

1/26/2012

DAVID BARFIELD

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1 .

2 In The Supreme Court of the United States

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4 \_\_\_\_\_

5 STATE OF KANSAS,

6 Plaintiff,

7 vs.

8 STATE OF NEBRASKA

9 and

10 STATE OF COLORADO,

11 Defendants.

12 \_\_\_\_\_

13 .

14 .

15 .

16 DEPOSITION OF

17 DAVID W. BARFIELD

18 taken on behalf of the Defendant State of  
19 Nebraska, pursuant to Notice to Take Deposition,  
20 beginning at 8:02 AM on the 26th day of January,  
21 2012, at 109 Southwest 9th Street, in the City of  
22 Topeka, County of Shawnee, State of Kansas, before  
23 Michelle D. Hancock, RPR, C.S.R.

24 .

25 .

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1                                   DAVID W. BARFIELD,  
2 of lawful age, having been first duly sworn on his  
3 oath to state the truth, the whole truth, and  
4 nothing but the truth, testified as follows:

5           DIRECT EXAMINATION

6           BY MR. WILMOTH:

7           Q.    Good morning, Mr. Barfield.

8           A.    Good morning.

9           Q.    And just for the record, could you please  
10 state and spell your full name.

11          A.    Sure. My name is David W. Barfield.

12 David is D A V I D. Barfield is B A R F I E L D.

13          Q.    Mr. Barfield, could you tell me if you're  
14 suffering any maladies or under the influence of  
15 any medication that would prevent you from  
16 testifying truthfully and accurately today?

17          A.    I'm on no medications and I'm not aware  
18 of any maladies that I'm suffering that would  
19 inhibit my testimony today.

20          Q.    Thank you. Before we get too far down  
21 the road I wanted to thank you for participating  
22 in the deposition and also offering us the  
23 facility. It's been very helpful to have the  
24 space and to be able to remain in the room during  
25 the breakout sessions, so we appreciate the

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1 hospitality.

2 A. All right. You're welcome.

3 Q. I'd like to hand you a copy of the notice  
4 of deposition that was sent and just ask you if  
5 you have seen this document before. We'll mark  
6 this as Exhibit 1 to the deposition.

7 (WHEREUPON, Deposition Exhibit No 1 was  
8 marked for identification.)

9 A. Yes, I've seen this.

10 BY MR. WILMOTH:

11 Q. Thank you. And there was a request in  
12 that document to bring any materials you felt  
13 might be supplemental to the materials that were  
14 submitted to Nebraska in response to the various  
15 requests it's already propounded. Do you have any  
16 additional material you'd like to provide?

17 A. No, no supplemental materials.

18 Q. Thank you. I'd like to start with a  
19 discussion of your educational and professional  
20 background. Could you please tell me a little bit  
21 about your educational background.

22 A. Yes. Well, I have a bachelor's in  
23 science in civil engineering from the University  
24 of Kansas that I acquired in 1978 through,  
25 obviously, four years of study there at the

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1 University of Kansas, four and a half years. And  
2 I also have a masters in science in water  
3 resources engineering that I obtained, again,  
4 through the University of Kansas in 1991.

5 Q. With regard to the BS, what was the  
6 general nature of that coursework that led to the  
7 degree?

8 A. Well, civil engineering is a fairly broad  
9 framework, but obviously all the preparatory  
10 mathematic work and the basis of civil  
11 engineering, various disciplines, so it was a  
12 general civil engineering degree that, you know,  
13 included as part of it water resources coursework.

14 Q. Would this include things like how to  
15 construct the dams and reservoirs or --

16 A. That included -- that was included in the  
17 water resources work, so --

18 Q. Bridge building, maybe, or --

19 A. Right.

20 Q. -- things like that?

21 A. All the -- all the various disciplines  
22 within civil engineering were covered within the  
23 bachelor's degree in civil engineering.

24 Q. Other than water resources, what are the  
25 other areas typically covered in civil

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1 engineering?

2 A. Well, structural, strength of materials  
3 and structures, you know, how to design buildings  
4 and --

5 Q. Sure.

6 A. -- various structural. There's typically  
7 work in soil mechanics and foundations. There's  
8 work in transportation. That's another major  
9 civil project, highways and those sorts of civil  
10 works. Water resources is a -- is a, you know,  
11 civil work that we obviously study. Hydrology and  
12 what you do with that to manage water supplies,  
13 both surface water and ground water. And then  
14 wastewater treatment is the other sort of  
15 significant branch of civil engineering that you  
16 get at some coursework in.

17 Q. And your master's, then, sounds like  
18 focused on water resources.

19 A. That's correct.

20 Q. What was the nature of the coursework  
21 involved in that -- obtaining that degree?

22 A. Uh-huh. Well, it was -- you know, 30  
23 hours of study specifically in water resource  
24 management areas, and so, again, water resources  
25 policy and law in terms of how we've particularly

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1 in the United States proceeded in terms of  
2 developing our water resources in federal and  
3 other laws. A lot of surface water work, you  
4 know, how to calculate flow in a channel and back  
5 water curves and all sort of things like that.  
6 Contaminant transport. There -- there was a  
7 specific course in groundwater hydrology and  
8 methods for analyzing groundwater movement  
9 including some in modeling. Again, contaminant  
10 transport and modeling of the transport of  
11 contaminants in groundwater systems.

12 Q. So would that be a situation where you  
13 have maybe a Superfund site that involves some  
14 nasty chemical and you're trying to trace the  
15 progression of that chemical in a particular  
16 direction?

17 A. Yes. That's what occurs to me at the  
18 moment here. I believe there was some -- more  
19 soil mechanics, again particularly as it relates  
20 to dams and constructing those sorts of things.

21 Q. So on the structural side the course  
22 study involved how you would build a dam in  
23 certain types of soil? Is that what you're  
24 saying?

25 A. Well, in the construction of dams, soils

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1 are very important to make sure that you -- that  
2 you restrict the movement of flow, particularly  
3 through the structure and under or around the  
4 structure, and so there's a lot of coursework to  
5 ensure that's done properly. There was also some  
6 coursework just in computational methods, you  
7 know, HEC-1 and HEC-2, and it's now HEC-RES, and  
8 sort of how we, you know, do some of those.

9 Q. And are those surface water flow models?

10 A. Those are. But, again, just methods both  
11 groundwater and surface water, so --

12 Q. Sure. Did you acquire any experience in  
13 running the HEC series of models?

14 A. Some, yes.

15 Q. What -- what was the nature of that work?

16 A. Well, HEC -- HEC -- before -- this is  
17 before HEC-RES, I believe, so HEC-1 and HEC-2 are  
18 sort of focused on computing, again, stages in  
19 streamflows as it goes through a system, you know,  
20 and both sort of in a static sense and also in a  
21 dynamic sense. It's also used a lot for  
22 floodplain mapping, those sorts of things.

23 Q. And did you obtain any formal training in  
24 the field of hydrology?

25 A. Yes.

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1 Q. And could you describe the nature of  
2 that. I think you mentioned it in the context of  
3 the BS.

4 A. Well, in the BS, you know, there was a  
5 general hydrology course, and then a followup  
6 course, water resources design, or something of  
7 that nature where you -- so the one sort of gave  
8 you the computational methods of all sort of sorts  
9 and then the second course is more the application  
10 of those methods to typical water resource  
11 problems.

12 Q. And how would you define that -- the  
13 scope of that field of hydrology? What does that  
14 mean to -- to you in your experience? Does that  
15 encompass everything that you've just discussed or  
16 --

17 A. Well, certainly it includes, I believe,  
18 everything I just discussed. I'd have to read  
19 back the question, but --

20 Q. My question is just what do you consider  
21 to be the scope of the field of hydrology? Would  
22 that include all of this -- engineering  
23 components, or is it just the movement of water  
24 and groundwater and things like that?

25 A. Well, it's fairly broad. It's the study

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1 of water, its various movements in all the various  
2 aspects of the hydrologic cycle. That includes  
3 pretty much every element of that movement both on  
4 the ground and underground and interrelationships  
5 between them.

6 Q. And you mentioned that in your -- in the  
7 coursework that you participated in, there was  
8 some training in modeling?

9 A. (Nodded head up and down.)

10 Q. Could you elaborate a little bit about  
11 how you utilized those models in your coursework?

12 A. Are you -- are you speaking specifically  
13 of groundwater modeling now?

14 Q. That would be fine, sure. We can start  
15 there.

16 (Cell phone sounded.)

17 Q. As long as there's not a fire, I'm okay.

18 A. All right. Repeat your question, please.

19 Q. Could you just tell me in the context of  
20 your coursework how did you utilize either surface  
21 water or groundwater models.

22 A. Well, we talked some about surface water  
23 models, you know, HEC-1 and HEC-2. The  
24 groundwater modeling, the first course looked at  
25 -- there was one specific course that was

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1 basically talking about groundwater and its  
2 nature, the principles that govern its movement  
3 within the ground system, and the various  
4 computational methods of dealing with those, the  
5 pure H formulas and analytical techniques that are  
6 used, both field techniques and how you take those  
7 techniques and generalize them. Then we spent  
8 some time then trying to understand models and how  
9 we take those general formulas and analytical  
10 methods and ways of collecting data and learning  
11 about the groundwater systems and the parameters  
12 that govern that movement and organize them in  
13 groundwater models in a way that computers can,  
14 you know, take all that data and all the formulas,  
15 knowns and unknowns, and make their estimates.

16 Q. Was there any particular model that you  
17 utilized, or was it a discussion of how any model  
18 might operate?

19 A. The coursework I did was more dealing  
20 with the methods. I don't recall that we actually  
21 ran a modflow model in my coursework.

22 Q. Have you had occasion to publish any  
23 papers that have been reviewed by your peers?  
24 Prior to publication, I should say.

25 A. Not that I recall.

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1 Q. In your report that has been offered in  
2 this proceeding --

3 A. May I back up on your last question?

4 Q. Certainly.

5 A. When you say by your peers, what do you  
6 mean?

7 Q. Have you published any peer-reviewed  
8 documents?

9 A. Okay. Oh. Okay. The answer to that is  
10 no.

11 (WHEREUPON, Deposition Exhibit No 2 was  
12 marked for identification.)

13 BY MR. WILMOTH:

14 Q. I'll hand you a copy of your expert  
15 report entitled Ensuring Compliance by Nebraska  
16 which has been filed in this proceeding. We will  
17 label it Exhibit 2, and I would just ask you to  
18 give that a look over and let me know if you find  
19 it to be an accurate copy.

20 A. Yes, it appears to be.

21 Q. Thank you. I'd like to direct your  
22 attention to page 3 of your report also labeled KS  
23 722 at the bottom. In this introductory paragraph  
24 you identify three bases for the expert analysis  
25 contained in the document. Do you see that?

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1 A. Is it toward -- no, I'm -- the entire  
2 paragraph, right?

3 Q. First paragraph.

4 A. Yes, I do see that. Thank you.

5 Q. Thank you. I'd just like to address each  
6 one of those in turn.

7 A. Uh-huh.

8 Q. As I understand the first basis, it is  
9 your expertise in statutory -- excuse me -- your  
10 expertise is based on statutory responsibility for  
11 administration of water rights in Kansas, is that  
12 right?

13 A. Yes.

14 Q. So are -- do you have any legal training,  
15 formal legal training?

16 A. No.

17 Q. So if your --

18 A. Excuse me. By formal legal training, you  
19 mean have I gone to law school?

20 Q. Yes.

21 A. No, I've not gone to law school.

22 Q. And you don't possess a juris doctor  
23 degree?

24 A. I do not.

25 Q. So if your expertise in this area is not

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1 as that of a lawyer, is it in the administration  
2 of these laws?

3 A. That is accurate.

4 Q. Do you have any experience administering  
5 water rights or water laws outside of the state of  
6 Kansas?

7 A. No.

8 Q. Are the water users within the state of  
9 Nebraska subject to Kansas law?

10 A. No.

11 Q. Are you familiar with the laws of the  
12 state of Nebraska?

13 A. I have some fam -- it depends on your  
14 definition of familiarity. I have some  
15 familiarity with the laws of Nebraska.

