assessments, yes.

17 Q. Is it the sort of thing you prepare  
18 reports for?

19 A. I have prepared reports and certainly am  
20 comfortable describing any of those types of issues.

21 Q. And did the State of Nebraska ask you to  
22 perform that sort of professional assessment for this  
23 proceeding?

24 A. Well, I certainly am comfortable in  
25 providing an expert opinion, if that's what you're

1 asking, Mr. Grunewald, on any of these particular  
2 issues. The information that I laid out here, in my  
3 view, seems to be pretty straightforward and common  
4 knowledge.

5 Q. If I might, I'm curious whether or not you  
6 performed an expert opinion in this proceeding.

7 A. I don't have an expert opinion laid out in  
8 this direct testimony.

9 Q. No expert opinion was disclosed before the  
10 deadlines for expert opinions in this proceeding?

11 A. I believe that's correct.

12 Q. Are you not sure?

13 A. I provided in my direct testimony what I  
14 would consider factual information.

15 Q. And your direct testimony was provided to  
16 us on the date that all the direct testimony was  
17 provided, August 21st; is that right?

18 A. That's my understanding, yes.

19 Q. In this answer there, the top of page 4,  
20 it says, "In my experience and review of the record."  
21 Can you tell us specifically what record you're  
22 referring to there?

23 A. The record being the Geological Survey  
24 data station record that says 06824000 at Parks,  
25 Nebraska.

1 Q. So it's just the Parks, Nebraska, stream  
2 gauge?

3 A. In that particular instance, I was  
4 referring to the Parks gauge, that's correct.

5 Q. Is there anything else that you were  
6 intending to refer to here that you reviewed as part of  
7 the record for these statements?

8 A. Well, I would say that I've done a  
9 significant amount of professional work in the Rock  
10 Creek Basin. So I have quite a bit of background of the  
11 flows there. I think Dr. Fanning might have mentioned  
12 that I performed a restoration project that I designed  
13 and sealed at Rock Creek Lake. So I have a good  
14 understanding of those flows, if that's what you're  
15 asking.

16 Q. I just want to try to pin down what  
17 documents you looked at. So far I've heard the Parks,  
18 Nebraska, stream gauge, USGS measurements, that data.  
19 Is there some other data or documents that you refer to  
20 when you say, "the record"?

21 A. No. For that particular piece, I looked  
22 at the available data from the Geological Survey.  
23 However, I have seen information that -- again, I think  
24 Dr. Fanning might have made reference to data collected  
25 by the Game and Parks Commission -- that's the Nebraska

1 Game and Parks Commission -- at the Rock Creek fish  
2 hatchery. Some of those flows in that area I've seen in  
3 the past. I didn't look at that particular information  
4 when I made the statement here.

5 Q. Thank you.

6 Regarding the video and the time the video  
7 that was taken and the photos, were those all on  
8 May 31st, with the exception of anything that was called  
9 out specifically?

10 A. The still photos and video on the ground,  
11 those were all done on May 31st of this year. The  
12 Google imagery, I don't recall the specific date that  
13 that was registered, Mr. Grunewald. I'd have to look  
14 that up. Certainly before May 31st. And then there was  
15 some additional aerial photography in a plane. That was  
16 done a couple weeks later, I think on June 17th, if I  
17 recall correctly.

18 Q. So the only imagery that would be before  
19 May 31st might be the Google Earth imagery, but you're  
20 not sure?

21 A. No, I'm quite certain that the Google  
22 Earth imagery would have been before. And that does  
23 show, that imagery, if anyone has looked at it, it does  
24 show part of the construction of the pipeline, which was  
25 nice to have. But I don't have the specific date that

1 that became available in Google Earth.

2 Q. Thank you.

3 I'd like to turn to Exhibit KG35. If we  
4 could take a look at the stream gauge data. This, I  
5 think, you're looking at the screen for. So let us know  
6 if you have any trouble seeing it. We can make it  
7 larger.

8 The red line that we talked about before  
9 this morning is the Rock Creek flow at the Parks gauge,  
10 and there's another line that's larger or higher, and  
11 the legend notes: RR at Stratton, so Republican River  
12 at Stratton. Stratton was referred to in the video.  
13 That's the same Stratton.

14 I noticed there are a couple of spikes  
15 that are listed here or that are shown on the graph. Do  
16 you see those spikes?

17 A. Just to be clear, Mr. Grunewald, we're  
18 talking about that top piece, the top line?

19 Q. That's right.

20 A. Yes, I see those.

21 ARBITRATOR FEREDAY: For clarification,  
22 that's the orange line on the graph, RR at Stratton?

23 MR. GRUNEWALD: Thank you, Mr. Arbitrator.  
24 Yes, it is that orange line.

25 Q. (By Mr. Grunewald) There's a spike there,

1 if you follow the calendar dates at the bottom, just  
2 before the line marked June 2nd, 2013. Do you see that  
3 spike there at Stratton?

4 A. Yes.

5 Q. Do you know what the conditions were  
6 around that time that might have caught that spike?

7 A. The conditions of what?

8 Q. In the area where the data is collected  
9 here at Stratton, which is downstream of Rock Creek  
10 confluence that you described in the video.

11 A. I watch the gauges and the weather quite  
12 often in the Republican River. I'm not for certain, but  
13 that's probably the result of a precipitation event, if  
14 that's what you're intending to ask here. That would be  
15 my initial assessment without having in front of me, of  
16 course, the precipitation data for that time period. If  
17 you have that available --

18 Q. If we can go to the next page. Page 5 of  
19 Exhibit KG35 is a chart. It refers to a source, USBR,  
20 United States Bureau of Reclamation. There's a  
21 reference to the website address. And in the upper  
22 left-hand corner, it says HydroNET. Are you familiar  
23 with HydroNET data?

24 A. Yes, I am.

25 Q. Is that precipitation data collected by

1 the Bureau of Reclamation?

2 A. That's my understanding, that they do  
3 collect that and other meteorological type of data at  
4 that location and others throughout the basin.

5 Q. This station identification says, "Swanson  
6 Lake (Trenton Dam)." Do you see that?

7 A. Yes.

8 Q. This is a listing of daily readings across  
9 the months for what they call water year 2013. Do you  
10 see those entries for the column marked "May"?

11 A. I see some entries in that column, yes.

12 Q. If we scroll down just a little bit, we'll  
13 be able to see the entries for the later part of the  
14 month. Do you see in the column where I've got the  
15 cursor here, do you see this entry here for May 30?

16 A. Yes, I do.

17 Q. What's that reading now?

18 A. The table that you're showing me  
19 says 0.65. And I presume that's in inches. We can look  
20 at the top.

21 Q. I think that's right. And the entries  
22 right there at the top of the table: "Total  
23 precipitation measured in inches per day," the entries  
24 just before and after it, what's the entry just before  
25 that for the 29th?

1           A.       The 29th, under the column for May -- so  
2 May 29th -- reads zero.

3           Q.       And the entry for the 31st?

4           A.       May 31st, that column would read 0.02.

5           Q.       Thank you very much.

6           MR. GRUNEWALD: I don't have any other  
7 questions.

8           Oh, I'm sorry, I have a couple more  
9 questions, if I can beg the Arbitrator's indulgence.

10          ARBITRATOR FEREDAY: Certainly.

11          Q.       (By Mr. Grunewald) There was a reference  
12 in the video to 82 or 83 cfs at Stratton. Do you  
13 remember that?

14          A.       Yes, I do.

15          Q.       Could you describe what that reading is --  
16 what that reading -- could you describe your  
17 understanding of the basis for that reading?

18          A.       So my recollection is that I obtained that  
19 from the Geological Survey for that day. I should point  
20 out, these are all provisional data in that they're not  
21 finalized, and that's probably true for the Bureau  
22 information here too. So at the time we made that  
23 visit, the next day I looked to see what the gauge might  
24 have been reading at that location.

25          Q.       So if we go back to the graph, are the

1 entries there -- here, the spike on the orange line just  
2 before the line noting June 2nd, 2013, are these the  
3 readings that you were referring to that are up above  
4 the 80 cfs mark on the graph?

5 A. In the video, I would have referred to the  
6 reading on May 31st.

7 MR. GRUNEWALD: I don't have any further  
8 questions.

9 MR. STEINBRECHER: We have nothing. Just  
10 so it's clear, Colorado has no questions.

11 ARBITRATOR FEREDAY: Dr. Riley, I have  
12 just a couple of questions for you.

13 EXAMINATION

14 BY ARBITRATOR FEREDAY:

15 Q. With respect to your statement that Rock  
16 Creek is a baseflow-dominated stream that is a gaining  
17 stream, do you know whether the stream is gaining all  
18 year-long, or is it just in certain times of the year  
19 that it gains?

20 A. My knowledge of that basin would indicate  
21 that it's a gaining stream, baseflow stream, all  
22 year-long at the Parks location. If you go further up,  
23 and certainly where the hatchery is and near the  
24 discharge, there isn't typically any flow.

25 Q. So it would be a losing stream in that

1 reach?

2           A.       No, it's less of a flow. Those would be  
3 the headwaters. And as you move down, it picks up flow,  
4 until you reach the Parks gauge. And I would see that  
5 as a gaining stream and having water in it primarily  
6 from groundwater contributions.

7           Q.       Regardless of the time of the year?

8           A.       That's correct. And the history of the  
9 gauge shows that fairly well.

10           ARBITRATOR FEREDAY: I have no further  
11 questions. Anything more?

12                    Thank you very much.

13           THE WITNESS: Thank you.

14           MR. WILMOTH: I understand we do not need  
15 to move the admission of anything; is that correct?

16           ARBITRATOR FEREDAY: That's correct.

17           MR. WILMOTH: Thank you.

18           ARBITRATOR FEREDAY: The exhibit will  
19 be -- Kansas has referred to, as well as his direct  
20 testimony submitted, his written testimony, are now in  
21 the record. Thank you.

22                    Well, it is now shortly before noon. So  
23 this is a good time to take a lunch break.

24                    Gentlemen, what is your preference? I can  
25 get by with less than an hour, but I guess I'll leave

1 that up to you. Forty-five minutes? An hour?

2 MR. GRIGGS: Kansas would ask for an hour  
3 or an hour and a quarter.

4 ARBITRATOR FEREDAY: If that's acceptable,  
5 then we'll be back here, spotting you five minutes, at  
6 1:15.

7 (The luncheon recess was taken.)

8 ARBITRATOR FEREDAY: Let's proceed.  
9 Mr. Wilmoth.

10 MR. WILMOTH: Thank you, Mr. Arbitrator.  
11 At this time, Nebraska would call its third witness,  
12 Dr. Jim Schneider.

13 With your permission, what we thought we  
14 would do is essentially bifurcate his testimony because  
15 he does opine on matters relative to Rock Creek and  
16 Appendix M. He has filed, unlike Kansas, two separate  
17 direct testimony filings and separate reports. So I  
18 think it would make a cleaner record, if it's acceptable  
19 to you, to deal with Rock Creek, have cross and redirect  
20 on those issues; and then, while Dr. Schneider is on the  
21 stand, proceed to Appendix M. I think that makes for a  
22 cleaner record.

23 ARBITRATOR FEREDAY: That makes sense to  
24 me. Is that fine with counsel?

25 MR. GRIGGS: We're fine with that.

1 ARBITRATOR FEREDAY: We will proceed that  
2 way.

3 JAMES C. SCHNEIDER,  
4 having been first duly sworn to state the whole  
5 truth, testified as follows:

6 DIRECT EXAMINATION

7 BY MR. WILMOTH:

8 Q. Good afternoon, Dr. Schneider.

9 A. Good afternoon.

10 Q. I'm going to hand you what's been marked  
11 as Exhibit N20020. Dr. Schneider, could you please  
12 identify that for me.

13 A. This is my prefiled direct testimony  
14 regarding the Nebraska's Rock Creek augmentation plan.

15 Q. Thank you, Doctor. And do you affirm that  
16 testimony here today?

17 A. Yes, I do.

18 Q. Thank you. I'd also like to hand you  
19 what's been marked N20021. Could you identify that  
20 document, Doctor?

21 A. Yes. This is Nebraska's Rock Creek  
22 augmentation plan as submitted to the RRCA on  
23 February 8th, 2013.

24 Q. I'd like to hand you what's been marked  
25 N20022 and ask you to identify that document.

1           A.       This is an expert report I prepared  
2 responding to the expert reports that were submitted by  
3 Kansas in this proceeding.

4           Q.       With regard to Rock Creek?

5           A.       With regard to Rock Creek, yes.

6           Q.       Thank you.

7                    Do the three documents I provided you,  
8 Dr. Schneider, do those constitute your direct testimony  
9 in this matter insofar as it relates to Rock Creek?

10          A.       Yes, they do.

11          Q.       Thank you very much.

12                    And you affirm that testimony today?

13          A.       Yes, I do.

14                    MR. WILMOTH: I have nothing further. We  
15 tender the witness for cross.

16                    ARBITRATOR FEREDAY: Mr. Grunewald.

17                    MR. GRIGGS: Actually, Your Honor, I'll be  
18 doing the cross of Dr. Schneider. Thank you.

19                                CROSS-EXAMINATION

20 BY MR. GRIGGS:

21          Q.       Good afternoon, Doctor.

22          A.       Good afternoon.

23          Q.       Who were the principal negotiators for the  
24 final settlement stipulation for Nebraska?

25          A.       Well, as I understand, that involved the

1 leadership at the Department of Natural Resources at  
2 that time, as well as representatives of the Attorney  
3 General's Office.

4 Q. Do you know their names?

5 A. I know some of the people. I don't know  
6 if I can give you an exhaustive list of everyone  
7 involved.

8 Roger Patterson was then the director, as  
9 I understand it, and then Ann Bleed was the deputy  
10 director. David Cookson was, I think, the lead with  
11 regard to the Attorney General's Office. There were  
12 other consultants, some others involved.

13 Q. And does Nebraska retain either  
14 Mr. Patterson or Dr. Bleed as consultants in this  
15 arbitration?

16 A. No, we have not.

17 Q. And you have not had any discussions with  
18 either Mr. Patterson or Dr. Bleed concerning their  
19 understanding of the Section III of the FSS; isn't that  
20 correct?

21 A. Well, certainly not with Roger Patterson.  
22 He was not with the Department when I joined the  
23 Department in 2007. I'd have to -- I guess I'd have to  
24 think back and also review the entirety of Section III  
25 of the FSS to be able to fully answer with regard to

1 Ann Bleed.

2 Q. Have you discussed with Dr. Bleed the  
3 origins of the moratorium that is the first part of  
4 Section III of the FSS?

5 A. I suspect there were some discussions in  
6 that regard. I was hired by the Department in November  
7 of 2006, and worked with her on these issues for about  
8 15 months before she left in the spring of 2008.

9 Q. Did Dr. Bleed have any contribution to  
10 your work on the Rock Creek augmentation plan?

11 A. No.

12 Q. So the Rock Creek augmentation plan is  
13 principally the result of your own interpretation of the  
14 FSS regarding augmentation?

15 A. Well, it's the result of myself reading  
16 it, as well as others on the Nebraska team, such as the  
17 director of the department and other staff. Certainly  
18 there was discussions amongst many people as that was  
19 developed; but, in my view, it was -- the plain read was  
20 sufficient.

21 Q. So the augmentation plan is based on your  
22 plain reading of the FSS and its requirements?

23 A. Yes.

24 Q. Why did Nebraska agree to the moratorium  
25 on new wells?

1           A.       Well, presumably, it was part of the  
2 larger agreement. I mean, as I understand it, they  
3 discussed a number of things. This is based on many  
4 years of reviewing the FSS and understanding the various  
5 components. And it has, as I just stated, various  
6 components that, you know -- so, presumably, that along  
7 with the other components of the FSS were acceptable to  
8 the State of Nebraska.

9           Q.       But by your use of the word "presumably,"  
10 you don't actually know why Nebraska agreed to the  
11 moratorium; you are just making some sort of inference  
12 based on your reading?

13           MR. WILMOTH: I don't mean to necessarily  
14 object to the line of questioning yet, but to the extent  
15 counsel is asking what Nebraska's motivations were in  
16 terms of a quid pro quo or the terms of the FSS, as  
17 counsel knows, that subject matter is subject to a  
18 confidentiality agreement, which would require the  
19 closure of this record.

20                   I think the specific questions about why  
21 did you do this are clearly covered under this  
22 confidentiality agreement, not to mention the fact that  
23 Dr. Schneider testified that he wasn't there.

24           ARBITRATOR FEREDAY: Well, Counsel, I  
25 haven't been presented with a confidentiality agreement,

1 at least not to my knowledge. It may be here somewhere  
2 in these exhibits. And I will allow this line of  
3 questioning to go forward. However, I do note that the  
4 ability of this witness to testify as to the motivations  
5 of the State for whom he works now as to events that  
6 happened a while back, I think, is self-limited. So  
7 with that observation, please continue.

8 MR. GRIGGS: Thank you.

9 Q. (By Mr. Griggs) What is your understanding  
10 of the purpose of the moratorium?

11 A. Generally speaking, it's to put into place  
12 a moratorium on well development.

13 Q. In which state?

14 A. Well, I believe it applies to all three  
15 states in some manner.

16 Q. Upon what do you base your understanding  
17 of the purpose of the moratorium?

18 A. I guess my understanding is based on  
19 reading it.

20 Q. The Rock Creek augmentation plan is fully  
21 operational, correct?

22 A. That's correct, yes.

23 Q. If I could turn to Nebraska 20022. I'm  
24 going to walk you through parts of that report for the  
25 next set of questioning.

1                   At the bottom of page 2 and the top of  
2 page 3, you speak of the imported water supply credit  
3 that Nebraska receives. You see that?

4           A.       Yes.

5           Q.       Approximately how much water is brought  
6 into the Republican River Basin from the Platte?

7           A.       Well, the activity that provides for the  
8 imported water supply credit, sometimes known as mound  
9 recharge, or the leakage of water diverted from the  
10 Platte to areas south of the Platte, in canals, and then  
11 applied to fields for irrigation, produces approximately  
12 half a million acre-feet of recharge in that area per  
13 year. Sometimes more; sometimes less.

14                   The benefit with regard to the Republican  
15 River Basin that's realized by that is the slow  
16 percolation of some of that water southward to the  
17 Republican River Basin. That's a relatively small  
18 portion of that total amount of water; usually amounts  
19 to somewhere between 10 and 20,000 acre-feet per year.

20           Q.       How is the imported water supply credit  
21 determined under the accounting procedures?

22           A.       By using the RRCA groundwater model.

23           Q.       And what model runs are used to determine  
24 this imported water supply credit?

25           A.       There's a model run that has basically the

1 historic condition, which would include that recharge  
2 that I just referred to. That's one model run. And  
3 then another model run is conducted where that activity  
4 is turned off in the model, and then the two model runs  
5 are compared.

6 Q. Thank you.

7 Later on on page 3 -- turn to the last  
8 paragraph. You see the topic sentence "All three states  
9 have removed significant quantities of water"? Do you  
10 see that language?

11 A. Yes, I do.

12 Q. The second sentence reads: "However, the  
13 Compact does not control any State's use of their  
14 aquifer except to the limited extent that the  
15 groundwater pumping results in depletions to  
16 streamflow." Do you see that?

17 A. Yes, I do.

18 Q. Approximately what are Nebraska's  
19 groundwater depletions to the Republican River annually?

20 A. It's approximately 200,000 acre-feet per  
21 year, if you're referring to groundwater pumping.

22 Q. Yes, thank you. That's my next question.

23 What are Nebraska's approximate surface  
24 water depletions?

25 A. They vary from year to year based on

1 available supplies. Off the top of my head, I'd say  
2 they're between 50 and 100,000 acre-feet per year. That  
3 would include evaporation from reservoirs.

4 Q. Approximately what is Nebraska's level of  
5 CBCU?

6 A. Well, it would be a combination of those  
7 two that I just described.

8 Q. And what is Nebraska's approximate  
9 allocation?

10 A. Well, that varies considerably from year  
11 to year.

12 Q. Based on 2012, 2011.

13 A. I'm sorry, I'm just trying to remember  
14 that specific number. I know, in 2012, we underused our  
15 allocation by about 20,000 acre-feet. So it would have  
16 been 20,000 acre-feet more than our use, less any  
17 imported water supply credit.

18 Q. Turning to page 4 of your responsive  
19 report, Section 1.3, do you see the last paragraph in  
20 that section that's indented? It begins with "In the  
21 Republican River Basin." Do you see that paragraph?

22 A. Yes, I do.

23 Q. Starting with the fourth line of that  
24 paragraph, it reads: Any augmentation credits that are  
25 assigned under an augmentation plan must simply be

1 computed in a consistent manner. To do otherwise would  
2 produce a complete mismatch between the computations  
3 that determine the requirement for augmentation water  
4 and the actual amount of augmentation water being  
5 provided."

6 So it is your opinion, Dr. Schneider, that  
7 what you describe here is in fact a complete mismatch?

8 A. You mean to do otherwise?

9 Q. Correct.

10 A. Right. I'm simply trying to comment on  
11 the fact that we have certain activities that are  
12 occurring as a result of this augmentation project. One  
13 of them is pumping of groundwater wells. So that  
14 groundwater pumping would need to go into the  
15 groundwater model in order to determine its impact. We  
16 have streamflow that's generated by the delivery of  
17 water to the stream. And that should be computed or  
18 treated, I suppose, in the same manner as other  
19 streamflows are treated in the accounting procedures.  
20 And if we did something different than that, then they  
21 just don't mesh up.

22 Q. Thank you.

23 What is your understanding of Kansas's  
24 requirement for accounting for augmentation purposes?

25 A. Well, I may have a hard time zeroing in on

1 that for you. It has changed over time. I can tell you  
2 what I think it is right now. And I think it has  
3 something to do with using the model to account for  
4 transit losses of the streamflow.

5 Q. And you believe that Kansas's position has  
6 changed in the past? Is that why you couched your  
7 answer the way you did?

8 A. Yeah, I've heard other positions.

9 Q. Such as what positions have you also heard  
10 from Kansas?

11 A. Well, I recently commented on this in a  
12 filing under the upcoming arbitration for the CCP, and  
13 they did have a very different way of treating, or at  
14 least the way they wanted to treat the water that they  
15 were talking about then within the model. So that was  
16 one different way.

17 MR. STEINBRECHER: I don't have an  
18 objection at this point.

19 Q. (By Mr. Griggs) Dr. Schneider, doesn't  
20 Kansas propose to determine the credit for augmentation  
21 as the difference between two runs of the model within  
22 that augmentation?

23 A. That's my understanding of their proposal  
24 here in this case.

25 Q. Now, isn't that the same way that the

1 groundwater model is used to perform calculations for  
2 CBCU of imported water supply?

3 A. I'm not sure what you mean by "CBCU of  
4 imported water supply." That's actually the issue that  
5 we are dealing with in front of the Supreme Court, where  
6 the model was incorrectly including consumption of  
7 imported water supply in the model run. Is that what  
8 you're getting at?

9 Q. Thank you. Let me ask a simpler question.  
10 This method of determining the credit as  
11 between two runs of the model, isn't that how the  
12 imported water supply is determined?

13 A. Well, it's not because, for the imported  
14 water supply credit, the water actually flows through  
15 the aquifer to the streams in the Republican River  
16 Basin. We are not taking this water and pumping it from  
17 one location and letting it recharge back -- into the  
18 aquifer in another location and needing to track it as  
19 it percolates into the streams of the Republican River  
20 Basin. So it's actually quite different, in my view.

21 Q. So it's a different phenomenon  
22 hydrologically, but my question was whether, from a  
23 calculation standpoint, the Kansas approach to using the  
24 model is consistent with the RRCA approach for computing  
25 the imported water supply?

1           A.       Well, I don't believe it is consistent. I  
2 think you can say that you happen to do the same thing,  
3 but I don't believe it's consistent.

4           Q.       And why is that?

5           A.       It's as I just described.

6           Q.       The same section, Section 1.3, in the same  
7 paragraph, you claim that Kansas wants to create an  
8 entirely new accounting procedure. Do you see that?

9           A.       Yes.

10          Q.       And the section that I'm going to ask you  
11 about, it includes the rest of that paragraph.

12                    Isn't it true that the FSS does not  
13 prohibit the use of the model to calculate depletion?

14          A.       Well, the model is used to calculate  
15 groundwater CBCU.

16          Q.       Doesn't that calculate depletions?

17          A.       Those are depletions, yes. They could  
18 also be called depletions.

19          Q.       Okay.

20          A.       That's something different than the  
21 transit losses, which this is trying to get at here in  
22 this section, as I understand it.

23          Q.       This section of your report?

24          A.       Right, and the issue that Kansas is  
25 raising regarding transit losses.

1 Q. Also, the FSS doesn't prohibit the use of  
2 the model to calculate credits, does it?

3 A. The model is used to calculate the  
4 imported water supply credit. So implicitly it says it  
5 should be used for at least one credit.

6 Q. The Nebraska method doesn't use the model  
7 to calculate the credit, right?

8 A. The Nebraska method utilizes the model to  
9 the extent that the model is necessary to determine the  
10 net effect of operating the project. The FSS requires  
11 an augmentation plan to -- or credit to be calculated by  
12 using the accounting procedures and the groundwater  
13 model. And the groundwater model is used to the extent  
14 that it is needed to assess the impact of the  
15 groundwater pumping. And that result is fed into the  
16 accounting procedures. And then the rest of the  
17 information that's needed to account for the credit is  
18 also fed into the accounting procedures.

19 Q. If the FSS doesn't prohibit the use of the  
20 model to calculate depletions or credits, how is the  
21 Kansas approach prohibited by the FSS?

22 A. Well, it's inconsistent with the  
23 accounting procedures and the way that the accounting is  
24 done in the FSS, as it's currently put together. And  
25 what I mean by that is they're trying to compute transit

1 losses of certain waters that are entering -- primarily  
2 the transit losses within the main stem of the  
3 Republican River Basin.

4           And that's -- having subbasin flows come  
5 into the main stem of the Republican River Basin is  
6 something that's routinely accounted for within the  
7 accounting procedures, and never is there any  
8 computation of transit losses of that water. It's just  
9 aggregated as an inflow. I outline this in my report.  
10 It's simply the way the accounting procedures are done.  
11 They add all those subbasin flows up and then subtract  
12 that quantity from Hardy. So the assumption is that  
13 there are no transit losses.

14           Q.       So your answer to my previous question was  
15 based on consistency. You believe it's inconsistent,  
16 the Kansas approach is inconsistent?

17           A.       I'm just trying to remember your previous  
18 question. I just want to be sure.

19           Q.       I asked you if the model -- if the FSS  
20 allows the use of the model to calculate depletions and  
21 credits, how is the Kansas approach to calculating  
22 augmentation prohibited by the FSS? And your answer was  
23 based on consistency and lack thereof.

24                    So I just want to know where in the FSS is  
25 there a prohibition against the Kansas proposal other

1 than your opinion about consistency.

2           A.       Well, I think that certainly implicit, if  
3 not explicit, in both the FSS and the compact is the  
4 charge to properly account for the waters of the basin  
5 and the activities of man. So that applying one process  
6 to certain waters and another totally different process  
7 to other waters, without really being able to  
8 distinguish between the two -- because once the water  
9 flows into the main stem, it just joins up with the rest  
10 of the water, and we don't track the individual  
11 molecules going down the stream.

12                       So I think that would be prohibited in  
13 that it would be applying a very different standard to  
14 certain molecules that we aren't even tracking  
15 separately and don't really know which ones those are.

16           Q.       On pages 5 and 6 of your responsive  
17 report, you criticize Mr. Book's analysis of the limited  
18 data upon which he based his conclusions, right?

19           A.       Are you looking at some place in  
20 particular?

21           Q.       No, I'm not. It's just generally your  
22 critique of Mr. Book's analysis, largely, is based on  
23 the limited data he uses. Is that a fair summary of  
24 your -- one of your critiques of Mr. Book?

25           A.       Yeah. I mean, it certainly is not limited

1 to that. I note that he ignored -- as it says, he  
2 ignored several key points, and then I go on to discuss  
3 those.

4 Q. Right. Okay. Is the absence of  
5 conclusive data on transit loss, does that prove that  
6 there are no transit losses?

7 A. Well, I think -- here you're getting into  
8 something that's pretty fundamental to the scientific  
9 method. It's pretty hard to prove the negative, but  
10 you're always trying to draw a body of evidence that  
11 proves a hypothesis that you may have, that trends and  
12 losses don't exist. You can have a lot of evidence that  
13 shows that that hypothesis is true. At some point, you  
14 may find evidence that would negate that, but I think  
15 the point is that the evidence that exists certainly  
16 would support the hypothesis that losses are de minimis.

17 Q. In the third paragraph on page 6, you  
18 state: "More fundamentally, it is not consistent with  
19 the RRCA Accounting Procedures to account for transit  
20 losses." Do you see that?

21 A. I do.

22 Q. In making this statement, you're speaking  
23 about the surface water accounting, correct?

24 A. Yes.

25 Q. Now, you would agree that there are losses

1 in the system?

2 A. I would agree that there is certainly data  
3 that can be evaluated that suggests that transit losses  
4 do occur in the main stem of the Republican River. I've  
5 seen that phenomenon in many different years.

6 Q. And based on your answer, your reliance on  
7 that data, you would opine that there are losses in the  
8 system?

9 A. Again, I was trying to be specific to the  
10 Republican River main stem. I haven't looked more  
11 specifically at other subbasins for losses within those  
12 streams, but, certainly, we can look at the gauge data  
13 from the subbasins and the gauge data for downstream  
14 main stem gauges and at least see indications that  
15 transit losses may be occurring at some times of the  
16 year, during many times in the past.

17 Q. I appreciate the corrections to the  
18 Republican. I didn't mean to be vague by "the system."  
19 Appreciate that.

20 What's the effect of these losses in the  
21 basin?

22 A. Well, as I lay out in my report on pages 7  
23 and 8, if we were actually quantifying these losses,  
24 then we would need to make an adjustment to the main  
25 stem accounting procedures for the virgin water supply

1 in the main stem, so that we aren't subtracting that  
2 total amount of flow into the main stem from these  
3 subbasin gauges.

4           In other words, we would correct the  
5 assumption that all of that water was either getting  
6 down to the outlet of the main stem or being consumed  
7 along the way. And the effect of that, if we did  
8 quantify those transit losses, would be to reduce the  
9 amount of the subbasin gauge flow that we would be  
10 subtracting from the Hardy gauge. Mathematically, that  
11 would produce a larger virgin water supply for the main  
12 stem and a larger allocation of that virgin water  
13 supply. Because it's a larger number, splitting it up  
14 gives us larger allocations to the two states that  
15 receive an allocation on the main stem, Kansas and  
16 Nebraska.

17           Q.       Let me try to bring you back to the  
18 question.

19                    Isn't it true that the effect of these  
20 losses is to reduce the computed water supply?

21           A.       I think that's another way of saying what  
22 I just said. If there's a loss that is actually  
23 occurring, and we aren't -- and it hasn't been  
24 incorporated into these computations that we do in the  
25 accounting procedures, then we are artificially

1 deflating the virgin water supply in the main stem by  
2 subtracting that total amount instead of some amount  
3 minus any losses that occur along the way.

4 Q. And that's your opinion about what's wrong  
5 with the accounting procedures?

6 A. Well, I haven't stated specifically that  
7 there needs to be a change to the accounting procedures  
8 to address transit losses. It's a fairly complex issue  
9 because of all the dynamics of the system between the  
10 subbasin gauges and the outlet. In particular, there is  
11 consumption that occurs. So it's something that would  
12 take a good bit of study to unravel and to deal with in  
13 terms of what losses are occurring to which portions of  
14 that subbasin water, because some of it comes in all the  
15 way up at the Colorado state line. Some of it comes  
16 directly into Harlan County Lake, for example, at  
17 Prairie Dog Creek.

18 So the opportunity for those transit  
19 losses would be different depending on the water we are  
20 dealing with. So the extent to which those occur would  
21 have to be pretty thoroughly studied. Then if we did  
22 that and came up with good estimates for those transit  
23 losses, probably on something less than an annual  
24 basis -- but then we could aggregate it to the annual  
25 accounting that we do -- then we could introduce that

1 into the accounting.

2 I guess the broader point that I'm making  
3 is that we haven't taken that step.

4 Q. Isn't it true that the losses in the basin  
5 system indirectly affect the accounting?

6 A. I think that's exactly what I've been  
7 saying.

8 Q. Thank you for that.

9 Moving to Section 2.2 -- actually, no -- I  
10 guess we're still on 2.2 -- getting to a subject  
11 apparently you've been anticipating with great  
12 enthusiasm, transit loss, what is your definition of  
13 transit loss?

14 A. Well, I think it could be defined in a  
15 variety of ways. I think that we probably would think  
16 of it in this context: As water that's lost from one  
17 point in the system to another point that isn't  
18 otherwise accounted for as consumptive use.

19 The consumptive use itself would be  
20 thought of as a transit loss from someone standing down  
21 at point B and wondering how much water is going to come  
22 down. So I suppose we could define it several different  
23 ways. But I think what we're talking about is, after  
24 taking into account the consumptive uses, any other  
25 losses of that water, for whatever reasons those losses

1 occur between some point and another point downstream.