16 Q. How did you acquire that familiarity?

17 A. Well, principally through my 18 years of  
18 experience dealing with the Republican River  
19 Compact and to a lesser degree of my years as  
20 compact commissioner on the Blue River Compact.

21 Q. But to be clear, those are interstate  
22 federal compacts, and I'm asking you about  
23 Nebraska water law that's purely intrastate.

24 A. Well, I believe I said that the  
25 experience in Nebraska's law was gained through my

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1 years being involved in the compact. That  
2 involvement with the compact has necessarily led  
3 to some understanding of Nebraska's laws and how  
4 they're administered.

5 Q. What is your basic understanding of those  
6 laws and how they're administered?

7 A. Can you maybe help me more specifically,  
8 or do you --

9 Q. What -- what are the laws that you are  
10 familiar with that apply in the Republican River  
11 basin?

12 A. Okay. I take your question to be fairly  
13 broadly, so I'll answer it fairly broadly.  
14 There's chapters, I think they're called, that  
15 deal with the responsibilities of the Department  
16 of Natural Resources, I think it's Chapter 61, and  
17 its work broadly, and specifically dealing with  
18 its administering of Nebraska's system of water  
19 rights, and particularly surface water rights and  
20 the various aspects of that. There's a chapter, I  
21 believe it's 46, that is sort of Nebraska's  
22 groundwater management and protection act that  
23 sort of deals with its groundwater law generally,  
24 and in its now system of integrated management  
25 planning and the review board that deals with

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1 disputes. And there's a separate chapter and too  
2 where the NRDs you know, it's sort of dealing  
3 with political subdivisions in terms of NRDs as  
4 well. So broadly those are the chapters that deal  
5 with at least the aspects I have some familiarity  
6 with.

7 Q. You referenced integrated management in  
8 your description there. Let's focus on that a  
9 bit. Can you tell me how you perceive the  
10 integrated management laws in Nebraska, how they  
11 operate.

12 A. Well, integrated management, I believe  
13 they were enacted in -- the significance of the  
14 laws in 2004 that sort of provide for these  
15 processes, and essentially require, as I  
16 understand it, in basins that are fully --  
17 declared to be fully appropriated or  
18 overappropriated a process by which these  
19 integrated management plans are developed in sort  
20 of a cooperative way between the Department of  
21 Natural Resources and the NRD or NRDs involved.

22 Q. And do you have a -- an understanding of  
23 the purpose of those plans under the statutes that  
24 you're --

25 A. Uh-huh.

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1 Q. -- referring to?

2 A. Well, it's to I guess ensure that fully  
3 appropriated basins don't degrade into something  
4 overappropriated, and to, in the case of  
5 overappropriated basins, to sort of incrementally  
6 seek to return those systems to a better balance.

7 Q. Do you have any fundamental concerns  
8 about that objective? I'm not asking you about  
9 its execution. I'm asking you about that  
10 objective.

11 A. Are you asking if I'm -- think it's bad  
12 that -- I guess I'm not clear what your question  
13 is.

14 Q. Do you have any concerns about the  
15 objective that's embodied in the law that you just  
16 referenced?

17 A. As -- as a general matter -- I guess as a  
18 general matter not. Obviously, as we'll talk  
19 about in the report, its application to the  
20 specific problem between the states, I just have a  
21 number of concerns about, but is that bad law? Is  
22 that what you're asking me?

23 Q. I'm just trying to discern whether Kansas  
24 has a concern about the fundamental objectives of  
25 the laws or their implementation.

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1 A. I guess I'm not sure I can answer that on  
2 behalf of Kansas. My study of the laws has really  
3 been with respect to its application in this  
4 specific context, not as a general matter.

5 Q. Thank you. Mr. Barfield, I'm going to  
6 hand you a document that I will tell you I  
7 obtained from one of my favorite sources, the  
8 Internet, and therefore ask you if you recognize  
9 this document and can confirm its authenticity for  
10 me.

11 MR. DRAPER: Tom, you going to make this  
12 an exhibit?

13 BY MR. WILMOTH:

14 Q. If he can confirm it.

15 A. Yes, I do have a general recognition of  
16 this presentation.

17 MR. WILMOTH: And I'd like to mark that  
18 Exhibit 3.

19 (WHEREUPON, Deposition Exhibit No 3 was  
20 marked for identification.)

21 BY MR. WILMOTH:

22 Q. And just ask you to explain the purpose  
23 of this presentation.

24 A. Well, as I recall, this was provided, a  
25 briefing provided to, as it indicates, a joint

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1 committee on energy and environmental policy.  
2 This is a legislative committee, sort of interim  
3 committee between the sessions that was studying  
4 some issues in that interim between the 2009  
5 legislative session, the 2010. And they asked me  
6 to come and provide an overview of our laws, as is  
7 indicated in the title.

8 Q. I'd like to direct your attention to page  
9 10 of this document. The first slide is entitled:  
10 Water law changes. Do you see that?

11 A. I do.

12 Q. Can you describe very, very briefly just  
13 the nature of the changes that have been required  
14 over time in Nebraska -- excuse me -- in Kansas  
15 water law. And I'm just referring to those of  
16 course referenced in your -- in your document.

17 A. So you'd like me to go through sort of  
18 just a brief explanation of these --

19 Q. Very briefly, yes.

20 A. -- different changes.

21 Q. Please.

22 A. Okay. Well, the -- what's not on here, I  
23 guess, and the change from which we're talking is  
24 the essentials -- the foundational act of our  
25 water law, which is Kansas Water Appropriation

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1 Act, which was developed in 1945 or passed in 1945  
2 that essentially implemented our set of laws  
3 related to water rights. So in 1973 the  
4 groundwater management district was enacted.

5 Q. And what was the purpose of that act?

6 A. To provide for the formation of  
7 groundwater management districts. It states the  
8 legislative purpose of that, how districts are  
9 created. The powers of those districts are  
10 enumerated. My role within that act in terms of  
11 interacting with the groundwater management  
12 districts is in that act.

13 Q. And I just direct your attention to the  
14 slide below. It indicates that part of this was  
15 to allow local control of groundwater policy. Is  
16 that the case? Was that one of the legislative  
17 intent provisions you referred to earlier?

18 A. Yeah. The word control I see is there.  
19 It's a little strong. It -- the act gives the  
20 local unit of government significant input into  
21 groundwater policy. It allows them to -- the act  
22 uses the words determine their destiny, is the  
23 words. It really isn't control in the sense they  
24 don't grant water rights. They recommend, as it  
25 -- they develop a management program and adopt

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1 one.

2 Q. And what would be the nature of that  
3 program generally? Does that establish the amount  
4 of water that can be withdrawn from a district or  
5 what elements might that include?

6 A. Well, it typically is a document that has  
7 background related to the district, you know, and  
8 you know, how large it is, the water resources,  
9 the water rights that have been granted, but  
10 essentially it's sort of a plan of action for the  
11 district and management within the district, and  
12 those actions can include recommend --  
13 recommending, as it says, rules and regulations  
14 that can be adopted by the chief engineer --

15 Q. Uh-huh.

16 A. -- to prescribe, well, spacing, you know,  
17 the amount that should be appropriated for new --  
18 for new water rights.

19 Q. Uh-huh.

20 A. And if areas should be closed or how --  
21 how those new rights should be allowed. You know,  
22 it provides for a program of -- you know, of  
23 actions that are not regulatory in nature, but,  
24 you know, incentive-based retirement programs and  
25 those sorts of things, again, to guide their

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1 actions. Metering has typically been required in  
2 our groundwater management districts, so the -- a  
3 program can include those sorts of elements.

4 Q. So if I understand, the district makes a  
5 recommendation about a potential rule or  
6 regulation, and what happens to that  
7 recommendation?

8 A. It comes to me. They essentially develop  
9 regulations they wish to occur within their  
10 district, and they are forwarded to my office, and  
11 --

12 Q. What would a typical regulation look  
13 like? Would that include this well metering  
14 requirements or are there pumping limitations?

15 A. Metering is a -- is a type of regulation  
16 that -- one type of regulation that would be  
17 fairly typical, so they would prescribe that  
18 meters be done and implement those over a period  
19 of years, and so that would be submitted to me and  
20 we would have an interaction to ensure it's in a  
21 proper form and ensure that it accomplishes what  
22 its intended to accomplish. And then I go through  
23 the process then, once we've agreed on  
24 promulgating the regulation, there's obviously a  
25 series of steps that I have to go through.

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1 Department administration reviews it, makes sure  
2 the words are in the format that is --

3 Q. The lawyers have to get involved, right?

4 A. Yeah. And then the attorney general's  
5 office must review it to ensure that it's  
6 consistent with our body of laws. And then  
7 there's a hearing process that we go through  
8 either before adopting it or further modifying it  
9 based upon the input of that hearing.

10 Q. You mentioned if the parties agree on the  
11 nature of the regulation. Do -- does the district  
12 always agree with your office on the content of  
13 those rules and regulations?

14 A. Well, we -- we don't move forward with a  
15 regulation unless we agree on it. I mean, I -- I  
16 don't take the recommendations and make it into  
17 something different and then move through the  
18 process. That was what I was seeking to say.

19 Q. So have you ever had a situation where  
20 the district's proposed something and you simply  
21 said that cannot do?

22 A. Yes. There's regulations they proposed  
23 that we have not moved forward with.

24 Q. On balance, would you say that you  
25 implement most of the proposals or a few of the

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1 proposals that are offered to you by the district?

2 A. I would say most.

3 Q. Now, if I could direct your attention to  
4 the following page, there's a slide discussing  
5 intensive groundwater use control areas. Could  
6 you please explain the nature of that kind of area  
7 --

8 A. Uh-huh.

9 Q. -- to me.

10 A. The intensive groundwater use control  
11 areas, or IGUCAs, as we affectionately refer to  
12 them, this is a provision of the groundwater  
13 management district act that was added to our law  
14 in 1978. It provides for a process by which a  
15 special management area is created. It has to  
16 meet certain criteria. These are groundwater  
17 management areas. There has to be a problem of  
18 groundwater declines or well yield declines or  
19 water quality degradation that might be occurring,  
20 so there's sort of a test -- I can't -- we can't  
21 create IGUCAs that don't have specific type of  
22 water resource problems. But in areas identified,  
23 either through the chief engineer's initiation or  
24 through the GMD initiating, saying, we have a  
25 problem here, so, we have an area, we have a

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1 problem. There's an initiation of a process by  
2 which the question is considered as to whether  
3 this IGUCA should be created. And then if so,  
4 what corrective control provisions should be  
5 adopted.

6 Q. Are there any IGUCAs, I G U C A, in the  
7 Republican basin?

8 A. No, there are not.

9 Q. Are there no areas of the basin that have  
10 the kinds of water management issues that would  
11 merit an IGUCA?

12 A. There are areas within Northwest Kansas  
13 that have water resource -- that have groundwater  
14 declines and could have IGUCAs.

15 Q. Is there any plan to implement the IGUCA  
16 solution to those problems? For lack of a better  
17 word?

18 A. Within the Republican?

19 Q. Yes.

20 A. There has been significant dialogue  
21 between my office and GMD 4 about a potential  
22 IGUCA within the model domain. It's not actually  
23 within the Republican basin.

24 Q. And by the model, are you referring to  
25 the Republican River groundwater model?

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1 A. Yes, I am.

2 Q. Thank you. I'd like to hand you a  
3 document that was published by the USGS, and ask  
4 you, just very simply, if this is the kind of  
5 information on which you might rely in your  
6 professional capacity to determine whether it  
7 would be appropriate to initiate some kind of  
8 groundwater control?

9 MR. WILMOTH: And we'll mark this  
10 Exhibit 4.

11 (WHEREUPON, Deposition Exhibit No 4 was  
12 marked for identification.)

13 A. Now, can you repeat your question?

14 BY MR. WILMOTH:

15 Q. I don't have any questions about the  
16 content.

17 A. Uh-huh.

18 Q. I just am simply curious if this is the  
19 kind of technical information on which you might  
20 rely in your professional capacity to determine  
21 whether some kind of groundwater control is  
22 appropriate within the state of Kansas.