2 ARBITRATOR FEREDAY: Mr. Griggs, if I  
3 could interject here, just so I'm not getting confused.

4 Dr. Schneider, transit losses, that term  
5 is a term that applies to surface water flows or not?  
6 Is that how you see it, it applies to surface water  
7 flows?

8 THE WITNESS: Yes.

9 ARBITRATOR FEREDAY: So when we're talking  
10 about transit losses, at least from your point of view,  
11 we're talking only about waters that might be in a  
12 surface stream and ultimately measurable by -- flows  
13 that would be measurable by a gauge. Transit losses  
14 would then be reflected in a lower gauge reading?

15 THE WITNESS: That's right.

16 ARBITRATOR FEREDAY: Sorry.

17 MR. GRIGGS: No problem.

18 Q. (By Mr. Griggs) And your definition of  
19 transit loss includes or excludes CBCU?

20 A. Well, I guess what I'm saying is that I  
21 could define it either way.

22 Q. I'm asking how you would define it. What  
23 is your definition of transit loss?

24 A. Well, I think what we're getting at is:  
25 How would we look at that in the context of the

1 accounting procedures, which already address consumptive  
2 uses, to the extent they do. There are some de minimis  
3 consumptive uses that are ignored by the accounting  
4 procedures as well.

5 Q. Just before we go there, I'd appreciate  
6 your effort to march through your own record. I have a  
7 pedestrian question: What is your definition of transit  
8 loss?

9 A. Well, what I'm trying to tell you as a  
10 general matter -- and I'm not trying to be difficult --  
11 but I'm telling you that I could define it a number of  
12 ways depending on what we're doing.

13 Q. So that transit loss depends on the  
14 situation in which you are analyzing a difference in  
15 gauge readings?

16 A. It just depends on the objective, what  
17 we're trying to do. So I don't want -- this isn't the  
18 Schneider method, so to speak, but what I'm saying is,  
19 within the context of the RRCA accounting procedures,  
20 there's things that we already do account for. And if  
21 we wanted to -- if I were to make a definition of  
22 transit losses, given those things that are already  
23 defined, it -- that's what it would be: Losses caused  
24 by other factors that aren't already accounted for in  
25 the accounting procedures.

1 Q. I appreciate that. The model considers  
2 evapotranspiration?

3 A. Yes.

4 Q. The model considers changes to  
5 evapotranspiration?

6 A. Yes, it does.

7 Q. The model considers loss to storage in its  
8 calculations, correct?

9 A. Yes.

10 Q. The model considers changes in storage,  
11 correct?

12 A. Yes, it does.

13 Q. The model considers stream levels in its  
14 calculations, doesn't it?

15 A. The model has a stream network that routes  
16 the streamflows; and based on the flows that are routed  
17 into a given section, it would have a corresponding  
18 water level in the stream that it then uses to assess  
19 the interaction between the stream and the aquifer.

20 Q. And the model considers changes in stream  
21 levels in its calculations; isn't that correct?

22 A. That's what I was just describing, I  
23 think, yeah.

24 Q. The model was designed to assess streambed  
25 leakage?

1           A.       Well, the model was designed to be a tool  
2 that we could use to compute the imported water supply  
3 credit and the groundwater CBCU. Particularly from the  
4 groundwater CBCU, that could occur by one of two  
5 mechanisms: Either you have less water getting to the  
6 stream than otherwise would have gotten there, or you  
7 can have the actual withdraw of water from the stream.  
8 In other words, there's water in the stream and it moves  
9 back into the aquifer because of pumping that exists or  
10 other factors. So, for that, it has to have the  
11 potential for water to enter into the stream and leak  
12 back out of the stream, into the aquifer.

13           Q.       I don't want to ask the same question  
14 twice and be chastised, but the model also was designed  
15 to assess seepage, correct?

16           A.       I think you're talking about the same  
17 thing.

18           Q.       Isn't it true that the model considers all  
19 of these losses to a gaining stream as a reduction in  
20 gain?

21           A.       Well, I'm just pausing because I'm  
22 thinking through your question.

23                    If it were a fully gaining stream, I don't  
24 think, by definition, there would be a reduction in  
25 gains. I suppose if you mean between two scenarios,

1 where, in one situation, it was gaining a certain amount  
2 and then, with groundwater pumping, it was gaining  
3 less -- that's what the model could do for us, yes.

4 Q. And such a reduction in gains would be a  
5 loss, correct?

6 A. I mean, again, I'm not trying to get  
7 wrapped up in semantics, but I guess you could call it  
8 that.

9 Q. Given that the model considers all of the  
10 things I've just asked you about, why doesn't Nebraska  
11 just use the model?

12 A. Well, it's because we don't use the model  
13 to route surface flows through the system, as I  
14 discussed before. We have stream gauges that measure  
15 the surface flows in the system, and that water is  
16 measured as it moves through the system. There's water  
17 that flows out of Rock Creek every year. And we don't  
18 use the model to determine how much of that we're going  
19 to include in the accounting, for example, for some  
20 various reasons.

21 That's -- you don't do anything with the  
22 model in that sense to say how much of that water got  
23 downstream and how much of it was transit losses? And  
24 this goes back to my previous discussion that we could  
25 use some type of tool to do that, and then make the

1 appropriate modifications to the accounting procedures  
2 to account for transit losses of surface water. But we  
3 don't do that.

4 Q. Isn't it true that Kansas proposes only to  
5 give credit for augmentation water that is not lost?

6 A. Well, I think they would like to assess it  
7 some transit loss, yes.

8 Q. And you oppose that position?

9 A. Yes.

10 Q. Because of your approach to transit loss?

11 A. No, it's because of the inherent nature of  
12 the compact accounting that we do. As I've said before,  
13 there certainly are losses that occur. The extent to  
14 which those losses is occurring is a complicated matter.  
15 But I wouldn't argue that they are occurring. It's just  
16 that we don't account for them right now.

17 If we wanted to account for all of the  
18 transit losses in the system, then I wouldn't argue with  
19 doing such a thing for the augmentation water, because  
20 we would have a transit loss mechanism incorporated into  
21 the accounting. So you're kind of trying to do an  
22 apples and oranges thing where you're saying all the  
23 normal surface water, they're treated like apples, but  
24 we're going to treat this water like oranges.

25 Q. Is groundwater that is pumped out of the

1 ground, placed into a stream, and then recategorized as  
2 surface water through the acts of man the same as all of  
3 the other water in the basin?

4 A. Well, once we put it into a stream, it  
5 certainly looks the same as all of the rest of the water  
6 that's flowing down those streams.

7 Q. But that water is placed into the stream  
8 not by natural hydrological processes and the processes  
9 that the model was designed to evaluate, but by  
10 physically pumping water and then discharging that into  
11 the stream, correct?

12 A. That's true.

13 Q. And even though that process by which  
14 augmentation water is pumped out of the ground,  
15 recategorized as surface water and placed into Rock  
16 Creek is different than any other process in the basin,  
17 you believe it should be treated the same way as the  
18 other surface waters in the basin?

19 A. Well, any activity that we undertook to  
20 ensure compact compliance would, by definition, put  
21 water into the stream, whether it was a reduction in  
22 groundwater pumping or the lease of surface water from a  
23 reservoir that would be released downstream. Those  
24 could all be activities of man from a compact compliance  
25 standpoint. And I'm simply saying those wouldn't be

1 assessed transit losses because the accounting doesn't  
2 do that, and this water shouldn't be assessed transit  
3 losses for that same reason.

4 Q. Isn't it true that baseflows are part of  
5 streamflow?

6 A. Yes, that's correct.

7 Q. And aren't they routed by the model?

8 A. Yes, the model does route water within it.  
9 It's not the actual baseflow. I think we should be  
10 careful. It's the model-estimated baseflow. So it's  
11 not what's actually baseflow in the system. In a lot of  
12 cases, it does match that fairly well, but it's not  
13 necessarily the same thing.

14 Q. Isn't it true that the Kansas procedure  
15 does not affect Nebraska's CBCU calculation?

16 A. I think that's how I understand it. You  
17 know, it hasn't been presented very completely. We  
18 haven't received like a modification to the accounting  
19 procedures, for example. So I think that's how I  
20 understand it. It just hasn't been laid out there very  
21 completely. So I want to caveat that.

22 Q. I understand. The Kansas procedure only  
23 affects the augmentation, correct?

24 A. That's my understanding, that they're  
25 trying to compute transit losses of the water that's

1 pumped into the stream by the augmentation project.

2 Q. Turning back to your report, the same  
3 page, page 6, the third full paragraph, you state:

4 "While one can try to assess transit losses of  
5 augmentation water between the point of delivery and the  
6 accounting point for streamflow in the Rock Creek  
7 subbasin, the data do not support the conclusion that  
8 any augmentation water is being 'lost' in the Rock Creek  
9 subbasin."

10 Do you see that?

11 A. I do.

12 Q. What is the database for your conclusion?

13 A. Well, I think it's discussed above in this  
14 report. We don't have an extensive set of data, as this  
15 project has began operating this year, but we have taken  
16 a number of measurements that, as I've discussed here,  
17 don't indicate any transit losses, in my view.

18 Q. And I know earlier witnesses have  
19 testified to this, but what is the historical range of  
20 data that you've used to make this conclusion about  
21 transit loss?

22 A. Well, I don't know that this has been  
23 addressed earlier. There's a number of specific stream  
24 measurements that the Department has undertaken to try  
25 to better understand this situation. And we've had our

1 field office in the field about monthly since the  
2 augmentation project began operating in March. So those  
3 would be the data that we've looked at previously, like  
4 the Rock Creek gauge, but also a number of in-channel  
5 measurements by field personnel at various points along  
6 the stream. And it's the same type of data that's  
7 summarized in Mr. Book's report. I mean, that's where  
8 he got that data.

9 Q. And those measurements are from the spring  
10 of 2013?

11 A. Yes.

12 Q. And I deposed you on this. It was a  
13 series of stream gauge measurements done by the NR  
14 personnel between, say, March and May of 2013; is that  
15 about right?

16 A. I think that is the range of the data that  
17 we were talking about then.

18 Q. Do you recall the comments made by the  
19 people who took that data about the conditions in the  
20 stream at the time of their measurements?

21 A. I don't recall specific -- I'm not sure  
22 what you're getting at.

23 Q. That's fine.

24 This project, if it's approved, will be  
25 permanent, correct?

1           A.       Yes.

2           Q.       As a scientist who believes in the  
3 scientific method, as you've earlier stated, is it your  
4 conclusion that three months of stream measurements  
5 under various conditions supports your conclusions for  
6 the life of the entire project?

7           A.       Well, I think the way I've characterized  
8 that scientific method, as you said before, is that it  
9 would be open to new information. And so we could  
10 continue to collect information. And if that finding  
11 that seems very clear right now were to change in time,  
12 the RRCA is set up to address those things.

13                   The accounting is approved annually by the  
14 compact administration. And that provides the  
15 administration the ability to raise issues about the way  
16 in which things are accounted for on an annual basis,  
17 and really the ability not to approve that accounting  
18 unless they're satisfied that the current accounting  
19 procedures or the accounting procedures as they may be  
20 modified under this plan are modified, if they feel they  
21 should be.

22                   So we did that very thing with regard to  
23 our accounting issue regarding the groundwater model,  
24 once we discovered it and discovered that we were being  
25 charged with consumption of imported water. And

1 Nebraska has not been willing to approve any annual  
2 accounting because we felt that needed to be corrected  
3 first. And any State would have that opportunity.

4 Q. Coming back to the Rock Creek project,  
5 based on your answer to my previous question, would  
6 Nebraska be willing to subject this augmentation plan to  
7 suspension or to cancellation if the data from these  
8 streams that you took in March through May turned out to  
9 be lacking?

10 A. Well, you're creating quite a  
11 hypothetical. I don't know exactly what type of  
12 situation we'd be in and exactly how convincing that  
13 data may be, and we can't freeze time. I mean, in the  
14 same way that we've -- while not approving the data  
15 since 2006, we have worked under that accounting to  
16 ensure compliance with that accounting since 2006. So I  
17 think that, you know, while you can't freeze time,  
18 things are still going to happen, and the States would  
19 need to work with what they have, that there would  
20 always be opportunity to look at that.

21 And I think we've talked about -- because  
22 Kansas threw out the number of 20 years as a time when  
23 it might need to be reviewed. Making sure that we have  
24 a review at that point, I think we would be willing to  
25 do. But I think we would welcome discussion any year at

1 the compact administration meetings.

2 Q. Thank you.

3 Do you also believe there will not be  
4 losses in the mainstream reach above Swanson Reservoir?

5 A. Well, I think I already testified, and I  
6 certainly believe that the data indicate that there are  
7 transit losses in that reach, at least they suggest  
8 that. I mean, there are things that are also going on,  
9 like computed beneficial consumptive use due to  
10 groundwater pumping and diversions, pumping out of the  
11 stream by surface water users. So that would all have  
12 to be looked at in total to try to figure out just what  
13 was transit loss and not those other factors. But I  
14 think -- you put your graph up there before.

15 Q. Right.

16 A. I think that would lead one to the  
17 conclusion that that's something that might need to be  
18 looked at, and for all of the water.

19 Q. What do you mean by "all of the water"?

20 A. What I mean is there's water that flows in  
21 from the North Fork of the Republican River and gets  
22 logged in there at a compact gauge. There's Buffalo  
23 Creek and there's Rock Creek on the north side of the  
24 river. There's the Arikaree River on the south side,  
25 and there's the South Fork when it's flowing.

1                   So, you know, there's various amounts of  
2 water coming out of those tributaries every year. So if  
3 we're going to deal with this transit loss issue, we  
4 should do that for all of the water. It's all water,  
5 and it should be accounted for in a similar manner.

6                   Q.        What reason would Kansas have to approve  
7 credit for water that does not survive the transit  
8 losses you've discussed?

9                   A.        Well, as I lay out in my report, under the  
10 current accounting procedures, because we do not have a  
11 transit loss assessment, it assumes all of that water  
12 gets downstream. So Nebraska is essentially forced to  
13 make sure that that amount of water gets downstream,  
14 otherwise we create a bigger hole for ourselves.

15                            In other words, if we're bringing in, say,  
16 10,000 acre-feet of water on Rock Creek and we get a  
17 credit to make up a 10,000 acre-foot deficit, for  
18 example, if that water doesn't make it -- let's say none  
19 of that water makes it downstream to Kansas. So that  
20 would then necessarily, by the current accounting  
21 procedures, be subtracted from the main stem gauge, and  
22 the water supply would shrink on us.

23                            Thus, our allocation would shrink, and you  
24 get caught in this never-ending catch-up game of not  
25 having that much water down there, so your allocation

1 shrinks. So you have to provide more. If that water  
2 doesn't get there, you shrink your allocation again, and  
3 so on and so on.

4           Eventually that difference would be very  
5 small, but the point is that it would absolutely not be  
6 in our advantage, under the current accounting  
7 procedures, to have that amount of water show up for  
8 Kansas. And that's why this is really a total package,  
9 I think as I've described, with the compact call year  
10 operations that are outlined in the integrated  
11 management plans. We're not trying to provide  
12 physically that exact water. We're not trying to take  
13 water out of that pipe and make sure it flows all the  
14 way down the system to Kansas.

15           What we do is start surface water  
16 administration early in the year, and we start bringing  
17 water downstream so it's there and ready to deliver.  
18 Then this augmentation water just kind of backfills the  
19 system. It's also been known as front-loading, bringing  
20 that water down early, making sure we're not going to  
21 dig ourselves a bigger hole by having this water cross  
22 the Rock Creek gauge and not making it downstream and  
23 causing another problem for us.

24           Q.       You brought up your example of  
25 10,000 acre-feet on page 9. You've done an excellent

1 job of anticipating my questions, so my compliments to  
2 you.

3           You do give this example in the last full  
4 paragraph on page 9 of the effect of unaccounted for  
5 losses under Nebraska's approach. Do you see that  
6 example?

7           A.       Right.

8           Q.       And as you've just described, you  
9 suggested, if 10,000 acre-feet is delivered for credit,  
10 and all of that water is lost downstream, then it's  
11 still properly reflected in the accounting; is that  
12 right?

13          A.       I'm not arguing for the validity of the  
14 accounting in terms of whether or not it's accurately  
15 reflecting transit losses. What I'm saying is that it  
16 assumes there are none. That's just what we have all  
17 set up and the States have agreed to. And I'm just  
18 pointing out the result.

19          Q.       And the effect of that accounting is that  
20 the computed water supply and the States' allocations  
21 are reduced by that amount, right?