23 A. This type of document could -- could be  
24 the type of information that would be provided as  
25 evidence at such a hearing.

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1 Q. Would you find it relevant in your  
2 professional capacity?

3 A. Yes.

4 Q. Thank you. I'd like to go back, if we  
5 can, to the first slide that I asked you about,  
6 and I apologize for jumping around. It will be  
7 the last time I do that. In this document.

8 MR. DRAPER: Still doubtful.

9 BY MR. WILMOTH:

10 Q. This is Exhibit 3, page 10.

11 A. The water law changes?

12 Q. Yes. I had asked you earlier about the  
13 progression of those changes, and I apologize for  
14 interrupting you. We have talked about the  
15 groundwater management district act and the IGUCA  
16 provisions. I think we're on to the early 1980s.  
17 Could you please pick it up there and continue  
18 with your answer before I interrupted you.

19 A. Yes. The early -- well, we missed 1978,  
20 and in addition to the GMD act being amended and  
21 the IGUCA provisions, the appropriation act was  
22 amended to require water rights for all but  
23 domestic uses. In the early 1980s it indicates  
24 there were significant new restrictions for new  
25 water rights that were enacted, it says, for

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1 example, safe yield, so we were sort of shifting  
2 from the water development stage that the act  
3 enabled to really restricting new development in  
4 some pretty significant ways.

5 Q. What necessitated that change? Was there  
6 a concern about the extent of water use or some  
7 other concern that led to the change?

8 A. Yes. Overappropriation in areas was  
9 apparent and led to that -- to those changes.

10 Q. And how about in 1984?

11 A. 1984 the legislative added to the Kansas  
12 appropriation act minimum desirable streamflows on  
13 a number of watercourses within the state of  
14 Kansas.

15 Q. And 1989?

16 A. 1989, water use reporting improved via  
17 penalties for failure to report. We have always  
18 required water use reporting, but here we were  
19 giving statutory authority to levy fines and to --  
20 and given additional staff to ensure that water  
21 users provided accurate reports.

22 Q. And then in 2000 there were some changes  
23 in your own regulations, is that right?

24 A. Yes, just a significant expansion of  
25 those regulations. We had a number of things in

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1 administrative policy and we were required to move  
2 all those to regulations --

3 Q. I see.

4 A. -- at that point.

5 Q. So that they would be enforceable as  
6 rules, I assume?

7 A. Right. And just a more transparent  
8 public process to adopt them.

9 Q. Did those relate to -- particularly to  
10 surface water or to groundwater or both?

11 A. Both.

12 Q. And did they include any restrictions on  
13 use or reporting requirements or generally what  
14 was their content? Just very briefly.

15 A. Well, our regulations related to the act  
16 is most of 200 pages in length, so they apply to  
17 virtually every aspect of the administration of  
18 the act.

19 Q. So is it safe to say that these are rules  
20 that implement your statutes?

21 A. Yes.

22 Q. Okay. Thank you. Have there been any  
23 significant changes in either Kansas water laws or  
24 your regulations since 2000? And by significant I  
25 mean something you would consider significant in

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1 your professional capacity.

2 A. Well, again, that does depend on your  
3 definition of significant. I would say yes.

4 Q. Could you generally describe when those  
5 occurred and what they were.

6 A. Well, I'll describe a couple that come to  
7 mind. There was actually one body of regulations  
8 related to IGUCAs. This is the statute -- well,  
9 let me -- basically a set of regulations that say  
10 how we will do the IGUCA processes was developed.

11 Q. Do you recall when that was? Roughly.

12 A. 2009. There was significant legislative  
13 concern. My predecessor was taking some action  
14 that created some concern, and so we implemented  
15 some regulations to just make very clear how that  
16 process would work. The other --

17 Q. What was the nature of the concern at the  
18 time?

19 A. He was initiating an IGUCA in a  
20 particular area, and there was legislative  
21 interest in that, the stakeholders went to the  
22 legislature. There was an attempt to amend the  
23 IGUCA statutes in various ways. There was not  
24 consensus on how to do that.

25 Q. If I understand, this was the local

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1 stakeholders suggesting they didn't want the  
2 IGUCA?

3 A. That would be accurate.

4 Q. And where was that going to be located?  
5 Which basin?

6 A. Pawnee. The Pawnee River basin, South  
7 Central Kansas.

8 Q. What ultimately happened with regard to  
9 that IGUCA? Was it adopted or enacted or deferred?

10 A. We have not completed that process yet.

11 Q. Any other major changes that you would  
12 consider significant?

13 A. The other significant change in  
14 regulations relates to impairment actions in  
15 groundwater systems.

16 Q. Is that a scenario where one groundwater  
17 user is impairing the ability of another to obtain  
18 groundwater?

19 A. Yes.

20 Q. And when was that?

21 A. Again, it was in the 2009-2010 time  
22 frame. I'm sure there's others. We've closed GMD  
23 1 to new appropriations, we've required meters in  
24 our GMD 2, but those are the most significant that  
25 come to mind.

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1 Q. Thank you. I'm going to hand you a  
2 document that I think -- yes, is dated January 18,  
3 2012, and I apologized to Mr. Nelson yesterday,  
4 I'll do it to you, if I appear to be throwing  
5 anything at you, I just can't reach that far  
6 across the table. We'll mark this Exhibit 5.

7 (WHEREUPON, Deposition Exhibit No 5 was  
8 marked for identification.)

9 BY MR. WILMOTH:

10 Q. Can you identify this document, please.

11 A. Okay. Well, it's entitled Senate  
12 Committee on Agriculture Testimony on SB 272,  
13 Multiyear Flex Accounts, and by myself on January  
14 18th of this year.

15 Q. Can you explain the general nature of  
16 this what I infer to be a proposed bill?

17 A. This -- the bill, LB 272, is -- proposes  
18 to amend section K.S.A. 82a-736. That section of  
19 statute is part of the appropriation act, and it  
20 provides for multiyear flex accounts.

21 Q. If I look at the second paragraph of this  
22 document, it appears there was a drought that  
23 occurred which may have led to this legislation,  
24 is that correct?

25 A. Yes. There was a very significant

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1 drought that was a factor in this legislation  
2 occurring.

3 Q. So this is -- well, strike that. Is this  
4 an attempt to adapt to that problem, in part?

5 A. The multiyear flex accounts could provide  
6 a tool to assist water users in multiyear  
7 management of their water right that could be  
8 helpful in drought.

9 Q. And if I understand correctly, this flex  
10 account existed but there wasn't significant  
11 participation it?

12 A. That's correct.

13 Q. And why was that?

14 A. The flex account, as it is in statute  
15 currently, has one option for quantifying the  
16 amount of the five-year account, and that is you  
17 average the water use for the particular water  
18 right from 2000 to 2009, create the annual  
19 average, and the flex account, the five-year flex  
20 account is five times that average minus 10  
21 percent.

22 Q. That's the current law.

23 A. That's the current law.

24 Q. And what are the needs for the proposed  
25 change? What is the basis for the proposed

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1 change? Perhaps that's a better question.

2 A. Well, we've had, in the 10 years since it  
3 was enacted, virtually no participation in the  
4 program. Water users desire a multiyear tool in  
5 part so they can handle extreme years such as  
6 we've just experienced.

7 Q. And if I understand this proposal, it  
8 eliminates this 10 percent cut in order to  
9 participate in the program?

10 A. It would.

11 Q. And do you think that will spur  
12 participation?

13 A. Well, that's one component of the change  
14 that will make these accounts more attractive.

15 Q. You mentioned one of the options for  
16 computing the water that would be in the flex  
17 accounts as this average annual historic use? Do  
18 I understand that the groundwater management  
19 district may develop an alternative to that which  
20 the user could rely on?

21 A. Yes. That is provided for in the bill.

22 Q. How do you foresee that working?

23 A. Well, the bill as it's currently written  
24 would allow them to develop a formula for  
25 determining the quantity of water in this

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1 five-year account. It prescribes that that  
2 formulation cannot allow an expansion of use. So  
3 that criteria has to be met. But they would  
4 essentially need to develop it and propose for it  
5 to be adopted as a regulation.

6 Q. I see. And that might be done through  
7 the process you referred to earlier.

8 A. It would be.

9 Q. And if I understand it, the proposal will  
10 make for a longer and more complex statute, as you  
11 put it. How so?

12 A. Well, the -- I was simply in that  
13 statement stating that the -- the amendments that  
14 I was testifying to, the language of those  
15 amendments was much longer and more complex than  
16 the original bill.

17 Q. I see. If I understand the nature of the  
18 flex account -- well, let me strike that. Could  
19 you just explain the nature of the flex account  
20 itself and how it would operate under the proposed  
21 statute.

22 A. The flex account, it's a voluntary  
23 program, first of all. Nobody is required to do  
24 this. A water user -- water right holder would  
25 choose to do this. It provides a process by which

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1 the -- a five-year quantity is determined. The  
2 base water right is suspended for that five-year  
3 period, and the water user is provided a five-year  
4 term permit by which they operate during a  
5 specific five-year period of time. And they can,  
6 within certain constraints, use that block of  
7 water within that period. It includes the ability  
8 to exceed your annual authorized quantity in any  
9 particular year as long as you don't exceed the  
10 overall five-year allocation.

11 (WHEREUPON, Deposition Exhibit No 6 was  
12 marked for identification.)

13 BY MR. WILMOTH:

14 Q. I just wanted to ask you one further  
15 question about some of the statutes. I'm going to  
16 hand you a document that again we obtained from  
17 the worldwide web and just ask if you can tell me  
18 what that document represents and whether you had  
19 any involvement in its creation.

20 A. I'm sorry. Repeat your question.

21 Q. Do you have any recollection of  
22 participating in the creation of that document?

23 A. I did not create this document.

24 Q. Do you have an opinion about what that  
25 document represents?

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1 A. It appears to be a flowchart that  
2 describes how -- well, the title is: Distribution  
3 of Water Litigation Monies Under 2011 Senate  
4 Substitute for HB, House Bill, 2133.

5 Q. Was this bill passed?

6 A. I believe so.

7 Q. I notice it has an effective date of July  
8 1, 2011. I infer from that that there were  
9 certain changes made from the prior legislation  
10 which I think was SB 89? Does that sound  
11 familiar?

12 A. I'm not certain.

13 Q. Do you know if there were any changes  
14 made through this bill to the manner in which  
15 those funds would be distributed?

16 A. There were changes.

17 Q. Could you describe the reasons for those  
18 changes.

19 A. The -- my recollection was the changes  
20 were necessary because of some changes in the  
21 interstate water litigation fund. That fund was  
22 zeroed out through sort of an unintended  
23 legislative budget proviso.

24 Q. Okay. And this modification, was that  
25 intended to fix that error?

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1 A. It did not fix it, but it changed how  
2 monies would be distributed in light of it.

3 Q. And how would the monies be distributed  
4 today?

5 A. Well, the flow chart I think describes  
6 that.

7 Q. Okay.

8 A. I'd have to study it in some detail to --

9 Q. This is --

10 A. -- recall exactly how it does work.

11 Q. To your knowledge, though, this looks  
12 like an accurate representation?

13 A. I don't have any reason to doubt it's  
14 not.

15 Q. Okay. Thank you. Let's return for a  
16 moment to your expert report. Before I do that,  
17 let me ask you this: Are there any provisions of  
18 the laws of Kansas that we just discussed which  
19 you find problematic or unworkable?

20 A. Which statutes are you talking about?

21 Q. All of the statutes that you identified  
22 in the PowerPoint presentation that we reviewed  
23 and that we discussed over the last 30 minutes.

24 A. Okay. So you're talking the  
25 appropriation act, the GMD act?

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1 Q. Yes.

2 A. Okay. And again -- I'm sorry. Give me  
3 your question again.

4 Q. Are there any of those provisions that  
5 you find inherently problematic or unworkable that  
6 you would change?

7 A. Again, what are you asking me?

8 Q. If you had the ability to change one or  
9 more of those laws in the way they operate in your  
10 capacity as the chief engineer, would you have a  
11 particular law that you would like to change to  
12 facilitate your job?

13 A. Well, that's -- I think Kansas has a very  
14 good set of laws. The appropriation act is a  
15 comprehensive law that -- I find it to be a solid  
16 foundation for the larger system of laws that we  
17 have. I think the GMD act is a very positive act  
18 in providing for that opportunity for locals to  
19 have a voice. Water in Kansas, like elsewhere, is  
20 quite variable, and we have a need to have local  
21 input in terms of how that is done, so I think we  
22 have a solid set of laws.

23 Q. Okay.

24 A. You know, our water law continues to  
25 evolve.

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1 Q. Is that important to you as a water  
2 manager?

3 A. Yes.

4 Q. Why so?

5 A. Well, we must apply the laws to a very  
6 diverse set of conditions.

7 Q. And those conditions change over time?

8 A. They do.

9 Q. Are those changing conditions factors  
10 that led to some of the changes in the law that we  
11 discussed earlier?

12 A. Yes.

13 Q. How do you anticipate those changes? Can  
14 you anticipate those changes and conditions that  
15 necessitate the changes in law?

16 A. Yes.

17 Q. How do you do that? For example, how did  
18 you anticipate the 2010-2011 drought that led to  
19 the current proposal?

20 A. I did not anticipate that. So there's  
21 things that happen that cannot be anticipated,  
22 although droughts do occur on a regular basis, so  
23 I suppose we should have, but, you know,  
24 groundwater models, we are investing a substantial  
25 amount of effort in groundwater systems and

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1 groundwater modeling to help us better understand  
2 the -- the attributes of our groundwater systems  
3 and to understand where those systems and their  
4 related surface water systems are going.

5 Q. The second basis of your expertise as you  
6 identified it on page 3 of your report, as I  
7 understand it, is serving as the Kansas  
8 representative on the Republican River Compact  
9 administration, is that correct?

10 A. Yes.

11 Q. And as I read a little further down, if  
12 I'm reading correctly, this has made you familiar  
13 with certain structural reasons for Nebraska's  
14 noncompliance with the compact? Is that -- am I  
15 reading that correctly?

16 A. Yes.

17 Q. Can you identify the structural reasons  
18 to which you are referring?

19 A. Well, these are I think referenced in the  
20 body of the report itself that discusses the  
21 challenges that Nebraska faces.

22 Q. You're welcome to summarize. We'll get  
23 through the report in time.

24 A. Sure. The challenges that Nebraska faces  
25 in moving its use of waters to its entitlements.

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1 I'm speaking about separate -- principally about  
2 separate laws governing groundwater and surface  
3 water that -- that sort of impede the necessary  
4 action that I think is necessary.

5 Q. And we just discussed some different laws  
6 in Kansas between surface water and groundwater.  
7 Can you identify for me the differences between  
8 those and the laws in Nebraska that cause you  
9 concern?

10 A. Well, in Kansas, all the water rights is  
11 governed by my office. The Kansas Water  
12 Appropriation Act governs water development and  
13 use, both groundwater and surface water, in a  
14 single statute. GMDs, again, have a role in that,  
15 but everything is done under the single  
16 appropriate act in terms of water rights and water  
17 rights regulation, contrasted -- and under a  
18 single sort of theory, whereas in Nebraska it's --

19 Q. What theory is that, if I may stop you  
20 there?

21 A. Well, the appropriations doctrine, I  
22 guess is what I'm speaking to there.

23 Q. The groundwater management in IGUCAs,  
24 however, can deviate from that, is that correct?

25 A. They cannot -- they cannot ignore the

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1 appropriation doctrine, but they are provided some  
2 flexibility from pure first in time, first in  
3 right administration.

4 Q. I'm sorry to want to continue to  
5 interrupt you. Continue, please.

6 A. Well, contrasted with Nebraska's  
7 regulation of surface water in a separate body of  
8 law and separate agencies between ground and  
9 surface water.

10 Q. So the -- if I understand you, the  
11 problem that you're identifying is a lack of  
12 unitary management in a single body?

13 A. That's part of what I'm describing here.

14 Q. And if I understood you earlier, there's  
15 no major concern with the fundamental goals of the  
16 integrated management laws in themselves, it's  
17 just how they're implemented or by whom they are  
18 implemented? Is that a fair characterization or  
19 do you need to clarify that?

20 A. Well, I don't recall that I agreed that  
21 -- I'm sorry. Repeat your question.

22 Q. No need. That's okay. Let's move on.  
23 You mention here a period of long noncompliance  
24 with the compact, in the middle of the first  
25 paragraph here. To what period of time are you

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1 referring?

2 A. I'm sorry. Where do I say that?

3 Q. About halfway down the middle of the  
4 first paragraph. You're familiar with the  
5 structural reasons for Nebraska's long  
6 noncompliance.

7 A. Uh-huh.

8 Q. What period of time are you referring to  
9 when you speak of non -- excuse me -- long  
10 noncompliance?

11 A. Well, again, as I detail in the report,  
12 that includes periods going back to the '60s, some  
13 in the '70s, some in the late '80s, early '90s.

14 Q. This all predates the final settlement  
15 stipulation, then, correct?

16 A. It includes periods before the FSS.

17 Q. Now, you participated in the litigation  
18 leading to the FSS, did you not?

19 A. Yes.

20 Q. Did the court ever find that Nebraska was  
21 not in compliance with the Republican River  
22 Compact prior to that time?

23 A. Well, the court never got to that point.

24 Q. So is it more accurate to say that in  
25 your opinion Nebraska was out of compliance?

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1 A. All those statements rely on the records  
2 of the compact administration and comparisons of  
3 their determinations of allocations and use.

4 Q. But the parties were not allowed to  
5 recompute the accounting that had been adopted up  
6 until that point, were they?

7 A. Repeat your question.

8 Q. The parties weren't allowed to recompute  
9 the accounting under the RRCA up until the point  
10 the FSS was signed. You didn't go back and agree  
11 that Nebraska was out of compliance, did they? The  
12 accounting wasn't retroactively revised, was it?

13 A. According to the FSS methods?

14 Q. Yes.

15 A. Can you explain that? No, it was not.

16 Q. So on what basis do you base your opinion  
17 that Nebraska was out of compliance?

18 MR. DRAPER: I think he's already  
19 answered that question, Tom.

20 BY MR. WILMOTH:

21 Q. Thank you. Now, there are other  
22 representatives on the RRCA, are there not?

23 A. Yes.

24 Q. Does Nebraska have such a representative?

25 A. Yes.

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1 Q. Do you view Nebraska's representative as  
2 possessing expertise equivalent to yours in this  
3 regard?

4 A. In what regard?

5 Q. In the regard of understanding structural  
6 reasons for Nebraska's long noncompliance? Or do  
7 you possess a heightened expertise?

8 A. I think I -- I don't have an opinion -- I  
9 mean, I -- I have my opinions about my level of  
10 expertise to make that judgment.

11 Q. So would you consider your expertise  
12 equivalent to that of the Nebraska representative  
13 insofar as it relates to the structural reasons  
14 for Nebraska's noncompliance with the compact?

15 MR. DRAPER: Are you asking him if he  
16 would agree with any opinion that the Nebraska --

17 MR. WILMOTH: Absolutely not.

18 MR. DRAPER: -- commissioner might state?

19 MR. WILMOTH: No.

20 BY MR. WILMOTH:

21 Q. My question is, very simply, if Mr.  
22 Barfield possesses an expertise, based on his  
23 participation as a representative in the RRCA,  
24 does he view Nebraska's representative as  
25 possessing an equivalent expertise on that same

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1 basis?

2 A. I don't know.

3 Q. Would you consider Nebraska's  
4 representative on the RRCA to possess any  
5 expertise on Kansas water law?

6 A. Again, repeat the question.

7 Q. Would you consider Nebraska's RRCA  
8 representative to be an expert on Kansas water law  
9 by virtue of his service on the RRCA?

10 A. I don't know.

11 Q. Finally, you have a third basis for your  
12 expertise as expressed here, your service as the  
13 interstate water issues specialist for Kansas from  
14 1992 to 2007. Do you see that?

15 A. I do.

16 Q. And if I understand this service, you  
17 were involved in supporting the efforts of Kansas  
18 to mount the initial litigation in the '90s which  
19 culminated in the FSS, is that correct?

20 A. Yes.

21 Q. And was it part of your role as the IWIS  
22 to obtain a favorable result in that litigation  
23 for Kansas?

24 A. Yes.

25 Q. And is it important in your role as chief

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1 engineer to ensure that this litigation is  
2 successfully resolved?

3 A. Well, it's my duty to ensure that Kansas  
4 fulfills its obligations and to protect Kansas'  
5 interest in the compact.

6 Q. Do you have any reason to believe that  
7 your job is dependent on the success of this  
8 litigation?

9 A. No.

10 Q. How about your personal reputation? If  
11 you've been involved in this litigation since  
12 1992, do you have any personal stake in any of  
13 this?

14 A. Again, what are you asking?

15 Q. Do you feel your personal reputation  
16 would be in jeopardy as a professional engineer or  
17 water manager if the litigation were unsuccessful?

18 A. I don't have any significant concerns  
19 about that.

20 Q. And I'd like to continue through the  
21 report here, but I think we should take a break,  
22 but I just have one last question on this report.  
23 You are a licensed civil engineer in the state of  
24 Kansas, is that right?

25 A. A licensed professional engineer, yes.

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1 Q. Professional engineer? Are you familiar  
2 with the regulations for the Kansas Board of  
3 Technical Professions?

4 A. Uh --

5 Q. As they relate to professional engineers?

6 A. I'm generally aware of those.

7 Q. Do those regulations require technical  
8 engineering documents to be certified with your  
9 seal?

10 A. In some cases.

11 Q. Why is this document not so sealed?

12 A. I don't -- I don't think it's necessary  
13 to seal this document --

14 Q. Why --

15 A. -- from what I'm aware of.

16 Q. Why is that?

17 A. As I understand it, it's mostly related  
18 to, you know, structural plans and those sorts of  
19 documents.

20 Q. Do you consider this a technical document  
21 or a policy document?

22 A. It has a strong technical component.

23 Q. Did you perform any of the technical  
24 analyses underlying the document? Or did you rely  
25 on third parties to do that?

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1 A. I had significant involvement in all of  
2 them, but I did utilize staff and others for some  
3 of the work.

4 Q. Can you identify the work in this  
5 document that you did not perform? And I'll leave  
6 you with that, because I think it would be  
7 beneficial if you maybe took a little bit of time  
8 --

9 A. Okay.

10 Q. -- over the break. Why don't we take 15  
11 minutes and then I'll readdress that question to  
12 you when we reconvene.

13 A. Okay. And can you just repeat it just --

14 Q. Could you identify in this document any  
15 technical analysis that you did not personally  
16 conduct.

17 A. Okay. Thank you.

18 Q. Thank you.

19 (WHEREUPON, there was a recess from 9:20  
20 AM to 9:40 AM.)

21 BY MR. WILMOTH:

22 Q. Mr. Barfield. Before we broke, I posed a  
23 question, and it's probably best if I just ask the  
24 court reporter to read it back.

25 (The question was read by the reporter as

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1 follows:

2 "Q. Could you identify in this document  
3 any technical analysis that you did not  
4 personally conduct.")

5 A. Well, probably the best is just to page  
6 through the report and try

7 BY MR. WILMOTH:

8 Q. That's fine.

9 A. -- and identify those. And Figure 1 is a  
10 map that I didn't personally prepare, but it's  
11 probably not a technical analysis. Figure 2, and  
12 I think it's true with the body of the work, you  
13 know, I sort of directed what is in there. I'm  
14 familiar with the data, but I had a staff member  
15 compile the groundwater exclusive irrigated areas  
16 and make sure they were right, so -- Page 13, 14,  
17 I reference the accountings, and the numbers, you  
18 know, I actually had involvement, I believe I was  
19 Kansas engineering committee member during most of  
20 this -- during a lot of this. I'm familiar with  
21 the spreadsheets and the numbers, but I probably  
22 had some assistance with some of the accounting  
23 members, especially in the later period and some  
24 of the minor corrections. Figure 3 has some  
25 precipitation and probability to exceedances.