22          A.       That's what I was just explaining, yeah.

23          Q.       I appreciate you walking me through this.  
24                    And that would reduce Nebraska's  
25 allocation by 5,110 acre-feet?

1 A. It's the other way around, I think.

2 Q. Okay.

3 A. We're allocated 48.9 percent.

4 Q. What happens to Kansas's allocation?

5 A. It would also be reduced.

6 Q. Why didn't you mention that effect on  
7 Kansas in your example?

8 A. Well, I guess I thought it was obvious  
9 that the real loss is to Nebraska, because then we have  
10 to provide more water to make that up. So, you know, we  
11 have to balance this out with regard to water delivered  
12 to Kansas. So if we're trying to achieve a 10,000  
13 acre-foot goal, and it only achieves 5,110, as I point  
14 out in this example, then we miss by a pretty  
15 significant amount, and would have to provide Kansas  
16 more water.

17 So it was -- maybe I should have explained  
18 that a little bit more, but, in my mind, it was inherent  
19 that the real problem there isn't for Kansas because the  
20 compact still requires us to provide their allocation,  
21 but we wouldn't hit the mark.

22 Q. So in your illustration, subtracting the  
23 4890 acre-foot from the 10,000 acre-foot, there's still  
24 a net benefit to Nebraska under this calculation,  
25 correct?

1           A.       That's correct. That's not unique to this  
2 water, though. This is how all the water is accounted  
3 for that comes out of the subbasins.

4           Q.       Yet, under your example, there's no water  
5 delivered to Kansas, correct?

6           A.       That's the way it's laid out, yeah.

7           Q.       Under the Kansas method, what would happen  
8 under your facts?

9           A.       I guess I'd have to run the model for a  
10 given year.

11          Q.       Okay. We won't ask you to do that here.

12          A.       I'm not set up for that. Sorry.

13          Q.       But isn't it true that there wouldn't be  
14 any credit for Nebraska under the Kansas method?

15          A.       Well, this talks about Hardy, I think.  
16 What Kansas is proposing is just to track transit losses  
17 down to Swanson Reservoir. That's my understanding of  
18 what they're trying to do.

19          Q.       And is it your belief that, under the  
20 Kansas method, there wouldn't be any impact on the  
21 computed water supply?

22          A.       Well, that gets into a number of  
23 questions. The big one is whether or not the model is  
24 actually reflecting reality with regard to how much of  
25 that water actually does make it downstream. That may

1 or may not be the case. It's not -- this model wasn't  
2 calibrated for this type of a use.

3           It was calibrated for the historic  
4 conditions in a fairly gross sense to represent the  
5 impacts of a large amount of groundwater pumping that's  
6 distributed regionally, as well as a large stress from  
7 the imported water or the mound area. And they didn't  
8 try to make sure that this model was calibrated to slug  
9 water down the river, so to speak, and properly reflect  
10 that it would account for it in any manner that would in  
11 any way be reflected in reality.

12           That's something that could be done  
13 with -- this probably isn't the tool that I would  
14 choose, a routing model like this, but certain types of  
15 routing models could be developed using real data and  
16 calibrated so that you could use it, but that's not what  
17 they did with this model.

18           Q.       Thank you.

19           MR. GRIGGS: Your Honor, my next line of  
20 questions involves an exhibit that we have some glitches  
21 trying to get up. We've been going for about an hour  
22 and five minutes, if we could have a break to iron out  
23 the glitches.

24           ARBITRATOR FEREDAY: Let's take a break  
25 for five minutes.

1 MR. WILMOTH: For the record, we've been  
2 operating under the assumption that, while the witness  
3 is in the stand, the witness should be sequestered.  
4 We've not had any contact with any of our witnesses, and  
5 we're proceeding under that foundation. I assume that's  
6 true with all witnesses.

7 ARBITRATOR FEREDAY: Sequestered in the  
8 sense of not communicating during breaks?

9 MR. WILMOTH: Yes.

10 ARBITRATOR FEREDAY: Yes. I appreciate  
11 that, and that's my understanding.

12 (A recess was taken.)

13 Q. (By Mr. Griggs) Now I'm going to turn to  
14 Section 3.2 of your report, where you discuss new net  
15 depletions versus historic consumptive use.

16 Before we get started on that, I put on  
17 the screen Exhibit J68, which is the second report of  
18 Special Master McKusick. Are you familiar with this  
19 report?

20 A. Generally, yes.

21 Q. Returning to page 44 of the report, and  
22 specifically footnote 92.

23 ARBITRATOR FEREDAY: Excuse me,  
24 Mr. Griggs. You said J68 is in which binder? I see.  
25 Okay.

1 Q. (By Mr. Griggs) This is small print, but  
2 we're expanding it. If you could review that language,  
3 footnote 92.

4 MR. WILMOTH: Mr. Griggs, I have a copy of  
5 that document.

6 MR. GRIGGS: Sure, whatever is easy,  
7 please.

8 THE WITNESS: I've reviewed it.

9 Q. (By Mr. Griggs) This is a footnote by  
10 Special Master McKusick that parses the augmentation  
11 exception to the FSS, isn't it?

12 A. That does what? I'm sorry.

13 Q. That parses, that summarizes, the  
14 augmentation exception to the FSS, Section III.B.1.K.

15 A. It looks like the description that Hal  
16 Simpson provided at the hearing.

17 Q. That's correct.

18 A. Yes, I'm familiar with that.

19 Q. And it's here memorialized by the Special  
20 Master.

21 A. I understand.

22 Q. And in this note, Special Master McKusick  
23 explicitly cites the agreement of the States that  
24 augmentation wells shall eliminate the consumptive use  
25 of water by the wells devoted to augmentation, correct?

1 A. I see those words there, yes.

2 Q. Do you have any reason to believe that the  
3 States were not in agreement about that position in  
4 2003?

5 A. I don't.

6 Q. Isn't it true that the Rock Creek  
7 augmentation plan causes new depletions outside of  
8 compact delivery years?

9 A. The modeling that we've done has shown  
10 that it would cause some minimal depletions, yes.

11 Q. And that these depletions are offset by  
12 300-acre-foot-a-year maintenance flows, correct?

13 A. Yes.

14 Q. And based on Nebraska's proposal, if the  
15 300-acre-foot-a-year maintenance level is too low, then  
16 Nebraska could increase that level of maintenance  
17 pumping, correct?

18 A. Well, we would. There was a commitment.

19 Q. Thank you.

20 The Rock Creek plan is currently limited  
21 only by its physical capacity of 20,000 acre-feet,  
22 correct?

23 A. The project currently is. The plan is  
24 limited to that value on an annual basis.

25 Q. Go back to your responsive report now, at

1 page 12, the second full paragraph. You see that  
2 paragraph? It begins with "Nebraska's  
3 conceptualization."

4 A. Yes.

5 Q. So it's your position that the FSS does  
6 not require any limit on historic CBCU, correct?

7 A. The limitation provided is on the new net  
8 depletions. Certainly, elimination of some consumptive  
9 uses would, and does, go a long way towards achieving  
10 that, and that's a large part of the design of the  
11 project and the plan.

12 Q. I understand that, but isn't it the case  
13 that your position here is that the FSS does not require  
14 a limit on historic CBCU?

15 A. That's right. I feel that because the  
16 drafters of that document took the time to formalize a  
17 definition of that term and utilize it where they felt  
18 appropriate, that --

19 Q. Which term?

20 A. Historic consumptive use.

21 -- that if they had intended very strictly  
22 for that to be applied, it would have been a very simple  
23 matter to just have it say that.

24 Q. You refer to historic consumptive use.  
25 Did you mean historic consumptive beneficial use?

1           A.       I think the term is "historic consumptive  
2 use." I could check.

3           Q.       You're correct. I'm incorrect in my  
4 question. I'm sorry about that.

5                    Is it also your position the FSS does not  
6 require any limit on -- forget it.

7                    You give an example of 15,000 acre-feet  
8 per year in one of your hypotheticals. Isn't it true  
9 that that figure could in fact be much higher than  
10 15,000 acre-feet?

11           A.       Under the plan, it could be as much as  
12 20,000 acre-feet. I don't know if I'd call that much  
13 higher. That's why I just said what it is.

14           Q.       But if the FSS does not require any limit  
15 on historic CBCU, then, theoretically, based on your  
16 position, an augmentation plan could conceivably have no  
17 limit, right?

18           A.       Well, as I think we discussed earlier --

19                    MR. WILMOTH: I'm sorry. Is that a  
20 hypothetical question, or are we talking about the Rock  
21 Creek plan? Are we talking about the plan that's in  
22 front of you, or are we talking about, is it conceivable  
23 that some plan could have an unlimited volume?

24                    ARBITRATOR FEREDAY: I think he can go  
25 ahead and answer the question. If he feels that he has

1 inadequate factual foundation for formulating an answer,  
2 he should say so.

3 MR. WILMOTH: Thank you.

4 THE WITNESS: I think -- I'll try -- my  
5 view, as I think I explained to you before in a  
6 deposition, is that it certainly provides a practical  
7 limit in that simply requiring a small use very close to  
8 a stream and expanding that use a great deal by pumping  
9 for augmentation would not be beneficial. So it's just  
10 a type of a project like that that causes a large amount  
11 of new depletions. Relative to the pumping, it wouldn't  
12 really be beneficial at all.

13 So it creates a situation where it's  
14 beneficial to retire existing use so that that assists  
15 in the goal towards limiting new depletions. And it  
16 also kind of requires the project to be located in a  
17 manner that, regardless of the use of a well in that  
18 area, it would have a small amount of stream depletion  
19 for a given amount of pumping. In other words, it would  
20 pump mostly storage water from the aquifer, so that  
21 there would be a large delta, so to speak, between what  
22 you're providing to the stream versus any new depletion  
23 that may happen to occur.

24 ARBITRATOR FEREDAY: Excuse me,  
25 Mr. Griggs, I have just a question.

1                   Dr. Schneider, when you're using the term,  
2 when you just there used the term "beneficial," I take  
3 it you're not using that in the same sense as computed  
4 beneficial consumptive use. You just mean beneficial to  
5 your augmentation plan because it might have greater  
6 impacts in terms of net depletions? Is that the sense  
7 that you used that term "beneficial"?

8                   THE WITNESS: Yes. I meant beneficial in  
9 terms of helpful to ensure compact compliance in  
10 general, yes.

11                  Q.           (By Mr. Griggs) You were here in the room  
12 when Dr. Fanning testified earlier this morning?

13                  A.           Yes, I was.

14                  Q.           And you heard him testify that, under his  
15 understanding of this project, it could be extended  
16 further?

17                  A.           I think -- yeah, I did hear that. My  
18 understanding of what he was saying was that it was  
19 physically possible for the project.

20                  Q.           Would there be any limits imposed by  
21 Nebraska DNR on the expansion of a project in the  
22 future?

23                  A.           Well, I think we would make it clear to  
24 them that we only have a plan that covers 20,000  
25 acre-feet per year. So that if they were going to

1 expand it, we would either resubmit a plan, an expanded  
2 plan, an amended plan, or that any additional pumping  
3 that occurred due to that expansion would not be covered  
4 under the plan. It would just be treated like the  
5 pumping that's occurring this year, where it increases  
6 the virgin water supply.

7 Q. Now, III.B.1.k of the FSS, as you well  
8 know, requires that augmentation pumping be limited to  
9 cause no new net depletions, correct?

10 A. Yes.

11 Q. And it's the intent of your plan to have  
12 maintenance pumping take care of new net depletions,  
13 correct?

14 A. As necessary. And we pledged to do 300  
15 acre-feet per year, for the reason that that's something  
16 that can only be determined -- I'm sorry, when I say  
17 something, if there are new depletions being caused,  
18 that can only be determined after the fact.

19 If you look at the data and the analyses  
20 that we conducted, there are many years where, under the  
21 scenario that we set up, there's actually a net  
22 accretion because the project isn't operated for a  
23 certain period of time and the retirement of the  
24 groundwater pumping starts to have some benefit to  
25 streamflow, so that we don't know the pattern in which

1 this will be operated, but we do know it's possible that  
2 we may get into a situation where those new depletions  
3 slip into the positive position.

4           The analysis that we did was to try to  
5 assess the scope of what those might be, based on what  
6 we feel is a pretty realistic potential operation of the  
7 project. It may be that, in many years, those  
8 maintenance flows were not even needed because, as we  
9 assess the modeling, and I guess -- I mean, I can  
10 describe that, if you want. It's basically looking at  
11 the retirement of those -- kind of tracking what would  
12 have happened if they hadn't retired the acres versus  
13 the depletions that actually happened under the new  
14 operations of the project.

15           And under the new operation, if it  
16 actually slips into the positive category in terms of a  
17 new depletion, then those maintenance flows are there to  
18 cover it. We're not trying to cause new depletions. So  
19 I don't want to leave you with that impression. It's  
20 just that we want to ensure that we avoid them by  
21 providing for those.

22           Q.       Thank you.

23                    Are depletions from augmentation pumping  
24 CBCU?

25           A.       Yes, that would be included in the total

1 groundwater CBCU. That's what we use the model for  
2 under the plan.

3 Q. So when augmentation pumping is greater  
4 than historic consumptive use, wouldn't that pumping  
5 produce an increase in CBCU?

6 A. Well, that would depend. That's what, I  
7 guess, I was trying to describe. It's kind of an  
8 ongoing tracking. In a hypothetical, where the system  
9 isn't used for five or ten years -- so there's no  
10 pumping when there otherwise would have been under the  
11 irrigation operation -- and then it's used for one or  
12 two years at a level that's much higher than the  
13 historic average level, that still may not cause a new  
14 depletion in those years or even following years, but  
15 it's just that that could happen.

16 Q. So the purpose of the pumping under the  
17 Rock Creek plan is not for the sole purpose of compact  
18 compliance, but it's, instead, for curing depletions,  
19 correct?

20 A. Well, I think any pumping that occurs can  
21 assist us in compact compliance due to the multiyear  
22 averaging that occurs. So if we had to pump a little  
23 bit of water next year as a maintenance operation,  
24 that's going to be included in the averaging that's done  
25 for that year and up to five years later. So you

1 wouldn't know if there was some potential need to help  
2 compact compliance for up to five years later. So it's  
3 always a help in that regard.

4 Q. So is it your position that the FSS  
5 actually requires increased pumping to cover prohibition  
6 against no new net depletions?

7 A. It requires no new net depletions.

8 Q. Is it your position that the FSS requires  
9 increased pumping to prevent that?

10 A. It doesn't specify the particular manner  
11 in which it would be prevented. We've utilized a  
12 mixture of methods, which include retirement of historic  
13 consumptive use and the provision for a maintenance flow  
14 that would cover any new depletion that we might happen  
15 to uncover after the fact.

16 Q. So since in your approach, the FSS doesn't  
17 specify a manner by which those new net depletions would  
18 arise, increased pumping could be used to deal with that  
19 problem?

20 A. That's my opinion.

21 Q. And that's in spite of the moratorium in  
22 Section III of the FSS?

23 A. Yes.

24 Q. So the Nebraska approach to augmentation  
25 pumping actually requires more pumping than without

1 augmentation?

2           A.       Not necessarily. That could occur at some  
3 point in time, depending on what period of time you're  
4 averaging it over and that type of thing. And it  
5 certainly could occur in a given year, because the  
6 approach is to provide water, the most water that we can  
7 in the years that are really important, the dry years  
8 that have a potential problem with compliance.

9           Q.       And if that were to occur, this would make  
10 the augmentation wells for Rock Creek the only wells in  
11 the entire moratorium area that have no restrictions on  
12 them at all, correct?

13           A.       I guess I'm confused. It seems like  
14 you're confusing the moratorium on drilling of wells  
15 with the types of conditions that are placed on them.  
16 The moratorium is on new wells. It's not on expanded  
17 use.

18                        So, for example -- I'm not sure if I can  
19 come up with a situation, but there may be areas that  
20 aren't strictly covered by the moratorium outside of the  
21 300 that do have clear limitations on their use of those  
22 groundwater wells for their own management purposes.  
23 And those limitations were put into place following the  
24 signing of the FSS for compact compliance purposes, so  
25 that you could switch a crop, for example. And the

1 moratorium doesn't say you can't change your crop type.  
2 It says you can't drill a new well to accommodate that,  
3 if it's going to need more water.

4           So, certainly, there may have been some  
5 conditions immediately following the FSS, before certain  
6 conditions were put into place. I don't know. I'd have  
7 to think about it.

8           Q.       I understand.

9           A.       I guess my whole point is, we're talking  
10 about a moratorium on the physical activity of drilling  
11 wells and certain exceptions to that, not --

12          Q.       So let me get this straight. If your  
13 belief is that the moratorium is strictly devoted to  
14 wells, and does not speak to levels of pumping of those  
15 wells, then there is really no limit in the FSS to the  
16 pumping that could take place with augmentation wells?