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1 Again, I directed a staff member who compiled  
2 those numbers and checked them to -- but, again, I  
3 oversaw that work directly working with staff.  
4 You know, on page 22, and starting in that  
5 section, I referenced the Perkins/Larson report,  
6 and then there's a series of presentations and  
7 Figure 4 and a number of the figures that follows  
8 are the results of model runs that were done. I  
9 -- and so obviously I had assistance. I didn't do  
10 the model runs personally; but, again, I was  
11 significantly involved in determining what model  
12 runs to do and helping the development of the  
13 baselines, you know, criterias, what model runs  
14 should be done, how to -- what output from those  
15 model runs to present, so -- so the pages that  
16 follow, again, I didn't personally do the work,  
17 but I did frame it, oversee it, figured out what  
18 to present. So that goes all the way through page  
19 30. Again, page 38, a similar sort of comment  
20 about the showing of the baseflows. Page 40, at  
21 the bottom, relates to those 302,000 acres, and  
22 that rely -- you know, that came from Mr. Book's  
23 report, so there's a whole analysis there in terms  
24 of how much shutdown would be required to -- under  
25 our proposal here. Certainly had assistance in

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1 that analysis that he does. So again I had  
2 obviously some involvement in that work, but it's  
3 principally his work that I'm relying on there. I  
4 think that's responsive to your question.

5 Q. It is. Thank you. I'd like to turn your  
6 attention back to page 3 of the report, which is  
7 KS 722.

8 A. Uh-huh.

9 Q. On this page, you indicate that the cause  
10 of Nebraska's noncompliance is excessive  
11 groundwater pumping which is permanently depleting  
12 the baseflows within the river's hydrologic  
13 system. That's kind of in the middle of the  
14 second paragraph. Do you see that statement?

15 A. Yes.

16 Q. Could you explain to me what you mean by  
17 the terms excessive groundwater pumping?

18 A. Well, it's groundwater pumping that is in  
19 excess of what's consistent with the allocation  
20 that the compact provides.

21 Q. So if groundwater pumping were within the  
22 allocation, that would not be excessive, correct?

23 A. Yes.

24 Q. Can you explain what you mean by your use  
25 of the term baseflows?

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1 A. As I use the term, I'm speaking of the  
2 outflows from the groundwater system into the  
3 watercourses of the basin.

4 Q. Can you explain what you mean by the  
5 depletion of baseflows and how that works.

6 A. Well, as groundwater pumping occurs, it  
7 reduces the head, the water level in the aquifer  
8 materials, and with the reduction of that head,  
9 there is a reduction in gradient to the stream  
10 systems that reduces the outflows from the  
11 groundwater systems to the streams.

12 Q. What causes that reduction in gradient?

13 A. Well, as groundwater is pumped, the --  
14 one source of water is the water in the -- in the  
15 sand and gravel sediments, and so it -- the  
16 pumping drains, it reduces the water level in the  
17 sediments, and therefore the difference in level  
18 between that and the stream itself.

19 Q. And that affects baseflow.

20 A. Yes.

21 Q. Are there portions of the basin where  
22 that pumping has impacted baseflow to such a  
23 degree that it no longer exists? Baseflow, that  
24 is.

25 A. Again, repeat your question.

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1 Q. Are there portions of the basin where the  
2 pumping that you're referring to has impacted  
3 baseflow to such an extent that baseflow no longer  
4 exists?

5 A. Yes.

6 Q. Generally where are those areas in the  
7 basin?

8 A. Well, the principal example I can think  
9 of is the upper reaches of Frenchman Creek in  
10 Colorado and Nebraska.

11 Q. Are there any such areas in Kansas? The  
12 Kansas portion of the basin. Excuse me.

13 A. Where it once was connected but now is  
14 disconnected (indicating)? And are you talking  
15 permanently disconnected?

16 Q. Permanently or temporarily.

17 A. Northwest Kansas, the connection between  
18 the groundwater system and the surface water  
19 system is more intermittent in nature generally,  
20 so it -- it can be connected at times and not  
21 connected at times in the past and I would guess  
22 in the future as well.

23 Q. Does that mean that it's -- excuse me.  
24 Does that mean that sometimes there's baseflow  
25 manifest in the river and sometimes there's not?

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1 A. Yeah, in -- in individual reaches, yes.

2 Q. And what do you attribute as the cause of  
3 that situation?

4 A. In Northwest Kansas?

5 Q. Yes.

6 A. Well, it's related to all the factors  
7 that have influenced groundwater levels, which  
8 includes precipitation, and in times there's more  
9 than others. With precipitation there's a raising  
10 of water in the aquifer, and therefore more  
11 discharge. With lack of it, it goes away.  
12 Groundwater pumping obviously has a significant  
13 effect on groundwater levels.

14 Q. Would you characterize the Republican  
15 River system as baseflow or surface run-off  
16 dominant?

17 A. As a whole?

18 Q. Well, let's say the area west of Swanson.

19 A. West of Swanson. That area would be  
20 baseflow dominant.

21 Q. Are there any areas that are not baseflow  
22 dominant?

23 A. There's some variability. There are  
24 areas that are baseflow dominant. There are areas  
25 that are fairly mixed. As you move east, in the

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1 lower part of the basin, I think run-off is the  
2 more dominant contributor.

3 Q. How about the Frenchman area that you  
4 referenced earlier?

5 A. Baseflow dominant, I would say.

6 Q. In your view, what are the provisions of  
7 the Republican River Compact that address  
8 groundwater pumping?

9 A. Again, repeat your question.

10 Q. What are the provisions of the compact  
11 that address groundwater pumping?

12 A. Well, groundwater pumping is regulated by  
13 the compact to the extent it depletes the basin's  
14 water supply.

15 Q. Is it treated differently than surface  
16 water consumption under the compact?

17 A. What do you mean differently?

18 Q. Does the compact differentiate between  
19 consumption attributable to groundwater or  
20 consumption attributable to surface water use?

21 A. We have different methods for estimating  
22 the two.

23 Q. Does the compact speak to that  
24 difference?

25 A. The compact does not have -- no.

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1 Q. So if groundwater consumption is a subset  
2 of overall consumption, which would include  
3 surface water, why does it matter, in your view,  
4 whether groundwater consumption is reduced or  
5 surface water consumption is reduced, provided the  
6 overall consumption remains within the allocations  
7 under the compact?

8 A. Again, I'd like you to repeat the  
9 question.

10 MR. WILMOTH: I'd like you to restate, if  
11 you would.

12 (WHEREUPON, The question was read by the  
13 reporter.)

14 A. Well, in the report, I obviously talk a  
15 lot about groundwater, and it is something that is  
16 prone to increase, and it's the failure to address  
17 that increase in depletion that is a significant  
18 concern. It is also, as the basin sort of dries  
19 up, and in dry periods, the more dominant source  
20 of water, so its diminishment is quite significant  
21 in the dry years when water is most critical.

22 BY MR. WILMOTH:

23 Q. For purposes of my next question, assume  
24 that the overall consumption in 2013 is within the  
25 allocation afforded Nebraska.

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1 A. Okay.

2 Q. Does the state of Kansas have a  
3 preference or you have a preference personally as  
4 to whether that compliance is obtained through a  
5 reduction in groundwater or a reduction in surface  
6 water use?

7 A. Well, we principally want our water, and  
8 for an individual year, I guess it -- as you  
9 stated, for 2013, we would not know the difference  
10 in the reductions.

11 Q. So is it fair to say that your concern is  
12 largely driven by future uncertainties?

13 A. We are concerned that in dry periods  
14 Nebraska will not be able to comply because of  
15 increasing groundwater depletions that it cannot  
16 turn on and off at will and will be manifested  
17 during those periods.

18 Q. A little further down on this page, you  
19 indicate that Nebraska's CBCU, computed beneficial  
20 consumptive use, will grow and eventually exceed  
21 Nebraska's total compact allocation in dry  
22 periods. Do you see that statement in the middle  
23 of the second paragraph?

24 A. Where I state: Indeed, without a  
25 substantially different plan than the current one?

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1 Q. Yes.

2 A. I see the statement. What's the  
3 question?

4 Q. On page 31, in the third paragraph, you  
5 indicate you don't know exactly when that's going  
6 to happen. Is that correct?

7 A. Now, where are you there?

8 Q. Third paragraph.

9 A. At page 31. While I cannot predict the  
10 year when Nebraska's groundwater depletions will  
11 outstrip its dry year allocations, it appears  
12 that, without significant changes in management,  
13 it can be expected to do so in the future. In the  
14 wrong set of conditions, it will be in the nearer  
15 term. Yes.

16 Q. So if I understand that, you don't have  
17 an immediate concern today that Nebraska will be  
18 out of compliance next year, for example, or the  
19 following year; it's just sometime in the future?

20 A. Well, I think we can reasonably expect  
21 that it's doubtful that Nebraska will be out of  
22 compliance next year, but I do have -- it did fail  
23 in the previous dry years, and it -- if it cannot  
24 implement sufficient action, I would be concerned  
25 that -- that within a few dry years it could have

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1 trouble complying.

2 Q. So if I understand, you're looking at the  
3 past performance to judge whether Nebraska will be  
4 able to comply in similar situations in the  
5 future?

6 A. I'm raising the concern that groundwater  
7 depletions are rising. Depletions to surface  
8 flows are increasing, therefore, reliable surface  
9 flows in the future will be diminishing, making  
10 compliance more difficult in the future.

11 Q. A date that you don't have the ability to  
12 define as we sit here today.

13 A. I cannot predict the hydrology of the  
14 future. I know these dynamics that I just  
15 explained are occurring and will make compliance  
16 more difficult for Nebraska.

17 Q. What might affect those dynamics in the  
18 future?

19 A. Level of pumping, principally.

20 Q. Anything else?

21 A. The dynamics of increasing groundwater  
22 depletions and diminishing streamflow? You're  
23 asking what else affects that?

24 Q. Certainly. Principally I'm asking what  
25 else affects Nebraska's ability to comply in the

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1 future.

2 A. Well, that's a bigger question. Again,  
3 as we've identified in the report, Nebraska's  
4 groundwater CBCU is a very huge factor, so -- but  
5 its surface water use, its --

6 Q. How about climate?

7 A. Well, climate, certainly, is a major  
8 player in terms of Col -- in Nebraska compliance.

9 Q. How about the actions of the state of  
10 Colorado?

11 A. You're asking if that determines  
12 Nebraska's compliance?

13 Q. I'm just asking if it's relevant or could  
14 be relevant to the factors that lead to a  
15 determination of Nebraska's compliance? For  
16 example, could any actions of Colorado affect  
17 water supply?

18 A. So your question is?

19 Q. Are there any other factors besides  
20 groundwater pumping and precipitation that might  
21 affect Nebraska's ability to comply with the  
22 compact in the future? And as an example, I  
23 offered actions by the state of Colorado that  
24 might augment streamflow, for example.

25 A. So do you want me to talk about Colorado

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1 or broader factors? I'm sorry.

2 Q. I just want to know if that would be a  
3 factor. And --

4 A. Right.

5 Q. -- then I would ask you if there are  
6 other factors.

7 A. Okay. So with respect to Colorado,  
8 generally speaking, it's my opinion that  
9 Nebraska's compliance is in its -- in its destiny,  
10 I guess. It -- Colorado's compliance or not  
11 compliance I'm not sure is a driving factor in  
12 terms of Nebraska staying within her allocation.

13 Q. Have you conducted any analyses that  
14 assume the implementation of Colorado's proposed  
15 pipeline, for example, and how that might affect  
16 Nebraska's ability to comply?

17 A. No.

18 Q. Have you conducted any analyses that  
19 consider water importation as foreseen under the  
20 FSS perhaps? Augmentation project?

21 A. Are you asking me if we've done any  
22 analyses of how augmentation plans might impact  
23 Nebraska compliance?

24 Q. In the future, yes.

25 A. In the future? We -- no.

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1 Q. So is it your position that the state of  
2 Nebraska must prove to Kansas and perhaps the  
3 court that it will implement a program today that  
4 ensures future compliance for all time under all  
5 conditions?