17          A.       I think there's a limit on all wells  
18 collectively, as well as other uses, that we have to  
19 maintain them within our allocation.

20          Q.       But other than that, there's no limit?

21          A.       Well, we'd have -- I guess I'd have to  
22 think about that. I'm not sure what you're driving at.  
23 If you're talking specifically about augmentation wells,  
24 the limit is on no new net depletions.

25          Q.       Okay. Do the wells under this Rock Creek

1 augmentation plan have an allocation? Do they have  
2 allocations?

3 A. Not to my knowledge.

4 Q. You're familiar with the Nebraska  
5 counterclaim in Kansas v. Nebraska and Colorado,  
6 No. 126, Original, which asserts that the accounting  
7 procedures involve consumption of imported water from  
8 the Platte River Basin?

9 A. Yes, I am.

10 Q. And the consumption of that imported water  
11 supply is real, correct?

12 A. Well, the counterclaim has to do with how  
13 the model is used, and that the model is reflecting  
14 increased consumption being charged to Nebraska that is  
15 the result of imported water supply. I guess you'd have  
16 to tell me what you mean by the term "real."

17 Q. Is there actual consumption of the  
18 imported water supply under the current accounting  
19 procedures?

20 A. Yes.

21 Q. Isn't it also true that there is  
22 consumption of the augmentation water supply under the  
23 Nebraska proposal here on Rock Creek?

24 A. You're talking about the actual drops of  
25 water, or the volume of water?

1 Q. I'm talking about consumption of the  
2 augmentation water supply.

3 A. The volume of water?

4 Q. Actual consumption of the augmentation  
5 water supply, the supply produced by augmentation.

6 A. We're at a critical juncture here. The  
7 physical drops of water may be consumed. An example  
8 would be this year, as I described earlier, we set out  
9 our management actions and front-loaded the system with  
10 surface water through about June of this year. A number  
11 of surface water appropriations were opened at that  
12 point, so that the water, the physical volumes,  
13 molecules, the actual water coming out of Rock Creek,  
14 once those surface water appropriators were open, that  
15 water was available to them because we'd already brought  
16 the same volume of water downstream. So it's the  
17 distinction that I really need. I don't know how else  
18 to help.

19 Q. Well, I appreciate your efforts to help.  
20 Isn't it also true that, at least in part,  
21 that consumption of water is produced by augmentation  
22 pumping?

23 A. Well, certainly, I think I've described  
24 how we used the model in the process of accounting for  
25 the augmentation project by putting the pumping in the

1 model, as with all the rest of the pumping. And to the  
2 extent it causes CBCU, that's charged to the State.

3 Q. Do you recall Dr. Fanning's testimony  
4 earlier today when he stated that the Upper Republican  
5 NRD can store water produced by augmentation?

6 A. I recall him talking about that as a  
7 potential, that -- as I understand it, I don't know of  
8 any current agreements. I don't think that's what he  
9 was getting at. I think he was just talking about it as  
10 a potential management action that would help to  
11 optimize the availability of water and the most  
12 beneficial use of the water for Nebraska and for Kansas  
13 in terms of compact compliance.

14 Q. Does the Rock Creek augmentation plan as  
15 it's been submitted to the RRCA make provisions for  
16 storing augmentation water?

17 A. No.

18 Q. So if that water were proposed to be  
19 stored in the Upper Republican NRD, that would require  
20 an amendment to this plan?

21 A. It could. I haven't thought about that  
22 too much. I'd have to give that some thought. It  
23 could.

24 Q. Would it also require a change to the  
25 accounting procedures to account for that storage?

1 MR. WILMOTH: I don't mean to object to  
2 the line of questioning to the extent it's a  
3 hypothetical, but it mischaracterizes Mr. Fanning's  
4 testimony. He testified that they might be storing  
5 water downstream, in places like Swanson or Harlan. So  
6 to the extent that the premise was wrong, I want the  
7 record to be clear.

8 ARBITRATOR FEREDAY: Thank you,  
9 Mr. Wilmoth.

10 Counsel, I would admonish you to make sure  
11 that if you are stating a hypothetical based on previous  
12 testimony, that it be accurate. I do recall testimony  
13 from Mr. Fanning with regard to potential storage of  
14 this augmentation water. And beyond that, frankly, I  
15 can't recall whether he said that it would be stored or  
16 that it was just a potential. Nevertheless --  
17 Mr. Wilmoth's concern is, I think, justified.  
18 Nevertheless, you may go ahead with your question.

19 Q. (By Mr. Griggs) Duly admonished, let me  
20 split that into two separate questions.

21 If augmentation water is stored in  
22 existing storage vessels in the basin, reservoirs,  
23 whether federal or nonfederal, that would or would not  
24 require a change to the current proposal?

25 A. Well, it could, depending on the scenario.

1 I would note that this year, water has been stored.  
2 It's just that you're really confusing the issue about  
3 the augmentation water itself and delivering a volume of  
4 water equivalent to the augmentation water supply credit  
5 in order to actually ensure compliance.

6           So, certainly, there are some drops of  
7 water sitting in Swanson Lake right now that came out of  
8 this project, but significantly more than that water has  
9 already been taken downstream and is available to be  
10 further routed downstream for use in Kansas. So there's  
11 really -- I just don't understand the confusion about  
12 the drops of water, because I think I've been clear  
13 about the operation.

14           Q.       Let's turn back to your rebuttal report.  
15 Section 3.3 on page 13, you allege that Mr. Barfield's  
16 criticism -- I'm sorry, you note that Mr. Barfield, as  
17 criticizing Nebraska's procedures, is far from  
18 transparent. See that second to the last paragraph on  
19 page 13? It begins with "As to the second point." Do  
20 you see that?

21           A.       Yes.

22           Q.       Here you accuse Mr. Barfield of being the  
23 only person unable to comprehend the IMP's clear  
24 provisions. Are you aware that Kansas has requested the  
25 backup for Nebraska's forecast data for the IMPs, and

1 that Nebraska has refused to provide that data?

2 A. I'm aware there was a request back in  
3 December or January.

4 Q. Are you aware that Nebraska has refused to  
5 provide it?

6 A. There was no data provided. I would note  
7 that, really, anybody could complete the forecast with  
8 publicly available data.

9 Q. So it would be easy to provide?

10 A. You know, there was litigation, and I  
11 wasn't involved in that decision. But I do --

12 Q. Based on your understanding, Nebraska did  
13 refuse to provide it?

14 A. I believe that because of Kansas's lawsuit  
15 against Nebraska and the ongoing litigation, that that  
16 information was not directly provided.

17 Q. Turning to Section 3.6 of your report, the  
18 bottom of page 16, the top of page 17, you state that  
19 "Nebraska responded by attempting to construct an  
20 initial framework for the projects being considered."  
21 Do you see that language?

22 A. Yes, I do.

23 Q. And you allege that Mr. Barfield responded  
24 "that no such general framework could be considered by  
25 Kansas." Do you see that?

1 MR. WILMOTH: Mr. Arbitrator, while the  
2 witness is reading the document, if counsel are done  
3 with the picture on the screen, could we get our  
4 realtime feed back? You're going to use it again?

5 MR. GRIGGS: I can give you an estimate  
6 for when I'll come back to it.

7 MR. WILMOTH: Can we skip it for now?

8 MR. GRIGGS: Yes.

9 ARBITRATOR FEREDAY: I would like to have  
10 all counsel have their realtime transcription up on  
11 their screens. If that's not the case, it should be.

12 MR. WILMOTH: We were trying to make it  
13 convenient, but I think we can do it now. Thank you.

14 ARBITRATOR FEREDAY: All right.

15 Q. (By Mr. Griggs) Have you read that  
16 section, Dr. Schneider?

17 A. Yes, I have.

18 Q. Thank you for that.

19 Now, isn't it true that Kansas did provide  
20 a general framework for what Kansas considered -- could  
21 consider in the way of augmentation?

22 A. I think you're referring to Appendix F in  
23 my report.

24 Q. Why don't you take me there. Thank you.

25 A. It starts on page 50 of 53 for the

1 exhibit.

2 ARBITRATOR FEREDAY: Excuse me,  
3 Dr. Schneider, to which exhibit are you referring?

4 THE WITNESS: It's 20022.

5 Q. (By Mr. Griggs) It's Appendix F?

6 A. Yes. I guess I would just allow the  
7 e-mail from Scott Ross to speak for itself on what was  
8 provided.

9 Q. This is the only general framework that  
10 Kansas provided to Nebraska?

11 A. Aside from other responses after we had  
12 provided first that framework and then the actual plan,  
13 I don't know how to characterize those responses.

14 Q. But, clearly, you are not happy with this  
15 framework that's attached to Mr. Ross's e-mail? You  
16 don't believe that's satisfactory?

17 A. Well, I guess I would say that, based on  
18 the context it was presented in, it certainly didn't  
19 move the ball very far forward. To be finally opening a  
20 discussion on this at this time, after it had been  
21 assigned to the engineering committee 14 months earlier,  
22 was a bit frustrating.

23 Q. Let's come back to the issue of CBCU. Do  
24 you recall the 2009 arbitration before Mr. Karl Dreher  
25 on Nebraska's 2005, 2006 noncompliance?

1           A.       Yes, I do.

2           Q.       Do you recall the initial Colorado  
3 proposal for a pipeline on the North Fork of the  
4 Republican River?

5           A.       Generally.

6                   MR. WILMOTH: I'm sorry, Mr. Arbitrator,  
7 I'm confused. I just want to make sure -- counsel  
8 referred to this pipeline project. This wasn't before  
9 Mr. Dreher, I don't think. Did you --

10                   MR. GRIGGS: No, I can clarify that these  
11 were going on at the same time that Colorado was  
12 developing the proposal for its compact compliance  
13 pipeline on the North Fork Republican at the same time  
14 as the States were in arbitration over a different  
15 issue, Nebraska's 2005, 2006 compliance, as well as  
16 other issues.

17                           So I'm going to be talking about  
18 Nebraska's positions on augmentation generally, but  
19 we'll try to keep these things clear. I think you'll  
20 see where I'm going in a couple quick questions.

21                   MR. STEINBRECHER: I think, at this point,  
22 I need to register an objection on the record, that to  
23 the extent Mr. Griggs elicits any testimony from the  
24 witness about past proposals or Colorado's current  
25 proposals, Colorado objects. Those are subject to an

1 ongoing arbitration scheduled for hearing in October.  
2 Kansas has had an opportunity to -- would have an  
3 opportunity to depose Dr. Schneider, and we don't want  
4 this to be turned into another hearing on Colorado's  
5 proposals.

6 ARBITRATOR FEREDAY: Mr. Griggs, I too  
7 would be extremely reluctant to have testimony in this  
8 matter that would be aimed at resolving or illuminating  
9 some separate matter, except to the extent that there  
10 may be overlap or that that line of questioning is  
11 relevant to the issues here. And even then, if there  
12 are confidentiality agreements, of which I'm unaware, or  
13 similar restrictions, I would hope that counsel would  
14 explain that to me. I'm sure that Mr. Steinbrecher  
15 would. In other words, I'm concerned about the point  
16 that Mr. Steinbrecher makes.

17 MR. GRIGGS: And we are sensitive to it as  
18 well. Before I go forward, let me explain where I'm  
19 going with this, so there's transparency here.

20 The intent of this line of questioning is  
21 to get to Nebraska's position on CBCU with augmentation.  
22 It's not to conduct any sort of parallel proceeding on  
23 the current Colorado proposal.

24 ARBITRATOR FEREDAY: Mr. Steinbrecher.

25 MR. STEINBRECHER: I would like to add to

1 the previous objection. I don't believe that  
2 Mr. Schneider has discussed Colorado's plans, either in  
3 his reports or in his testimony. I think, at best,  
4 there's a passing reference to the fact that they  
5 existed. So to the extent that Mr. Griggs seeks to get  
6 to that point by comparison of the two plans, Colorado  
7 would still object.

8 ARBITRATOR FEREDAY: I understand your  
9 objection. It's duly noted. And I would expect that  
10 the witness will testify based on what he knows, and  
11 that counsel for Kansas will keep to his word and avoid  
12 importing into this proceeding matters that don't  
13 belong.

14 By the way, Mr. Griggs, I see you've got  
15 Kansas 18 up for consideration.

16 MR. GRIGGS: Yes. Thank you.

17 Q. (By Mr. Griggs) Do you recall this  
18 proposal, Dr. Schneider?

19 A. I'd have to review it to give you a  
20 detailed answer, but I recall proposals.

21 Q. Do you recall that the initial Colorado  
22 plan, as set forth in Kansas 18, included a historical  
23 use analysis?

24 MR. STEINBRECHER: Your Honor -- or  
25 Mr. Arbitrator, I have to object. Now we're getting

1 into a comparison of how these plans worked and how  
2 Colorado's initial proposal worked.

3 MR. GRIGGS: I'm asking the witness what  
4 he knows.

5 ARBITRATOR FEREDAY: Let me ask a question  
6 here of the witness.

7 Dr. Schneider, were you involved in  
8 evaluating the Colorado proposal or developing it in any  
9 way?

10 THE WITNESS: Not in developing it. I did  
11 have some involvement in evaluating it. I've certainly,  
12 more recently, been involved in evaluating their current  
13 proposal. So I think I'd have a good memory of that.  
14 This goes back quite a ways.

15 ARBITRATOR FEREDAY: And you're familiar  
16 with the augmentation proposal that Colorado put  
17 forward, that was heard, at least in part, by Arbitrator  
18 Pagel.

19 THE WITNESS: I'm familiar with it.

20 ARBITRATOR FEREDAY: I'm going to let  
21 Mr. Griggs proceed. Your objection is duly noted, and I  
22 will note also for the record that I am focused on what  
23 is at issue in this case. And Dr. Schneider's responses  
24 that may be relevant only to a separate case will be  
25 given no weight.

1           You can proceed.

2           MR. GRIGGS: Thank you, Your Honor.

3           Q.       (By Mr. Griggs) Nebraska did evaluate this  
4 proposal, didn't it?

5           A.       Again, without seeing more than the title  
6 and not even the date, I think so.

7           Q.       Do you recall whether Nebraska had a  
8 position on Colorado's quantification of historical use?

9           A.       I recall that one of Colorado's objectives  
10 was to have that limitation. It's a necessary part of  
11 their process, due to some -- basically because of some  
12 issues with Colorado law. So my understanding was that  
13 was how their plan was designed, with that additional --  
14 and maybe others, but certainly with that additional  
15 element in mind because of their own laws.

16          Q.       Do you recall that Nebraska thought that  
17 Colorado had overquantified that consumptive use figure?

18          A.       I didn't -- I didn't evaluate that. That  
19 wasn't something -- and that's --

20          Q.       Then you don't recall. That's fine.

21                   Do you recall that Kansas engineers had  
22 reviewed this quantification and found it to be  
23 acceptable?

24          A.       No.

25          Q.       Okay. Turning now to another exhibit.

1 This is Exhibit K20. Are you familiar with this  
2 exhibit, Doctor?

3 A. Yes.

4 Q. Could you identify this exhibit?

5 A. That's an expert report that was prepared  
6 by myself and by James Williams, with the Department,  
7 for the arbitration in front of Karl Dreher.

8 Q. And do you recall that, in that report,  
9 you noted that Nebraska, as of 2009, was undertaking  
10 investigations to develop means to comply with the  
11 compact?

12 MR. WILMOTH: Mr. Arbitrator, would it be  
13 appropriate for the witness to be provided a copy of the  
14 report, the exhibit, so he can review it?

15 ARBITRATOR FEREDAY: Yes, I believe it  
16 would. If you don't have one in front of you --

17 MR. GRIGGS: We're getting it.

18 ARBITRATOR FEREDAY: Thank you,  
19 Mr. Wilmoth.

20 THE WITNESS: I have turned to the section  
21 called "Augmentation Study."

22 Q. (By Mr. Griggs) Okay. And is that at page  
23 15?

24 A. Fifteen of the report, page 18 of 152 of  
25 the exhibit.

1 Q. Okay. Appreciate the clarification.

2 And do you see that part, page 18 of 52  
3 and page 15 of the report, where you describe Nebraska's  
4 review of augmentation as a means toward compact  
5 compliance, included identifying "existing uses that  
6 could be retired to comply with the FSS's terms  
7 regarding augmentation"? Do you see that?

8 A. I do.

9 Q. What terms were those?

10 A. The provision of no new net depletion. As  
11 I've previously explained, the retirement of existing  
12 uses is one potential tool to help us to meet that term  
13 of no new net depletions. Without some retirement of  
14 existing use, we could only address no new net  
15 depletions with additional pumping in years where we  
16 wouldn't otherwise need pumping, and that certainly  
17 isn't our overarching desire.

18 So to have, to some extent, a retirement  
19 that takes us, you know, hopefully all the way -- and if  
20 not all the way, most of the way -- to ensuring no new  
21 net depletions, that is an important part of the desire  
22 and the design of augmentation for us.

23 Q. Thank you.

24 Do you recall that, in May of 2010, the  
25 States of Colorado and Nebraska executed a stipulation

1 about the Colorado pipeline proposal?

2 A. I recall the stipulation that probably was  
3 in May of 2010. That sounds about right.

4 Q. Do you recall the contents of the  
5 stipulation?

6 A. I could probably think of some of it. I  
7 certainly don't recall the entire contents of it.

8 Q. Well, let's put it up on the screen. I'd  
9 like to bring up Kansas 23.

10 MR. WILMOTH: Once again, could we request  
11 a copy for the witness? And I would like to just  
12 register a concern here, in case we're going into  
13 territory that would be problematic. Mr. Arbitrator,  
14 you asked to be made aware of any agreements that might  
15 be appropriate to bring to your attention.

16 This document that is being addressed,  
17 this stipulation that's been referred to, was entered  
18 into and is subject to a confidentiality agreement among  
19 the States of Colorado and Nebraska.

20 Now, the document itself was forced to  
21 production in a separate proceeding. And the document,  
22 to the extent it exists, is fine; but to the extent  
23 there's any discussion about background discussions or  
24 things that would otherwise be attorney-client privilege  
25 or attorney work product that led to the completion of

1 this document, we would register an objection. I don't  
2 know if Colorado would share that, but we certainly  
3 would.

4 ARBITRATOR FEREDAY: Mr. Steinbrecher.

5 MR. STEINBRECHER: We would share  
6 Nebraska's objection. And I would also point out again  
7 that this is far beyond the scope of any direct or  
8 anything that was mentioned, and the relevance of an  
9 agreement between the States that may or may not refer  
10 to Colorado's proposal, I don't think is relevant to the  
11 proceedings.

12 ARBITRATOR FEREDAY: I appreciate these  
13 comments. To the extent that there is a question that  
14 seeks to elicit testimony revealing confidences or other  
15 privileged matter, that is subject to an objection, and  
16 the witness can be instructed not to answer. That's how  
17 I understand your stipulation agreement.

18 MR. WILMOTH: Agreed.

19 ARBITRATOR FEREDAY: And I hope everybody  
20 here recognizes that.

21 As to the question of scope, we have a  
22 relaxed standard here. And I recognize that it's  
23 arguably borderline with regard to scope, based on the  
24 written testimony that Dr. Schneider has provided.

25 However, that testimony is quite

1 far-reaching and touches on many subjects. And I don't  
2 think the questioning so far has crossed that line. And  
3 even if it does, unless it's -- unless I find it to be  
4 prejudicial, I am not going to prohibit it. But, again,  
5 I warn the counsel that the weight that I would give to  
6 such testimony might well be significantly reduced  
7 because of its peripheral importance.

8                   So with that speech, I hope we can  
9 continue.

10                   MR. GRIGGS: Thank you, Your Honor.

11           Q.        (By Mr. Griggs) You have a paper copy,  
12 right?

13           A.        Yes, I do.

14           Q.        Would you read the third "whereas," just  
15 so you're familiar with it. And the fourth.

16           A.        I have read them.

17           Q.        Okay. So isn't it the case that this  
18 stipulation memorializes an agreement between Colorado  
19 and Nebraska by which Nebraska formally agreed that the  
20 Colorado pipeline proposal was sufficient for approval  
21 by the RRCA?

22           A.        Yes.

23           Q.        And by this stipulation, Nebraska agreed  
24 that the Colorado proposal was the sort of proposal that  
25 is necessary in its limit to historic CBCU?

1           A.       I think, if you're referring to these  
2 paragraphs, this is simply what the plan proposed to do.

3           Q.       Let's turn to another exhibit, K25, also  
4 listed under Nebraska's list as 20003. Are you familiar  
5 with this letter, Doctor?

6           A.       Yes, I am. I authored it.

7           Q.       Now, in your written testimony submitted  
8 in this matter, you state that this letter contains  
9 generic and conservative analyses of the Upper  
10 Republican NRD plan. Do you recall that?

11          A.       That sounds right. I can affirm that  
12 specifically if you can point me to it.

13          Q.       I was afraid you'd ask me that. We'll  
14 turn to that and put it up on the screen for you.

15          A.       I found what you're referring to. It's on  
16 page 6.

17          Q.       I really appreciate that. Thank you for  
18 your cooperation.

19                   And in your opinion, this is generic and  
20 conservative analyses. Do you recall your deposition  
21 over your rebuttal report, in Lincoln?

22          A.       I do.

23          Q.       Do you recall your testimony regarding  
24 this exhibit at that deposition?

25          A.       I certainly recall discussing this with

1 you.

2 Q. Do you remember saying that the numbers  
3 you've provided to the Upper Republican NRD were pulled  
4 out of thin air, or something to that effect?

5 A. Yeah, that could be right. I was trying  
6 to help you to understand that, in terms of the numbers,  
7 which I think you're referring to the numbers in the  
8 example on the third page of the letter --

9 Q. That's correct. Thank you.

10 A. -- that those weren't meant to have any  
11 particular meaning. They weren't provided to me. They  
12 were just, you know -- in order to illustrate the  
13 arithmetic that would be done under the formula that we  
14 kind of laid out of that generic analysis, we plugged  
15 some numbers in to show how that would be done. Anyone  
16 could pick any numbers they wanted to and see how the  
17 arithmetic worked out for them.

18 Q. As far as you know, did the Upper  
19 Republican NRD rely upon this analysis in going forward  
20 with the Rock Creek project?

21 A. I think it was an aspect of what they  
22 relied on.

23 Q. So it purchased millions of dollars' worth  
24 of irrigated farmland based, at least in part, on this  
25 analysis?

1           A.       I think so. I think other elements would  
2 include their general knowledge of the area, potentially  
3 some preliminary engineering estimates of costs to build  
4 the project. I don't know for certain that these were  
5 things that they thought about before they bought the  
6 project or not.

7                   I also know we've generated what are known  
8 as stream depletion factors for kind of the whole basin,  
9 to say if you pump a well here, here's how much it will  
10 affect the stream. So I suspect they probably relied on  
11 that information that we previously provided them as  
12 well.

13           Q.       Are you aware that Dr. Fanning has  
14 represented to his members in the Upper Republican NRD  
15 that the Rock Creek project will be limited to historic  
16 CBCU?

17                   MR. WILMOTH: Mr. Arbitrator, is there any  
18 foundation for this question? He had Dr. Fanning in  
19 front of you. He could have asked this question,  
20 provided a foundation. Where's this coming from?

21                   ARBITRATOR FEREDAY: He certainly could  
22 have asked Mr. Fanning, or his partner could have.  
23 However, the question is whether this witness knows, and  
24 I think that's a fair question.

25                   MR. WILMOTH: If I may, the question

1 reads: "Are you aware that Dr. Fanning has represented  
2 to his members" -- something, as though it's a factual  
3 statement. And there's no predicate for that fact.  
4 Perhaps it could be asked differently.

5 ARBITRATOR FEREDAY: Perhaps so. You can  
6 ask whether he knows, whether he's aware. Obviously,  
7 it's a leading question, which he's entitled to use.

8 Q. (By Mr. Griggs) Do you know if Dr. Fanning  
9 has represented to his members that the project will be  
10 limited to historic CBCU?

11 A. By "his members," do you mean the  
12 residents in his district?

13 Q. Those people who pump groundwater in the  
14 Upper Republican NRD.

15 A. Okay. Well, I guess what I'm aware of is  
16 that the NRD would like to have this be a project that  
17 is available to them forever, essentially. Forever is a  
18 long time, and I'm not sure what that means. Obviously,  
19 that probably is longer than the engineering design of  
20 the project. So I don't know how that's been factored  
21 in, but my understanding, in discussions I've had and  
22 what I've seen and heard, is that they would like this  
23 project to be perpetual to the limit of, you know, how  
24 we think about things.

25 ARBITRATOR FEREDAY: Dr. Schneider, the

1 question had to do with historic CBCU, I believe.

2 THE WITNESS: If you want to get to that  
3 exact thing, I'm not aware that that's been expressly  
4 committed to that I've heard him say to anybody. I  
5 think we saw a general statement this morning that I  
6 hadn't seen before, but I'm aware of it now.

7 ARBITRATOR FEREDAY: Okay.

8 Q. (By Mr. Griggs) Are you aware that the  
9 Upper Republican NRD has decided to retire the roughly  
10 3200 acres of land previously irrigated by the wells  
11 that had been repurposed for augmentation?

12 A. It's part of our plan that we've  
13 submitted.

14 Q. And under that plan, there's also been the  
15 retirement of 1920 additional acres?

16 A. That's not part of the plan we submitted,  
17 but I am aware that that has occurred.

18 Q. If an augmentation project is not limited  
19 to CBCU, why would the lands be retired?

20 A. I'd like to clear something up. You've  
21 been using the term "CBCU," I think, incorrectly. CBCU  
22 is the actual charge to the stream.

23 Q. Thank you. If a project is not limited to  
24 historic consumptive use, why would you retire the  
25 lands?

1           A.       As I've noted previously, it's an  
2 important element in ensuring that we have no new net  
3 depletions as a part of this project. I think also,  
4 from a practical standpoint, they want to make sure they  
5 have a water supply. Trying to pump for augmentation on  
6 top of an irrigation operation is -- it would be more  
7 problematic, I guess.

8           Q.       So limited historic consumptive use would  
9 ensure the sustainability of the project, according to  
10 what you just said?

11          A.       I don't think I said anything about  
12 sustainability.

13          Q.       You've been talking about a perpetual  
14 project, a long-term project, that this is a long-term  
15 project.

16          A.       Right, right, I did say that, that they  
17 would like this to be available to them for the  
18 foreseeable future.

19          Q.       And by limiting the augmentation funding  
20 to historic consumptive use, it would enable that?

21          A.       They haven't committed to that explicitly,  
22 but by retiring some historic consumptive use in the  
23 area, that is an important element in ensuring that  
24 there's a groundwater supply available for some  
25 significant time into the future.

1           They're managing the entire resource. I  
2 think that's what Dr. Fanning was trying to say this  
3 morning, without putting words into his mouth.

4           Q.       So is it your position that the Nebraska  
5 approach to the limits of augmentation pumping has been  
6 consistent from 2008 or '9 to the present?

7           A.       Yes, it is. And I think it's important to  
8 note that every plan is going to be different and every  
9 situation is going to be different. Colorado is  
10 proposing a plan that they utilize every year in order  
11 to make up for deficits that they've incurred, at least  
12 every year to date.

13                   Now, that might not be the case in the  
14 future for other reasons. But that's not the situation  
15 Nebraska is in. We have many years that our uses are  
16 far less than our allocations. It's a much different  
17 situation. So you need to take the general provisions  
18 that are a part of the FSS and apply the specific  
19 situation. And Nebraska's is much different than  
20 Colorado's.

21           Q.       And by that you mean Nebraska does not  
22 have the internal intrastate water laws that limit  
23 augmentation projects to historic consumptive use?

24           A.       Well, I did say that's the case before.  
25 That's actually not what I was thinking. I was thinking

1 more from a compact compliance standpoint, that they  
2 have annual deficits. And Nebraska has many years  
3 where -- like I said, our CBCU, less any imported water  
4 supply credit, is often far less than our allocation.  
5 It would not be necessary to achieve an additional  
6 augmentation water supply credit in those years.

7 Q. So it's your position that there is no  
8 inconsistency between Nebraska's concerns about historic  
9 consumptive use in augmentation in 2009 and its approach  
10 to historic consumptive use in augmentation in the Rock  
11 Creek proposal?

12 A. Well, I don't think I talked to you about  
13 concerns in 2009.

14 Q. I'm referring to your report that you  
15 authored with Mr. Williams.

16 A. Well, in that context, I certainly --

17 MR. WILMOTH: Mr. Arbitrator, again I  
18 think we have a factual predicate to the question that  
19 doesn't exist. If Mr. Griggs wants to take  
20 Dr. Schneider back to the report that he's referring to  
21 and establish the predicate to the question, then fine;  
22 but to suggest that he made a conclusion and then ask  
23 him about it is a tautology that doesn't make any sense.

24 ARBITRATOR FEREDAY: Mr. Griggs, perhaps  
25 you could rephrase that question.

1 MR. GRIGGS: I think I've asked it  
2 already, actually.

3 Q. (By Mr. Griggs) Doesn't the current Rock  
4 Creek augmentation proposal require augmentation pumping  
5 to be continuous?

6 A. Well, we've committed to that, as I  
7 referred to before, for those maintenance operation  
8 years, simply because of the fact that the assessment of  
9 new depletions is problematic in that we have to look  
10 backwards. So if -- as I explained before, there could  
11 be many years where that maintenance pumping wasn't in  
12 fact needed because the new depletions were either zero  
13 or in fact there was a negative new depletion or a net  
14 accretion due to operation of the project relative to  
15 the historic operation of irrigation at that location.  
16 So I guess I make that distinction.

17 Q. Your complaint about the retroactive  
18 aspect of the accounting, isn't it true that the compact  
19 has a retroactive aspect of accounting to it?

20 A. Yes. I don't know that I complained about  
21 anything.

22 Q. Okay.

23 A. I was just explaining the way that we have  
24 to function under the compact in the FSS.

25 Q. How is the assessment of new depletions

1 problematic if the States look backwards through  
2 retroactive accounting?

3 A. So that was what you meant by my complaint  
4 that it's problematic?

5 Q. Yes.

6 A. I didn't mean that to be a complaint.  
7 It's something difficult to do in a forward-looking  
8 manner. It's best done in a retroactive manner. The  
9 compact accounting can never be done in a final way  
10 except for retroactively. So that's just the way it is.

11 Q. So getting back to the augmentation  
12 pumping, the need for the augmentation pumping to be  
13 continuous, is that to provide water to offset any  
14 enlarged depletions at the time of pumping?

15 A. The maintenance operations are to ensure  
16 that we have no new net depletions. In the event that  
17 there are new depletions that are positive, the  
18 maintenance pumping is intended to ensure those net out  
19 and there are no new net depletions.

20 Q. Okay. Shouldn't depletions that result  
21 after the cessation of pumping be addressed?

22 A. Well, the new depletions are the result of  
23 potentially multiple years of pumping. It's all fed  
24 into the model. And we run that forward from year to  
25 year. And the way that modeling works is there's kind

1 of a historic condition that's run forward and a  
2 no-pumping condition that's run forward.

3           So total CBCU, as well as these new  
4 depletions we've been discussing associated only with  
5 the project, could be the result of pumping from last  
6 year or the year before or some previous year. It's all  
7 kind of accounted for as you go along.

8           Q.       Doctor, wouldn't it be necessary to  
9 provide another source of supply to offset the ongoing  
10 effects of these depletions?

11          A.       I don't believe so. One of the things I  
12 point out in the report is that those new depletions are  
13 quite short-lived. After four to eight years, they've  
14 peaked, so to speak, under the analysis that we've  
15 conducted, looking at both historic conditions and the  
16 hypothetical future condition going out 60 years in the  
17 future.

18                So every time we operate the project,  
19 there's kind of an increase in new depletions because  
20 we've run it at kind of a higher level than the average  
21 level would have been under the irrigation operation.  
22 So those new depletions come up very slightly, a couple  
23 hundred acre-feet, and drop off rather quickly. And  
24 that's shown in the tables that are contained in the  
25 augmentation plan that we submitted.

1 Q. Doctor, wouldn't it be a simpler route to  
2 take the position that augmentation pumping be limited  
3 to historic consumptive use?

4 A. I don't believe so.

5 Q. Isn't it true that such a limit is  
6 commonly accepted as a practice in evaluating water  
7 right changes from irrigation to different uses?

8 A. Well, that's a way that you can do it.  
9 Again, in those contexts, much of that is a continuous  
10 use. So in a year where it was a continuous irrigation  
11 use, it's changed to a continuous domestic use.

12 Q. Is irrigation pumping continuous in  
13 Nebraska?

14 A. Continuous in the sense that it's year  
15 after year. It's not continuous through the year.

16 Q. Unlike the augmentation pumping, which is  
17 continuous on a constant basis, right?

18 A. Well, there's a lot of augmentation  
19 pumping in compact operation years, and very, very  
20 minimal pumping in the maintenance operation years. And  
21 that's the point I was trying to get to.