6 A. Repeat the question.

7 (WHEREUPON, the question was read by the  
8 reporter.)

9 A. No.

10 BY MR. WILMOTH:

11 Q. Isn't the solution proposed by Kansas in  
12 fact designed to do just that?

13 A. No.

14 Q. Does it have that effect?

15 A. No.

16 Q. Are there times that Nebraska is out of  
17 compliance if the Kansas proposal is implemented?

18 A. There could be.

19 Q. Is that what your modeling shows?

20 A. Our work goes to a limited future, and it  
21 says that under our remedy, additional actions  
22 could be necessary to achieve compliance in water  
23 short years.

24 Q. So you don't know whether or not Nebraska  
25 would be in compliance even under the proposed

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1 Kansas remedy?

2 A. Yes.

3 Q. Yes, you don't know; or yes, they would  
4 be?

5 A. Our remedy does not guarantee Nebraska  
6 compliance in all situations. If you're speaking  
7 about the cut-backs, I guess our remedy -- well,  
8 let me stop there.

9 Q. If you don't know the answer to that  
10 question, or it's unclear, the extent to which  
11 Nebraska might be in or out of compliance in the  
12 future, does that mean that you have not performed  
13 the accounting under the accounting procedures  
14 required to make that determination in your  
15 document?

16 A. Can the question be repeated by one or  
17 the other of you?

18 (WHEREUPON, the question was read by the  
19 reporter.)

20 A. I'm trying to remember what I said I  
21 didn't know. I don't recall saying I didn't know  
22 something. I said that the remedy in terms of  
23 cut-back of acreage does not necessarily guarantee  
24 Nebraska compliance in every situation in the  
25 future.

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1 BY MR. WILMOTH:

2 Q. Does that mean you have not performed the  
3 accounting necessary under the RRCA accounting  
4 procedures to make a determination about whether  
5 Kansas's proposed remedy will ensure compliance  
6 over the term for which it has been proposed?

7 A. Well, I can't do accountings for futures  
8 when we don't have the information.

9 Q. Thank you. A little further down you  
10 indicate that Nebraska's systematic -- excuse me  
11 -- systemic --

12 MR. DRAPER: Which page are you on?

13 MR. WILMOTH: Three.

14 BY MR. WILMOTH:

15 Q. You indicate that Nebraska's systemic  
16 overdraft will cause surface water supplies to  
17 become increasingly scarce during dry periods. Do  
18 you see that?

19 A. Uh --

20 Q. Middle of the second paragraph.

21 MR. DRAPER: Systemic.

22 A. Oh, there it is. Thank you. Yes, I see  
23 that.

24 BY MR. WILMOTH:

25 Q. Could you tell me first what you mean by

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1 systemic overdraft. Are you referring there to a  
2 system of laws or a system of infrastructure or --

3 A. I'm talking about the groundwater system  
4 there, the actual physical groundwater system.  
5 Nebraska's pumping is greater than its recharge  
6 into the system and therefore will reduce surface  
7 water supplies.

8 Q. So how does that pumping reduce surface  
9 water supplies into the future and make them more  
10 scarce? Is that part of this baseflow reduction  
11 that we talked about earlier?

12 A. It is.

13 Q. And could you just summarize your views  
14 of how the future scarcity of a surface water  
15 source might impact adversely Nebraska's efforts  
16 to comply with the compact?

17 A. Well, the sentence says: This systematic  
18 overdraft will cause surface water supplies to  
19 become increasingly scarce during dry periods, and  
20 the effect of that is to undermine the purpose of  
21 federal projects in the basin that are crucial to  
22 the compact and to Kansas. Again, your question  
23 was?

24 Q. How does the scarcity of surface supplies  
25 --

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1 A. Uh-huh.

2 Q. -- affect Nebraska's ability to comply  
3 with the compact?

4 A. Well, to the extent that it wishes in  
5 their IMPs and otherwise to use surface water  
6 supply as a source to offset groundwater CBCU,  
7 that -- that would make it more difficult.

8 Q. And how does that relate to the purposes  
9 of federal water projects in the basin?

10 A. Well, those are separate things.

11 Q. That's what I was asking. Can you  
12 explain how you view those federal interests as  
13 relevant to compact compliance, or are they just  
14 different issues?

15 A. What --

16 Q. In other words, why is it relevant that  
17 these projects perform their authorized purposes?

18 A. Well, Kansas has an interest in those  
19 projects, particularly Harlan County Reservoir, so  
20 it's certainly relevant from that standpoint.

21 Q. Do you think it's important in order to  
22 satisfy those purposes for those projects to fill  
23 and refill annually to their maximum capacity?

24 A. Well, it certainly is important that for  
25 purposes of the projects that they have a source

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1 of supply.

2 Q. Does Kansas have any reclamation projects  
3 within its borders?

4 A. Yes.

5 Q. Are the users within those projects  
6 subject to Kansas law?

7 A. Yes.

8 Q. Does Kansas ever take any action to  
9 regulate those users and their use of water?

10 A. Well, they have a Kansas water right and  
11 must comply with the requirements of that water  
12 right.

13 Q. Have you ever curtailed or closed all  
14 together the use of reclamation water by a  
15 reclamation contract holder?

16 A. Not to my recollection.

17 Q. Would you believe that in the scope of  
18 your authority it would be allowable to do that?

19 A. If they were not in compliance with the  
20 terms of their permit, yes.

21 Q. You mentioned Harlan County Lake and I  
22 believe the Bostwick project as being relevant.  
23 Do you have an interest in any of the other  
24 facilities in Nebraska? Swanson or Red Willow, for  
25 example?

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1 A. I'm not sure.

2 Q. At the bottom of page 3 you indicate,  
3 Nebraska's plans to ensure compact compliance are  
4 insufficient, and you've got three bullet points  
5 which I infer as reasons for your belief. Do you  
6 see that?

7 A. I do see that.

8 Q. Am I correct in my inference? Are these  
9 reasons that you're offering to support your  
10 opinion that the plans are insufficient?

11 A. Yeah, these are reasons that I state as  
12 to why I believe their plan is insufficient to  
13 achieve compliance in the future, yes.

14 Q. You indicate that it's appropriate to  
15 permanently address continuing increases in  
16 groundwater depletions. Do you have a suggestion  
17 on how Nebraska might go about doing that?

18 A. Your question is, how -- do I have a  
19 suggestion as to how Nebraska should permanently  
20 address decreases of groundwater depletions?

21 Q. Yes.

22 A. Well, are you asking how to -- how to  
23 administratively accomplish that?

24 Q. I'm just asking if you have an opinion  
25 about how you would address that problem in

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1 **Nebraska.**

2 A. So again, you're asking -- I mean,  
3 obviously in the report I speak to the magnitude  
4 of the problem. You're asking how would I go  
5 about getting it done?

6 Q. **Yes, sir.**

7 A. Okay. Given the current legal  
8 institutional setting, it would be difficult.

9 Q. **Are you aware that the integrated**  
10 **management plans have provisions in them designed**  
11 **to reduce groundwater pumping? And by the**  
12 **integrated management plans, unless I suggest**  
13 **otherwise, I'm referring to the third-generation**  
14 **plans that are in place.**

15 A. Yes.

16 Q. **What are the nature of those reductions?**

17 A. Well, let me turn to the report where I  
18 speak to that. Just for your reference, I'm on  
19 page 21.

20 Q. **Thank you.**

21 A. The third-generation of IMPs require the  
22 NRDs to reduce their pumping, their long-term  
23 pumping, to 80 percent of the '98 to 2000  
24 baseline. Secondly, to have a goal to reduce  
25 another five percent over the coming five years

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1 through principally voluntary and other means.  
2 They have a requirement that individual producers  
3 stay within a certain five-year allocation. Then  
4 they have other mechanisms to require additional  
5 constraints if NRDs exceed their portion of the  
6 allowable groundwater depletions.

7 Q. Do you view those as something other than  
8 permanent reduction provisions?

9 A. Well, certain of those provisions are  
10 more concrete; others of them are less so.

11 Q. Which would you consider to be concrete?

12 A. You know, the 80 percent requirement I  
13 would say is. But another five percent by other  
14 voluntary means that might be reevaluated in 2015  
15 seems less so.

16 Q. So the 20 percent reduction, or the 80  
17 percent of baseline pumping, is a permanent  
18 reduction in your view?

19 A. I guess I don't know that because IMPs  
20 can change, but --

21 Q. And I assume you have the same answer for  
22 the five percent reduction?

23 A. Yes.

24 Q. You note that the IMPs' delay at action  
25 required to ensure future compliance. That's your

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1 second bullet point on page 4, is that right?

2 A. I say: The principal effect of the  
3 current iteration of IMPs is to delay the  
4 substantial action that is immediately required to  
5 ensure future compliance over the long term.

6 Q. Is that your view today?

7 A. That is my view.

8 Q. When is the last time that you read the  
9 IMP?

10 A. Preparing for my expert report.

11 Q. When -- strike that. Are you familiar  
12 with the water short year provisions of the IMPs?

13 A. Yes.

14 Q. Can you explain your understanding of  
15 those provisions.

16 A. Again, in the report I -- where is that?

17 Q. Are these provisions that you consider to  
18 be provisions that result in the delay you're  
19 referring to on page 4?

20 A. Well, the delay that I'm speaking about  
21 there is -- is -- the IMPs allow, instead of  
22 reductions in groundwater use, for a delay in  
23 action until the -- essentially the next dry year  
24 sequence, and when that occurs it allows the NRDs  
25 to use a variety of means alternative to

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1 groundwater reductions to address that next  
2 compliance problem.

3 Q. So if I understand, fundamentally, the  
4 delay you're referring to is there's not enough  
5 immediate reduction in groundwater pumping to  
6 satisfy Kansas's concerns. Or more specifically,  
7 the water short year provisions are not of  
8 immediate concern insofar as affecting a delay;  
9 it's the groundwater reduction component?

10 A. The IMPs facilitate putting off  
11 significant reductions to groundwater pumping till  
12 some future, thereby allowing those depletions to  
13 continue to rise.

14 Q. You also note on the third bullet point  
15 that the plans are unreliable because they are  
16 untested, uncertain and indefinite. Do you see  
17 that reference?

18 A. I do.

19 Q. Can you identify those provisions you  
20 feel are untested?

21 A. Well, on page 32 of my report, I seek to  
22 enumerate some of my concerns with the lack of  
23 specificity in the ambiguous natures of certain  
24 mechanisms, so --

25 Q. Sure. Now, that speaks to uncertainty

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1 and indefiniteness, but my question is which  
2 provisions do you feel are untested?

3 A. Well, I guess back on page 31 I list some  
4 of those there. I see the following potential  
5 barriers to timely implementation, so I speak  
6 about disputes between the NRDs and DNR about  
7 sufficiency of plans, whether the rapid response  
8 regions could in fact be curtailed and so forth.  
9 So many of these mechanisms that I list here have  
10 never been done and therefore I have concern as a  
11 water administrator as to whether they would  
12 really withstand legal challenge.

13 Q. You don't engage in any of those types of  
14 activities in Kansas -- reducing groundwater,  
15 working with your constituents, working with local  
16 management districts? You have no experience in  
17 that?

18 A. We have some experience with that, yes.

19 Q. So you've tested that out.

20 A. Well, certain of these, but, again,  
21 restricting a particular area while you allow  
22 another area that's having effect to not be  
23 restricted to such a degree is not something that  
24 I know we've done, so, there are certainly things  
25 here that we have not done and that I certainly

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1 have concern about.

2 Q. Uh-huh. When the RRCA groundwater model  
3 was developed, how quickly was that developed?

4 A. Over what period of time was it  
5 developed?

6 Q. Yes.

7 A. Approximately a year and a half.

8 Q. Had that model ever been tested prior to  
9 that time?

10 A. No.

11 Q. But that model is used today to control a  
12 great number of things relative to calculating  
13 impacts from pumping and other things, is it not?