22 Even if you take an averaging period, like  
23 I pointed out in my report, if you average it over six,  
24 ten years, the FSS prohibits no new net depletions both  
25 long term and annually. So we would have to deal with

1 that annual provision in terms of averaging out the  
2 pumping. And when you've retimed pumping like this,  
3 which is a significant benefit to Nebraska's compliance  
4 efforts and to the availability of water to Kansas in  
5 terms of its compact entitlements -- and when you do  
6 that, we can have things that differ a little bit on an  
7 annual basis. And that's the few hundred acre-feet that  
8 I was talking about before. It's just -- it's almost in  
9 the unknown on these, but we've designed this so that we  
10 can address that.

11 Q. You're aware that streamflows in Rock  
12 Creek, at the Parks gauge, have been steadily declining  
13 over the past several decades, correct?

14 A. I'm aware of that.

15 Q. You're also aware that those flows are  
16 best measured at the gauge in Parks about one-half of  
17 what they were in the 1970s?

18 A. That's probably right. I haven't reviewed  
19 that recently.

20 Q. Do you have an understanding as to why the  
21 streamflows in Rock Creek, at the gauge at Parks, have  
22 been steadily declining over the past several decades?

23 A. Because of CBCU due to groundwater  
24 pumping, and there would be other factors associated  
25 with land management changes that Dr. Fanning spoke

1 about earlier. Being from the area, he'd be more  
2 familiar with that than I am.

3 Q. I understand that. There's going to be  
4 some overlap because there were objections to  
5 Dr. Fanning answering some of those more technical  
6 questions.

7 A. Sure.

8 Q. Now, the current location where the  
9 augmentation water is added to Rock Creek is about a  
10 mile or so upstream from the fish hatchery; is that  
11 correct?

12 A. Yes.

13 Q. And this is a location where Rock Creek is  
14 normally dry, at least in recent years, correct?

15 A. That's my understanding, yes.

16 Q. From the fish hatchery downstream, you  
17 believe there's always been some flow in Rock Creek,  
18 correct?

19 A. That's my understanding, yes.

20 Q. But the project discharges the  
21 augmentation water about a mile above the fish hatchery,  
22 where there is no Rock Creek flow, rather than extending  
23 the pipeline to the fish hatchery where you believe  
24 there has always been streamflow, correct?

25 A. Most of the time, that's true. There was

1 discussion, as I recall, about -- let me try not to  
2 confuse things -- was that outlet No. 2?

3 Q. I'm not even going to go there. And is it  
4 your position, based on your direct testimony, that the  
5 losses would be small or de minimis based on an analysis  
6 of potential stream losses? Correct?

7 A. Well, what I have done is looked at the  
8 hydrogeology and the associated geology. There's a  
9 bedrock high in that area, the aquifer kind of pinches  
10 out. As you go north from there, we have the High  
11 Plains aquifer that's quite regional in nature. Down  
12 here, you're kind of transitioning into -- if you can  
13 see it on some of those maps where it becomes more  
14 incised. And Dr. Fanning talked about -- and you saw  
15 the sandstone bluffs that we're coming down into.

16 So the hydrogeologic properties differ. I  
17 have looked into that. And I think based on that and  
18 the other assessments of the way that the water was  
19 transmitted downstream when they've operated the project  
20 this year, it all kind of fits together.

21 Q. So your analysis is based primarily on, as  
22 a professional geologist with a Ph.D. in geology, the  
23 hydrogeology of the area underneath the streambed?

24 A. I've conducted -- I've looked at that as  
25 part of my analysis. I recall specifically looking at

1 some of those cross-sections and the like when we were  
2 looking at the project. It's one of the reasons that  
3 the depletions, due to the pumping at the location of  
4 the wells, is very small relative -- as that translates  
5 to Rock Creek because of that bedrock high that kind of  
6 acts as a barrier between the outflow where they're  
7 pumping and where that water is being delivered to, on  
8 the other side of that.

9 Q. Have you provided any of that geological  
10 analysis to Colorado and Kansas?

11 A. Those are just -- I've looked at the  
12 website, RepublicanRiverCompact.org. Willem Schreuder  
13 maintains all that and has all the various schematics of  
14 the aquifer properties, the aquifer configuration -- all  
15 of the various elements of the model. So because of all  
16 the work that's come before me on developing a model,  
17 that was all readily available.

18 Q. And as you know, Dr. Schreuder is an  
19 expert in this arbitration?

20 A. That's my understanding, yes.

21 Q. And did you rely on Dr. Schreuder's  
22 geological analyses on that website?

23 A. I don't think I characterized any of it as  
24 geological analyses. It's just the way they constructed  
25 the aerial and vertical extent of the aquifer based on

1 the geologic data they had available.

2 Q. So is Dr. Schreuder just packaging  
3 information that was out there and putting it on the  
4 website?

5 A. Yeah, that's what -- yeah.

6 Q. What's a de minimis loss, in your  
7 professional opinion?

8 A. I guess I would characterize that  
9 generally as something that kind of escapes measurement,  
10 given the measuring technologies and the relative  
11 quantities that are being evaluated.

12 Q. So if the losses are de minimis for this  
13 project, as you assert, when the project adds water to  
14 the Rock Creek drainage, the flow at the Rock Creek  
15 gauge at Parks should increase from whatever it was  
16 before the water was added to the prior amount of flow,  
17 plus the amount of water added, correct?

18 A. That's correct.

19 Q. In other words, after 28 cfs, cubic feet  
20 per second, were added to the Rock Creek drainage in  
21 late February and early March 2013, then we should see  
22 the flow at the Rock Creek gauge increase to 28 cfs,  
23 plus the amount of flow that was passing the gauge  
24 before that augmentation water was added, correct?

25 A. I'm not certain that 28 cfs was

1 immediately added in early March. I think, actually,  
2 the pumping was ramped up a bit. I wasn't operating the  
3 project, as you know. But my understanding was that  
4 there was a bit of a ramp-up in terms of how much water  
5 was initially being added versus kind of the level they  
6 achieved at some point. I don't know how long that  
7 took.

8 Q. Right. So after whatever cfs rate was  
9 added to the Rock Creek drainage in late February and  
10 early March, we should see the flow at the Rock Creek  
11 gauge increase to whatever that level of addition was,  
12 plus the amount of flow that was passing the gauge  
13 before that augmentation water was added, correct?

14 A. Right, within the relative kind of  
15 boundaries of error that we might have with the  
16 measuring.

17 Q. What are the boundaries of error in  
18 measuring?

19 A. That's not the right word, I guess, but  
20 there are errors associated with stream gauge  
21 measurement. They're usually random, so that they  
22 balance out over the long term, sometimes positive,  
23 sometimes negative, and don't have a significant  
24 implication over the long term. But they can have  
25 anywhere from 2 to 10 percent or more at any given point

1 in time. So that's all something that needs to be  
2 considered if you're looking at instantaneous data.

3 Q. And it's your position that the losses  
4 from this project would be de minimis, has turned out to  
5 be the correct position, correct?

6 A. Could you try again? I'm sorry.

7 Q. I used the word "correct" three times in  
8 10 words. That's a new one for cross.

9 It's your position that losses from this  
10 project are de minimis?

11 A. Yes, it is.

12 Q. And that based on your observations of the  
13 project since it opened, that position has been  
14 supported by your review of the evidence?

15 A. Yes, I have been watching the stream  
16 gauge, and in particular see that where the flows  
17 normally drop off in the summer, it's been very steady.  
18 So that's been, I guess, kind of continuously supported.  
19 It's something I'm just kind of interested in because of  
20 the creature I am. So I look at these things on my  
21 spare time, for whatever reason.

22 Q. This room is full of similarly disturbed  
23 people. You're not alone.

24 So other than the stream gauge data, what  
25 else is your position that these losses would be

1 de minimis since its operation began in February? What  
2 is your position, your opinion, been based on?

3 A. I think we talked about the field  
4 measurements that our field crew took. That would also  
5 be part of that. I think that would be everything that  
6 I've had to date to evaluate.

7 Q. And you're certain that the losses in this  
8 area upstream of the fish hatchery will be de minimis,  
9 correct?

10 A. That's what the data supports to date.

11 Q. And you're certain that de minimis losses  
12 in this area will not increase in the future as  
13 streamflows in Rock Creek continue to decline?

14 A. I see no evidence that they would drop off  
15 significantly at any time in the near future. We would  
16 always want to keep evaluating the data. At some time  
17 in the more near distant future, that may change, and we  
18 could look at that. But the future is a squirrely  
19 thing, and it's tough to know where we're going to be  
20 20, 40, 60 years from now.

21 Q. Understood. But assuming hypothetically  
22 that the trend and stream drying on Rock Creek that you  
23 earlier testified to continues into the future, are you  
24 certain that the losses in this area will not increase  
25 beyond the de minimis level?

1           A.       It appears to be a fairly safe assumption  
2 into the foreseeable future, based on what I've looked  
3 at.

4           Q.       From your standpoint as a hydrogeologist  
5 and a water authority for DNR, why didn't the project  
6 simply extend the pipeline down to the fish hatchery to  
7 avoid the potential for losses, at least for the  
8 present?

9           A.       Well, I think -- my understanding is that  
10 it was pretty clear that could just be done. I don't  
11 think -- when I've been out there, it looks like it  
12 would be a pretty straightforward thing to spend that  
13 additional money if that was a concern in the future or  
14 if the expectations didn't pan out as they did. So I  
15 think, from an economic standpoint, it was a good  
16 approach. And I see no reason why they couldn't simply  
17 do that at some point in the future, if that were  
18 required.

19          Q.       If you were designing the project, would  
20 you recommend that design modification?

21          A.       Based on everything I've seen and heard,  
22 standing here today, I would not.

23          Q.       You were in the room earlier when  
24 Dr. Fanning testified about what he views as the  
25 144 percent penalty that Nebraska suffers as a result of

1 its plan not being approved?

2 A. I heard that testimony. I'm not sure  
3 that's exactly the right characterization.

4 Q. Given the size of that penalty, in your  
5 opinion, why has the augmentation project gone forward  
6 at this time, before it was approved?

7 A. Because 2013 has been a compact call year  
8 that we've identified under our integrated management  
9 plans and actions were unnecessary and the Upper  
10 Republican NRD identified this action as the best option  
11 for them for this year.

12 Q. Is it your opinion that the FSS provides  
13 an entitlement to 100 percent augmentation credit?

14 A. It provides for that credit.

15 Q. That 100 percent credit?

16 A. That's how the credits work. Imported  
17 water supply credit works in exactly that same way.

18 Q. Is your opinion that Nebraska is entitled  
19 to a 100 percent augmentation credit, based upon your  
20 expert opinion as a hydrogeologist?

21 A. I don't know that we covered this under  
22 hydrogeology. I'm struggling with your question a  
23 little bit.

24 Q. I'm trying to figure out, Doctor -- you  
25 firmly believe that Nebraska is entitled to a

1 100 percent augmentation credit. Is the basis for that  
2 opinion in your view of the FSS or in your expert  
3 opinion as a witness?

4 A. Are you asking me to say that there are no  
5 cases where 100 percent credit should not be provided?  
6 I'd have to think about that. There could be cases  
7 where a full credit wasn't justified. I believe firmly  
8 that, in this case, it is, under the parameters we've  
9 laid out in this plan.

10 Q. And that belief is based on your technical  
11 analysis of the project?

12 A. And my review of the final settlement  
13 stipulation.

14 Q. So that both in conjunction form that  
15 opinion?

16 A. Yes.

17 Q. As groundwater is pumped and placed into  
18 Rock Creek, that groundwater becomes surface water for  
19 the purposes of Nebraska law, right?

20 A. Yes.

21 Q. So it falls under your jurisdiction as a  
22 DNR person?

23 A. Right. That was a clarification that has  
24 been made. It's subject to appropriation, and we would  
25 administer those under our laws for appropriation and

1 the like.

2 Q. Who collects the meter readings for the  
3 augmentation project?

4 A. The Upper Republican Natural Resources  
5 District.

6 Q. And how frequently are those taken?

7 A. I think I heard Dr. Fanning say this  
8 morning that it's something like every three minutes.  
9 It seems pretty frequent.

10 MR. GRIGGS: Your Honor, if we could take  
11 a five-minute break, I think I'm almost finished with my  
12 questions on the Rock Creek plan.

13 ARBITRATOR FEREDAY: Okay, yes, we  
14 certainly can.

15 It's a little after four. How much more  
16 with this witness do you expect to have, Counsel?

17 MR. GRIGGS: On the Rock Creek plan, I  
18 would say about --

19 ARBITRATOR FEREDAY: I'm not holding you  
20 to it.

21 MR. GRIGGS: -- eight to 10 minutes,  
22 before I go to the water-short year plan, and my  
23 questions on that are less extensive than my questions  
24 on Rock Creek.

25 ARBITRATOR FEREDAY: Let's take a

1 five-minute break, and let's be back here at -- let's be  
2 back here quarter after. That's a little more than five  
3 minutes. And we'll be adjourned until then.

4 (A recess was taken.)

5 ARBITRATOR FEREDAY: We're back on the  
6 record.

7 With regard to timing, Mr. Griggs and  
8 Counsel, Mr. Wilmoth reminded me that we are going to go  
9 ahead with his redirect after you're finished with the  
10 Rock Creek portion. Then you can move into the  
11 alternative year portion.

12 MR. GRIGGS: That's correct, Your Honor.  
13 And we have no further questions at this time.

14 ARBITRATOR FEREDAY: Okay. Very well.

15 MR. GRIGGS: Thank you.

16 THE WITNESS: You're welcome.

17 REDIRECT EXAMINATION

18 BY MR. WILMOTH:

19 Q. Dr. Schneider, I'm going to try to cover  
20 some ground that Mr. Griggs covered, and I'm going to  
21 try to do it in a somewhat linear fashion. So if you  
22 would, rewind your brain to some of the earlier  
23 discussions, and we'll try to progress in that fashion.

24 Do you recall Mr. Griggs asking you some  
25 questions about the mound or what's called the imported

1 water supply?

2 A. I do.

3 Q. And would you describe the mound as  
4 essentially water moving through the aquifer?

5 A. Yes, I would. It's the mounding of water  
6 that percolates into the ground within the aquifer.

7 Q. So because of this situation, is it proper  
8 to use the model to account for the impact of the mound?

9 A. It would be nearly impossible to do so  
10 without the model.

11 Q. And is that because the mound doesn't  
12 appear on the surface?

13 A. Right, it produces additional baseflow in  
14 certain tributaries to the Republican River, but it's  
15 obviously indistinguishable from other baseflow that  
16 comes from virgin water out of the basin.

17 Q. If the mound were actually surface water  
18 flowing on the surface, would you see any need to  
19 utilize the groundwater model to quantify it?

20 A. No, I would not.

21 Q. And as a scientist, a hydrologist, a  
22 geologist, do you think anyone on the modeling committee  
23 would have recommended use of the model to do something  
24 like that?

25 MR. GRIGGS: I'm going to object to that.

1 That seems speculative in its nature. I got into  
2 trouble for the reason of trying to beg the question,  
3 assuming things not in evidence. It seems like we're  
4 going the same direction.

5 ARBITRATOR FEREDAY: I would appreciate  
6 rephrasing that question, Mr. Wilmoth.

7 Q. (By Mr. Wilmoth) If you were a member of  
8 the modeling committee in 2003, and the mound were  
9 actually surface water, would you have recommended  
10 utilizing a groundwater model to measure it?

11 A. No. If that was something that occurred  
12 directly on the surface, and could be measured with what  
13 are very commonly used measuring devices on the surface,  
14 like any other surface water, there would be no need to  
15 do that.

16 Q. To be clear, the Rock Creek augmentation  
17 water is surface water when it leaves the pipe from the  
18 discharge point?

19 A. Yes.

20 Q. And you can measure that?

21 A. Yes, we can.

22 Q. In your view, is there any need for a  
23 groundwater model to do that?

24 A. No.

25 Q. Dr. Schneider, I'd like to hand you what's

1 actually marked as Joint Exhibit 64, and I'm going to  
2 refer to page 25. I'd like to direct your attention to  
3 the IV.H.

4 ARBITRATOR FEREDAY: This is the final  
5 settlement stipulation itself?

6 MR. WILMOTH: Yes.

7 Q. (By Mr. Wilmoth) Would you please read  
8 aloud Section IV.H.

9 A. "Augmentation credit, as further described  
10 in Subsection III.B.1.k, shall be calculated in  
11 accordance with the RRCA Accounting Procedures and by  
12 using the RRCA Groundwater Model."

13 Q. Do you see the terminology of that is  
14 actually conjunctive, uses the word "and"?

15 A. Yes.

16 Q. In fact, using the model to define the  
17 transit losses the way Kansas has proposed it and  
18 assigning those to Nebraska would actually conflict with  
19 the accounting procedures, wouldn't it?

20 A. Yes. That's what I was trying to explain  
21 earlier.

22 Q. Is that because we don't presently  
23 calculate and assign transit losses?

24 A. That's correct.

25 Q. If you assigned a transit loss to the Rock

1 Creek project, you would be singling out this project  
2 for treatment unlike any other, would you not?

3 A. It would be treating that water unlike any  
4 other surface water in the basin.

5 Q. If you were forced to assign transit  
6 losses in the Parks to Swanson reach, how would you  
7 address the fact that the South Fork is dry most of the  
8 time?

9 A. Well, that certainly is a significant  
10 reason why those transit losses occur there.

11 Q. And would you have to evaluate the impact  
12 of the nature of the South Fork on that reach to  
13 determine whether it results in additional transit  
14 losses?

15 A. I think so, yes.

16 Q. And do I understand you to have said, if  
17 you assigned transit losses either specifically to Rock  
18 Creek or to any other water flowing in the system, it  
19 would require a rewriting of the accounting procedures?

20 A. Yes, it would.

21 Q. I'd like to ask you about your  
22 understanding of the Kansas procedure. And if you don't  
23 understand the procedure well enough to answer my  
24 question, please state that.

25 A. Okay.

1 Q. Under the procedure as you understand it,  
2 does it result in depletions to baseflow in places other  
3 than the Rock Creek subbasin?

4 A. Well, they're looking at where this water  
5 has effects within the model. And it includes Rock  
6 Creek and the main stem downstream, and also, I believe,  
7 somehow that has an effect within the South Fork  
8 subbasin as well.

9 Q. Can you explain that?

10 A. No.

11 Q. You would not expect to see that?

12 A. That was surprising.

13 Q. I'd like to return to an example that you  
14 discussed with Mr. Griggs involving an augmentation  
15 discharge of 10,000 acre-feet. Do you generally recall  
16 that discussion?

17 A. Yes, I do.

18 Q. I'd like you to assume that all of that  
19 water was actually measured and calculated at the Parks  
20 gauge. So, in other words, 10,000 acre-feet of  
21 augmentation water arrived at the Parks gauge. Do you  
22 understand my hypothetical?

23 A. Yes.

24 Q. Those molecules of water would not  
25 necessarily pass the state line, would they?

1           A.       No.

2           Q.       But if 10,000 acre-feet of other water  
3 downstream did not pass the state line, what would  
4 Nebraska do; in other words, if all of the water that  
5 was measured at the Parks gauge was consumed?

6           A.       In that case, Nebraska would ensure that  
7 10,000 acre-feet of other water was delivered at the  
8 state line. That's how the IMPs are set up with the  
9 compact call provisions.

10          Q.       Just to be clear, if the credit were  
11 10,000 acre-feet and 10,000 acre-feet arrived at the  
12 Parks gauge, regardless of what happens to that water  
13 between Parks and Swanson, 10,000 acre-feet or whatever  
14 volume shows up at the Parks gauge is going to be  
15 delivered, in quantity at least, to Kansas?

16          A.       That's correct.

17          Q.       Let me ask you this: If 10,000 acre-feet  
18 arrived at the Parks gauge, but the credit were computed  
19 in a manner that Nebraska received only 9,000 acre-feet  
20 credit, and all the water were consumed, under the same  
21 discussion, how much water would Nebraska be protecting  
22 for the benefit of Kansas at the state line?

23          A.       I think that would be the 9,000 acre-feet.

24          Q.       Thank you.

25                    Doctor, you spoke of a streamflow --

1 excuse me, strike that -- a stream depletion factor.

2 A. Yes.

3 Q. For the Arbitrator's benefit, can you  
4 please describe what a stream depletion factor is?

5 A. Sure. Generally, it's an assessment of  
6 how much of an amount of water being pumped would impact  
7 a stream over a certain amount of time. Often we do  
8 these assessments over a 50-year time period as kind of  
9 a reasonable length of time to look out. So what we do  
10 is we look at individual locations throughout the basin.  
11 In this case, we use every model cell, which is a  
12 one-square mile.

13 So we would insert a well into that model  
14 cell and pump it for 50 years at some even rate. The  
15 amount of pumping isn't important; it's just you know  
16 how much you pumped. Then we'd look at how much of a  
17 reduction in streamflow that caused. And that would  
18 give us a percentage. So it may be that there was a  
19 10 percent reduction in streamflow from pumping that  
20 well at a given rate over 50 years, as an example.

21 Q. And you have evaluated the stream  
22 efficient factor associated with the Rock Creek project  
23 wells?

24 A. Yes.

25 Q. Would you describe that stream depletion

1 factor for us? Is it high, low, medium?

2 A. They're generally low in that location.

3 Q. And some projects, theoretically, anyway,  
4 could be located in places with high stream depletion  
5 factors, couldn't they?

6 A. I suppose you could do that.

7 Q. And why would you not wish to do that?

8 A. That's what I was referring to earlier,  
9 that that's where you get into some practical  
10 constraints with regard to no new net depletion. And,  
11 generally speaking, the fact that you'd be creating a  
12 large new depletion while you're pumping water into the  
13 stream, in effect, you're not really achieving any  
14 additional benefit. The water would have flowed to the  
15 stream anyway, or there would have been some amount of  
16 baseflow to the stream. Or you're pumping water, you  
17 know, that draws water out of the stream, and you're  
18 just putting it back in, to a large extent. So that  
19 really wouldn't help.

20 Q. Is that what you meant when you earlier  
21 said that such a project would not benefit Nebraska,  
22 when the Arbitrator asked you about the meaning of that  
23 term?

24 A. That's what I meant, yes.

25 Q. I'd like to discuss what's known as the

1 maintenance pumping, briefly. Are you familiar with  
2 that concept?

3 A. Yes.

4 Q. Isn't it possible that there would be no  
5 maintenance pumping at all sometimes?

6 A. We commit to pumping 300 acre-feet per  
7 year, but it's very possible that it would not be  
8 necessary at many times.

9 Q. And why is that?

10 A. Because of the retirement of the acres  
11 that are included in the plan. If, on average, over a  
12 certain given time period, the amount of pumping that we  
13 do for augmentation is less than the amount that would  
14 have been pumped for irrigation, then we're actually  
15 pumping less than we would have pumped had we just left  
16 the irrigation practice in place. So that would  
17 actually reduce the depletion to some degree.

18 Q. And given this relationship, you evaluated  
19 over some period of years what the likely depletion  
20 might be; is that correct?

21 A. That's right.

22 Q. And what were your conclusions, just very  
23 briefly in that regard?

24 A. That -- I guess, very briefly, I would say  
25 they would be very small or potentially negative,

1 depending on the manner in which the project needed to  
2 be operated, the extent to which it was utilized for  
3 compact compliance.

4 Q. And for the sake of clarity in the record,  
5 a negative depletion would mean no depletion?

6 A. It would be an accretion actually, more  
7 streamflow.

8 Q. Thank you. How long into the future did  
9 you look at that issue?

10 A. We looked 60 years into the future.

11 ARBITRATOR FEREDAY: Excuse me,  
12 Dr. Schneider, when you say, "We looked 60 years into  
13 the future," you applied the model and ran it for that  
14 period of time?

15 THE WITNESS: Yes, absolutely. It was a  
16 projection. So to be a little clearer, what I mean is  
17 that we repeated a future condition. It was 1995  
18 through 2009. And we took those years and repeated  
19 them, those 15 years and repeated them four times.

20 So it's kind of a "what if" scenario, a  
21 hypothetical, if this repeats four times into the  
22 future, what would occur, under the operations --

23 ARBITRATOR FEREDAY: By running the model?

24 THE WITNESS: By running the model, yes.

25 Q. (By Mr. Wilmoth) Doctor, did you --

1 MR. WILMOTH: Before I ask these  
2 questions, were you done, Mr. Arbitrator?

3 ARBITRATOR FEREDAY: Yes.

4 MR. WILMOTH: Also, it's my understanding  
5 based on some of your comments earlier that it would be  
6 within the ambit of my ability to talk to Dr. Schneider  
7 to ask a question that is really a rebuttal point. Is  
8 that feasible?

9 ARBITRATOR FEREDAY: A rebuttal point to  
10 the questions and responses elicited by Mr. Griggs?

11 MR. WILMOTH: I'd like to ask him about  
12 something said by Dr. Fanning. Would that be  
13 appropriate?

14 ARBITRATOR FEREDAY: Yes, I believe it  
15 would. Unless there's an objection from the other side,  
16 I don't -- but that would, of course, allow further  
17 inquiry by Mr. Griggs.

18 MR. WILMOTH: And I don't intend to  
19 inquire about Dr. Fanning's testimony in any regard,  
20 just whether he heard something. And then I was going  
21 to ask a question about what would happen.

22 ARBITRATOR FEREDAY: That is acceptable.

23 Q. (By Mr. Wilmoth) Did you hear  
24 Mr. Grunewald's questions concerning the NRD's  
25 population of the project earlier this morning?

1 A. I recall that discussion, yes.

2 Q. Just to be clear, if the NRD actually  
3 pumped more water than 20,000 acre-feet as part of the  
4 project, would you be seeking additional credit in this  
5 process?

6 A. No. Under the plan -- I tried to be clear  
7 earlier -- the plan would cover a credit of up to 20,000  
8 acre-feet. If they enlarged it beyond that, and we  
9 didn't have an approved amendment or additional plan, we  
10 wouldn't expect additional credit until that time, and  
11 it would reflect itself as additional virgin water  
12 supply in the system.

13 Q. Did you also hear Mr. Grunewald's  
14 questions about the NRD's collection of various well  
15 data and discharge data?

16 A. Yes.

17 Q. And did you hear Dr. Fanning suggest that  
18 he would provide that data to the Department?

19 A. Yes.

20 Q. And when those data are provided, what  
21 would the Department do with them?

22 A. That would be amassed as part of all the  
23 data that we collect annually for our annual data  
24 exchange with the other States that occurs as a routine  
25 matter under the final settlement stipulation. So we

1 would compile that in the appropriate manners. Well  
2 pumping is compiled so that we can produce a single set  
3 of pumping data throughout the basin that can be  
4 utilized in the model. Other data like streamflow data  
5 would be compiled. And that's all exchanged with the  
6 other states. And that's done by April 15th of each  
7 year.

8 MR. WILMOTH: Nothing further.

9 MR. GRIGGS: Your Honor, I have a brief  
10 recross.

11 RE CROSS EXAMINATION

12 BY MR. GRIGGS:

13 Q. Dr. Schneider, do you have a copy of the  
14 Rock Creek proposal available for your review?

15 A. I do.

16 (A brief pause in the proceedings.)

17 ARBITRATOR FEREDAY: We're back on the  
18 record. Mr. Griggs.

19 Q. (By Mr. Griggs) Dr. Fanning (sic),  
20 Mr. Wilmoth asked you a series of questions about  
21 whether maintenance pumping would be utilized under this  
22 plan. Do you recall his questions?

23 A. Right, yes.

24 Q. And your testimony on the subject was that  
25 there would be some years where maintenance pumping

1 would not occur?

2           A.       No, that's not correct. I said the  
3 pumping at 300 acre-feet per year. I think you're  
4 directing this to the part of the plan that lays that  
5 out. I certainly tried to be explicit on that. We've  
6 committed to that minimum amount, and that's based on  
7 the analysis that we've done that indicates that that  
8 will likely cover any new depletion over that  
9 hypothetical -- the future that we looked at for up to  
10 60 years. And then we would increase that amount.

11                   If, by some chance, the actual new  
12 depletion in some year went above 300 acre-feet, we  
13 would have to increase that minimum amount. So that  
14 would set a new floor for what we would deliver in  
15 subsequent years.

16                   That's what these paragraphs here are  
17 supposed to mean, anyway, on 20021, the end of page 8  
18 and the top of page 9.

19                   MR. GRIGGS: Thank you. No further  
20 questions.

21                   ARBITRATOR FEREDAY: Mr. Wilmoth.

22                   MR. WILMOTH: Nothing further.

23                   ARBITRATOR FEREDAY: I have just a few  
24 questions.

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EXAMINATION

BY ARBITRATOR FEREDAY:

Q. First of all, just a clarification. I know what you meant by these numbers, but I want to make sure the record is very clear on this.

With regard to mound recharge, you spoke in terms of, I believe, 10 to 20,000 acre-feet. And I believe you meant 10,000 to 20,000 acre-feet.

A. Yes.

Q. And, similarly, with regard to surface water depletions, you spoke between 50 and 100,000 acre-feet. I assume you meant 50,000 and 100,000 in that instance?

A. Yes. Thank you.

Q. Just a detail.

I'm interested in how the model can be used, or perhaps is used, to calculate transit losses. My understanding of the model is that it accounts for depletions to reach gains from groundwater pumping. Is that an accurate assumption?

A. Yeah. Generally speaking, it accounts for the depletions, and it does those accounting computations on various reaches or subbasins of the river.

Q. The model is intended to give its users a

1 picture of changes in baseflow?

2 A. Changes in baseflow due to groundwater  
3 pumping that has occurred over time. That was the  
4 purpose of the model, yes.

5 Q. So is it used to evaluate losses from  
6 streams to the aquifer, that is, losses to the aquifer  
7 from streams, separate from pumping effects?

8 A. It's not.

9 Q. So when the model is being used, it's  
10 being used focused on pumping to evaluate effects on  
11 baseflow?

12 A. Right. And just a caveat, also the  
13 imported water supply credit.

14 Q. Yes. I understand that the imported water  
15 supply credit also is calculated or addressed by the  
16 model.

17 A. Yes.

18 Q. Does the model have a stream loss or  
19 transit loss package that's available for use with this  
20 model?

21 A. Well, this is what is called a MODFLOW  
22 model. So it uses this stream package, which does  
23 stream routing, as I think I've tried to explain in my  
24 report. So the purpose is to create kind of --  
25 something that reflects a little closer to reality than

1 the previous package that was available, how it dealt  
2 with rivers and streams. It was called the River  
3 Package.

4                   And, essentially, in that package, you had  
5 to designate locations where there was a river or a  
6 stream. And it was always there. It was always  
7 flowing. It was always at a certain stage, that type of  
8 thing. So it was kind of a constant condition. You  
9 could vary it over time. You could specify different  
10 changes in the stage of it, or what have you, but the  
11 model didn't try to find out if it should still have  
12 water in it, based on varying conditions.

13                   And that's what it tries to do with the  
14 streamflow package. It does routing of flows, so that  
15 you can put a stream into a given area, but unless the  
16 water table rises above the bottom of that stream, it  
17 won't have any flow in it. So there wouldn't be an  
18 interaction. Then it routes those flows downstream.  
19 And if there should be some loss, it allows for that  
20 loss up to the amount that's coming downstream. So it  
21 doesn't just provide an infinite source.

22                   Is that helpful?

23           Q.       Yes, that's helpful.

24                   Would you say it's true that transit  
25 losses in the basin all are accounted for at stream

1 gauges, one way or another? They are included in the  
2 stream gauge reading?

3 A. I would say that, to the extent they  
4 occur, they would be reflected in those, yes. I think  
5 that's what you're getting at.

6 Q. Yes.

7 ARBITRATOR FEREDAY: That's all the  
8 questions I have. You may have further questions,  
9 Counsel, based on that interchange.

10 MR. GRIGGS: No further questions.

11 MR. WILMOTH: None.

12 ARBITRATOR FEREDAY: Okay. Well, it's  
13 nearly a quarter to five. Let's call it a day, and  
14 we'll be back at nine in the morning. Is that  
15 acceptable? By the way, I am willing to start earlier,  
16 if anyone would prefer that.

17 MR. WILMOTH: No. There's a lot of people  
18 here.

19 (Discussion off the record.)

20 (WHEREUPON, the proceedings were  
21 recessed at 4:43 p.m.)

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CERTIFICATE

STATE OF COLORADO )  
 )ss.  
CITY AND COUNTY OF DENVER )

I, Jana Mackelprang, Certified Realtime Reporter, Registered Professional Reporter, and Notary Public for the State of Colorado, do hereby certify that this trial was taken in shorthand by me and was reduced to typewritten form by computer-aided transcription, that the foregoing is a true transcript of the questions asked, testimony given, and proceedings had.

I further certify that I am not an attorney nor counsel nor in any way connected with any attorney or counsel for any of the parties to said action or otherwise interested in its event.

IN WITNESS WHEREOF, I hereunto affix my hand and notarial seal this 31st day of August, 2013. My commission expires January 24, 2016.

\_\_\_\_\_  
Jana Mackelprang  
CRR, RPR, Notary Public  
Calderwood-Mackelprang, Inc.