14 A. Yes.

15 Q. Has the remedy that Kansas has proposed  
16 ever been tested to your knowledge?

17 A. What do you mean tested?

18 Q. Have you ever implemented in Kansas or  
19 are you aware of any implementation elsewhere in  
20 the program comparable to that that you're  
21 proposing?

22 A. I'm not sure.

23 Q. You characterized Arbitrator Dreher's  
24 decision in this concluding paragraph in this  
25 section, on page 4.

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1 A. On page 4.

2 Q. Beneath the bullet point.

3 A. Oh.

4 Q. If I understand it, you characterize him  
5 as being skeptical of Nebraska's ability to ensure  
6 future compliance, is that correct?

7 A. Again, I'm sorry. I'm not finding it.

8 Q. Just below the bullet points on page 4,  
9 you have a discussion of the arbitration, I  
10 believe.

11 MR. DRAPER: Is that the paragraph that  
12 starts out, these reasons fundamentally undermine  
13 the trustworthiness?

14 BY MR. WILMOTH:

15 Q. Perhaps I've given you the wrong page  
16 citation. Oh. I apologize. Page 5.

17 A. Okay. Yes.

18 Q. Excuse me.

19 A. I see that. At the top of the paragraph.

20 Q. Yes. I apologize. You characterize him  
21 as being skeptical. Do you see that? Middle of  
22 the paragraph?

23 A. Right. On June 30, 2009, Dreher issued  
24 his final decision. In that decision he stated:  
25 The fact is Nebraska has not been in compliance

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1 with the FFS since it was executed until the  
2 five-year normal administration period ending 2008  
3 following a wet year. Mr. Dreher also found  
4 Kansas's -- let me find it here.

5 Q. The language I'm referring to is the last  
6 sentence of that paragraph. Excuse me.

7 A. Oh, thank you. Most importantly, Mr.  
8 Dreher was consistently skeptical of Nebraska's  
9 ability to ensure future compliance with the  
10 compact and the FSS. Okay.

11 Q. Just for the record, to be clear, did the  
12 arbitrator have before him any evidence about the  
13 IMPs we're discussing today? The third-generation  
14 IMPs?

15 A. No.

16 Q. Now, you have a section that begins on  
17 page 5 and continues for a few pages about  
18 historical events. How do you view that as  
19 relevant to Nebraska's compliance efforts today?  
20 I'm referring to the historical perspective that  
21 continues from page 5 through -- I guess it would  
22 be 11.

23 A. Well, it's a discussion of Nebraska's  
24 development and I believe over development of its  
25 water resources, and, again, particularly the

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1 growth in its groundwater use that has led to the  
2 -- the repeated problems that are referenced in  
3 Nebraska's compliance during critical periods that  
4 has created this situation for the potential for  
5 future -- for compliance in the future. It's  
6 created a need for the state of Kansas to have for  
7 its water users something that it can rely upon  
8 for the future.

9 Q. Specifically do you think that actions  
10 that preceded the final settlement stipulation  
11 have bearing on how Nebraska will be managing its  
12 water in the future?

13 A. I'd ask for the question again.

14 (WHEREUPON, the question was read by the  
15 reporter.)

16 A. Well, certainly the over development that  
17 I just spoke about has significant bearing on  
18 future compliance.

19 BY MR. WILMOTH:

20 Q. That's a physical phenomenon you're  
21 referring to?

22 A. Yes.

23 Q. So do we agree that the regulatory  
24 environment is different, at least?

25 A. Well, there are differences, again, as my

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1 report details, and as I view the current plan, it  
2 does not address, sufficiently, the problem.

3 Q. The current regulations do not.

4 A. Correct.

5 Q. But they're not the same that were in  
6 place prior to 2002. That's all I'm asking. We  
7 agree with that.

8 A. They are not the same.

9 Q. Okay. And just to be clear about what  
10 Kansas is seeking here, there's no dispute that  
11 Kansas has waived claims for things that happened  
12 prior to the FSS, is that correct?

13 A. Waived claims for previous damages, if  
14 that's what you're asking.

15 Q. That's what I'm asking. You continue on  
16 page 13, which I'd like to pick up at, and you  
17 discuss Nebraska's knowing disregard of its  
18 compact obligations? Do you see that?

19 A. I do.

20 Q. And in this paragraph you state that the  
21 FSS was a victory for all the states. How was it  
22 a victory for Kansas?

23 A. We believed that it would provide a  
24 mechanism by which Nebraska and Colorado would  
25 know their obligations under the compact and

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1 therefore would take actions to get its use within  
2 its allocation. It -- we agreed upon a very clear  
3 set of accounting procedures and tests of  
4 compliance in the groundwater model such that we  
5 believed that all the states would know what they  
6 needed to do to get in their share, and the result  
7 would be that we would be able to enjoy the  
8 benefit of our rights under the compact.

9 Q. And how did you view it as a victory for  
10 Nebraska?

11 A. Well, I said that it was hailed as a  
12 victory for all three states, so it provides all  
13 three states with flexibility in terms of the  
14 multi-year tests rather than single year tests,  
15 and the sub-basin flexibility are two things that  
16 come to mind.

17 Q. And then you suggest that the compliance  
18 tests and the methods of computing groundwater  
19 depletions made it clear that Nebraska would have  
20 to significantly reduce groundwater pumping. How  
21 so?

22 A. Well, all three states were involved in  
23 building the model, saw that -- what groundwater  
24 depletions were in periods of noncompliance. They  
25 had the tool to look at the future and where

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1 things were going and to know that additional  
2 action would be required in the future.

3 Q. By look at the future, you mean just  
4 model scenarios?

5 A. That's what I'm referring to.

6 Q. Okay. And was it clear how  
7 significantly; in other words, how much  
8 groundwater pumping would need to be reduced?

9 A. I think the tool was there to make that  
10 determination.

11 Q. You referenced in the first paragraph  
12 under Roman III on this page 13 that the challenge  
13 facing Nebraska is illustrated by Figure 7 to my  
14 statement, which I believe is at page KS 783.

15 A. Yeah, that's correct.

16 Q. Do you see that figure?

17 A. I do.

18 Q. Did you develop this figure yourself?

19 A. Again, it was done through the same  
20 process I described previously. I worked with  
21 others to develop the run that should be done to  
22 make this illustration.

23 Q. Did you direct the run to be made but  
24 have someone else actually make the run? Is that  
25 what you're saying?

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1 A. Yes.

2 Q. Can you tell me how you decided on this  
3 particular run?

4 A. Well, this run was meant to be  
5 illustrative for the court of the nature of  
6 depletions in the future from groundwater pumping.

7 Q. What assumptions did you use about the  
8 level of pumping to create Figure 7?

9 A. Well, the principal ones are noted -- the  
10 principal assumptions are noted in -- if you see  
11 source, where it says source, number two? The  
12 projected depletions -- excuse me -- were based on  
13 a hydrology that used precipitation and other sort  
14 of hydrologic factors from the average of '59 to  
15 '08, and a pumping that was based on an average of  
16 '03 to '08 per unit area.

17 Q. So that pumping would not have included  
18 the 20 percent reduction in the current IMPs, is  
19 that right?

20 A. That -- we just calculated for purposes  
21 of this figure and analysis the average pumping  
22 depth for that period.

23 Q. Does that mean no?

24 A. I'm not sure how the pumping for this  
25 directly compares with the 20 percent from the '95

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1 to '08 -- '02.

2 Q. Uh-huh. Did you account in this  
3 projection in any way for the IMPs' dry year  
4 provisions?

5 A. No.

6 Q. Did you make any assumptions about  
7 Colorado's activities?

8 A. This is -- no.

9 Q. Thank you. Turning to page 14, you  
10 indicate in the first full paragraph on this page  
11 that the RRCA could not agree on the 2006  
12 accounting in part because of Harlan County Lake  
13 evaporation. Do you see that reference?

14 A. Yes.

15 Q. And before we go any further, Mr.  
16 Barfield, let me say, if you would like to take a  
17 break at any time, just give the sign.

18 A. Okay.

19 Q. Can you describe the nature of that  
20 dispute.

21 A. Yes. That was a year in which Nebraska  
22 chose to not use its water from Harlan but instead  
23 to provide it to Kansas as a way to assist in its  
24 compact compliance. Kansas -- the FSS, in its  
25 accounting procedures, do not address that

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1 situation, and so Nebraska believed that it should  
2 not pay for any of the evaporation and Kansas  
3 believed it should share in the evaporation.

4 Q. Was that a surprise to you when that  
5 dispute arose in 2006?

6 A. No.

7 Q. When did you first realize the nature of  
8 that issue?

9 A. The year before.

10 Q. 2005?

11 A. Well --

12 Q. Did this arise in 2005?

13 A. Actually, I'm not quite sure of the time  
14 frame. Let me read the text. The RRCA agreed  
15 upon the 2005 accounting, except for the issue of  
16 evaporation from non-federal reservoirs below  
17 Harlan. The engineering committee and the RRCA  
18 accepted all of 2006 accounting data and model  
19 run, but the final accounting was not developed  
20 for similar reasons as 2005 -- continued disputes  
21 over allocating evaporation from non-federal  
22 reservoirs and Harlan County Lake. So they're  
23 speaking about the 2006 year, right?

24 Q. Yes.

25 A. So --

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1 Q. So the issue arose in 2005 but applied to  
2 2006. Is that what you're saying?

3 A. Well, the issue arose actually in 2007 as  
4 we were doing the 2006 accounting.

5 Q. I see.

6 A. But the issue was raised in 2006, I  
7 believe, by myself saying --

8 Q. Through the RRCA?

9 A. Through the RRCA, saying we need to  
10 determine how to deal with this situation that was  
11 occurring.

12 Q. Is that the first time that you had  
13 considered that issue?

14 A. Yes.

15 Q. A bit further down, about halfway down  
16 the page, maybe two-thirds down, you indicate that  
17 the Republican River NRDs as well as DNR allowed  
18 significant expansion of irrigated acres after the  
19 court's approval of the FSS. Do you see that?

20 A. Yes.

21 Q. Does the FSS limit the number of  
22 irrigated acres in Nebraska?

23 A. It required a moratorium on new wells, so  
24 indirectly.

25 Q. No direct limitation, though, on

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1 irrigated acres?

2 A. No.

3 Q. Is it possible that you could expand  
4 irrigated acres without increasing water  
5 consumption?

6 A. It's possible.

7 Q. Under what conditions?

8 A. If you applied less water per acre.

9 Q. Have you evaluated trends in Nebraska's  
10 groundwater pumping since 2002?

11 A. Yes.

12 Q. What do those trends show, since 2002?

13 A. I'll take you to Figure 8, the last page  
14 of the attachment to my report, and it shows  
15 trends in irrigation pumping depths.

16 Q. Since 2002, do you know whether  
17 groundwater pumping in the Nebraska portion of the  
18 basin has increased or decreased?

19 A. I do.

20 Q. Was it increasing or decreasing?

21 A. It has been -- it has decreased since  
22 2002.

23 Q. Thank you. Back on page 14 of your  
24 report you indicate, if I'm understanding this  
25 correctly, that figures I think two, three, and

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1 four of your statement reflect a problem as you  
2 characterize it of growing groundwater declines  
3 and streamflow depletions. Am I understanding  
4 that correctly?

5 A. Yes.

6 Q. How is information on groundwater level  
7 declines applied in the RRCA accounting  
8 procedures?

9 A. Well, through the groundwater model.

10 Q. Can you explain how the model does that.

11 A. Well, the model -- and maybe after this  
12 question we could take a break, if that's okay.

13 Q. Okay.

14 A. You know, the groundwater model has been  
15 constructed and calibrated to using a variety of  
16 inputs including pumping to determine the effect  
17 of that pumping on a variety of physical factors  
18 including groundwater levels that then manifests  
19 itself in terms of a gradient that determines  
20 flows to the stream and therefore depletions to  
21 the stream.

22 Q. Does that mean that the groundwater  
23 declines are looked at to help calibrate the  
24 model?

25 A. Well, they were a factor in the

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1 calibration, yes.

2 Q. Are these declines used in the accounting  
3 procedures in any way?

4 A. They -- they are only -- they are not --  
5 they are used in the model. They're not otherwise  
6 used in the accounting.

7 Q. Does the compact regulate groundwater  
8 declines? Is there any reference in the compact  
9 to groundwater declines or levels?

10 A. Not directly.

11 MR. WILMOTH: Let's take a break.

12 THE WITNESS: All right. Thank you.

13 (WHEREUPON, there was a recess from 10:55  
14 AM to 11:12 AM.)

15 BY MR. WILMOTH:

16 Q. Mr. Barfield, I call your attention to  
17 page 16 of the report. You have a discussion here  
18 of various activities in the state of Nebraska.  
19 The first sentence here indicates that the  
20 political leadership in Nebraska was well aware of  
21 the reductions in limitations that compliance with  
22 the FSS required. Do you see that?

23 A. Yes.

24 Q. Can you identify the political leadership  
25 to whom you refer there?

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1 A. The principally the governor.

2 Q. And what's the basis of your  
3 understanding of the governor's knowledge at the  
4 time?

5 A. Well, it's quoted later in the report, I  
6 guess, his going with Director Bleed to the basin.

7 Q. Are these the newspaper accounts from the  
8 McCook Daily Gazette?

9 A. Yes.

10 Q. Do you typically refer to newspaper  
11 articles to formulate your professional opinions?

12 A. Not typically.

13 Q. You characterize various model runs  
14 completed by Dr. Bleed in 2006. Do you know how  
15 those runs were conducted?

16 A. Well, we have his runs. I believe we  
17 were provided those runs. We have the results of  
18 those runs, and they're certainly consistent with  
19 some of our results, and I believe the modeling  
20 report reviews them.

21 Q. So they don't take into account any  
22 management actions contained in the  
23 third-generation IMPs, do they?

24 A. They cover a range of actions that are --  
25 involve less pumping and more pumping declines

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1 than the IMPs.

2 Q. But they don't take into account the  
3 existence of third-generation IMPs, do they?

4 A. No.

5 Q. Do you know how they account for the  
6 potential use of augmentation projects?

7 A. To my knowledge, there's nothing. They  
8 were simply model runs that looked at different  
9 levels of reductions and what their effects would  
10 be on depletions.

11 Q. Do you know how they account for anything  
12 other than groundwater pumping reductions?

13 A. In terms of actions?

14 Q. In terms of management actions.

15 A. They do not.

16 Q. You mention that both Governor Heineman  
17 and Director Bleed indicated that Nebraska would  
18 need to reduce its consumptive use to comply with  
19 the compact. Do you see that? I'm somewhat  
20 paraphrasing, but generally on page 16.

21 A. I think -- yes, I see that. Governor  
22 Heineman told the conference that the real key to  
23 Nebraska's compliance was to reduce consumptive  
24 use and to achieve a balance between competing  
25 uses of water. That's a partial quote of his.

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1 Q. Do you know if Nebraska has reduced its  
2 consumptive use since that time?

3 A. Well, its --

4 Q. I don't need to know how much one way or  
5 the other, just --

6 A. Well, its consumptive uses have declined  
7 since that time.

8 Q. Okay. You state that Governor Heineman  
9 and Director Bleed indicated that Nebraskans would  
10 need to endure sacrifice and pain. What do you  
11 consider sacrifice and pain from a management  
12 perspective when you seek to impose regulations on  
13 the regulated community?

14 A. Well, reductions in groundwater I think  
15 is not --

16 Q. Any reduction?

17 A. Well, significant reductions. Obviously  
18 --

19 Q. What do you mean by significant?

20 A. Well, certainly what they were talking  
21 about there would be significant.

22 Q. But not the 20 percent reductions in the  
23 IMPs today?

24 A. The 20 percent reduction from the '98-'02  
25 baseline I do not consider particularly

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1 significant.

2 Q. Neither sacrificial nor painful?

3 A. As I mention in the report, that period  
4 was higher than average pumping, so from the  
5 long-term average it's more like 10 percent.

6 Q. Do you think there's anything, short of  
7 the scenarios that Governor Heineman and Director  
8 Bleed might have been discussing, that would  
9 constitute sacrifice and pain or are those the  
10 minimum necessary to do so?

11 A. There are some --

12 MR. DRAPER: What is your question trying  
13 to address in terms of sacrifice and pain? What do  
14 you mean by that?

15 BY MR. WILMOTH:

16 Q. I'm just trying to figure out if there's  
17 a threshold at which, from a manager's standpoint,  
18 Mr. Barfield thinks there's simply too much  
19 sacrifice or pain to justify a regulation.

20 A. Okay. So the question is?

21 (WHEREUPON, the question was read by the  
22 reporter.)

23 A. Well, a regulation is for the purpose of  
24 accomplishing an objective, and sacrifice and pain  
25 is a political sort of language here.

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1 BY MR. WILMOTH:

2 Q. Does that mean socioeconomic  
3 considerations are irrelevant or not as important  
4 as the regulatory objective?

5 A. Well, regulations are meant to accomplish  
6 a purpose. Certainly you -- in seeking to  
7 accomplish it you seek to minimize the harm and  
8 pain, but it doesn't -- harm and pain doesn't  
9 necessarily dictate regulatory action.

10 Q. You also state that Dr. Bleed issued a  
11 call for a 50 percent reduction in pumping from  
12 quick response wells and a 15 percent reduction in  
13 upland wells. That's pages 16 and 17. Do you see  
14 that reference?

15 A. I do.

16 Q. What was the nature of this call that she  
17 issued?

18 A. Well, it was in the -- well, if I can  
19 give this other paragraph above that: Dr. Bleed,  
20 then acting director, went to the -- went on to  
21 detail DNR's proposal of what would be necessary  
22 to achieve compact compliance.

23 Q. So this is a news -- based on the news  
24 account again?

25 A. Yes, it is.

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1 Q. Okay. So we don't know if that was a  
2 formal request or a proposed rule or whether it  
3 was ever reduced to writing of any kind?

4 A. I don't recall.

5 Q. Was it possibly one alternative among  
6 others that might have been pursued or considered?

7 A. I'm not sure.

8 Q. A little further down on this page you  
9 indicate that since 2008 --

10 A. You're on page 17 now?

11 Q. Yes, sir.

12 A. Yes.

13 Q. Since 2008 Nebraska has discon --  
14 discontinued considering significant reductions in  
15 groundwater pumping.

16 MR. DRAPER: Which paragraph is that in,  
17 Tom?

18 BY MR. WILMOTH:

19 Q. Let's see.

20 MR. BLANKENAU: Seven.

21 A. I see it there.

22 BY MR. WILMOTH:

23 Q. On what do you base that conclusion?

24 A. I'll just read the sentence. Nebraska  
25 has since discontinued considering significant

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1 reductions in groundwater pumping that can lead to  
2 permanent solutions to compact compliance,  
3 adopting instead a short-term plan aimed at  
4 protecting current levels of pumping. So it's  
5 based on the IMPs, and it's really contrasting the  
6 type of reductions that were being discussed at  
7 this time with the type of pumping reductions that  
8 are in the IMPs.

9 Q. So if I understand our prior  
10 conversation, we agree that the IMPs do contain  
11 groundwater pumping reductions, correct?

12 A. They do.

13 Q. So if I understand what you're saying  
14 now, you just don't consider those to be  
15 significant.

16 A. Yeah. They're not significant in the  
17 context of what needs to be done, in my opinion.

18 Q. What kind of pumping reductions have been  
19 imposed in the IGUCAs in Kansas?

20 A. Well, the principal one that I could give  
21 as illustration is in the Wet Walnut Creek IGUCAs.  
22 The reductions there were -- let me back up.  
23 Essentially, the -- the safe yield to the basin  
24 was determined through the hearing process. I  
25 believe it was 22,000 acre-feet. There was quite

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1 a bit more than that that was appropriated.  
2 48,000, I believe it was. Less than that used.  
3 Three classes of allocations were provided: One  
4 to vested water rights that under our law are sort  
5 of in a different category. These are pre-1945  
6 water rights.

7 Q. When you say different allocations, you  
8 mean pumping allocations?

9 A. Yes.

10 Q. Within the same district.

11 A. Within this area.

12 Q. There are three different allocations?

13 A. Uh-huh. One to vested. One to senior  
14 appropriators that the priority date was before it  
15 became overappropriated. And finally another part  
16 to junior appropriators that were subsequent to  
17 that date. The junior class were granted -- and  
18 it varied according to counties going east to  
19 west, but it was around five inches. The senior  
20 class was around 12, and the vested just had  
21 certain limitations based on them, so --

22 Q. So from a percentage reduction standpoint  
23 --

24 A. Uh-huh.

25 Q. -- as against historic use --

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1 A. Uh-huh.

2 Q. -- what were the percentages for the  
3 three classes?

4 A. I obviously don't have those numbers in  
5 front of me, so I'm just going to give you my  
6 recollection --

7 Q. That's fine.

8 A. -- in generalizations, but I would say  
9 the senior class would probably have been in the  
10 15 percent range and the junior class more than  
11 50.

12 Q. With regard to the proposed Pawnee IGUCA,  
13 what would those reductions look like?

14 A. I don't know.

15 Q. You also indicate on this page 17 that  
16 Dr. Bleed in 2010 lamented Nebraska's new  
17 approach. Do you see that?

18 A. I do.

19 Q. Do you know what her lamentation was  
20 based on?

21 A. I quote, subsequent to the -- to the word  
22 lament, lamented, is her editorial or -- and it  
23 says: If we don't amend the IMPs, Nebraska's  
24 assertion that it has taken steps to ensure  
25 compact compliance will be called into question by

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1 the Supreme Court.

2 Q. Okay. Do you know any -- do you know  
3 whether Dr. Bleed conducted any analysis of the  
4 third-generation IMPs prior to making that  
5 statement?

6 A. I do not know.

7 Q. You state in here that the  
8 second-generation IMPs, now in the bottom half of  
9 this page, were amended for the 2008 to 2012  
10 period but that those amendments were inadequate,  
11 correct?

12 A. Where are you at?

13 Q. The latter half of the page 17 here below  
14 subheading E.

15 A. Uh-huh.

16 Q. If I read this correctly, you're  
17 suggesting that the second-generation IMPs were  
18 inadequate.

19 A. Right. Okay.

20 Q. Are you aware of any compact violations  
21 by Nebraska between 2008 and 2012?

22 A. I'm not aware of any.

23 Q. If there were no violations, then how are  
24 they inadequate?

25 A. Well, they're inadequate for purposes of

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1 -- that I -- what I seek to make plain in the  
2 broader report.

3 Q. Okay. So if I understand, an IMP can  
4 achieve compact compliance during its term but  
5 still be inadequate in your view.

6 A. Yes.

7 Q. But you're not suggesting that the IMPs  
8 in place today have to ensure compliance  
9 indefinitely into the future under every  
10 condition, correct?

11 A. I'd like the question again.

12 (WHEREUPON, the question was read by the  
13 reporter.)

14 A. I'm not sure what you're saying there or  
15 asking there.

16 BY MR. WILMOTH:

17 Q. Earlier I thought I asked you a question  
18 as to whether the IMPs in place today would need  
19 to ensure compliance indefinitely into the future  
20 under every condition, and I understood your  
21 response to be negative, that that was not what  
22 you were asserting.

23 A. I thought that was in reference to  
24 whether Kansas' remedy ensured compliance. I'm  
25 not remembering --

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1 Q. Well --

2 A. -- what you stated.

3 Q. Let me ask you now. Is it your position  
4 that the third-generation IMPs in place today must  
5 ensure compliance indefinitely into the future  
6 under every condition?

7 A. Well, Nebraska is obligated to be in  
8 compliance in the future.

9 Q. Correct. Does their regulatory  
10 environment have to be so certain today that it  
11 will ensure compliance under every condition in  
12 the future; and, if so, can you point to me any  
13 such regulation in Kansas?

14 A. Again, I'm not clear on what you're  
15 asking.

16 MR. WILMOTH: Read that back.

17 A. I'm not sure --

18 MR. DRAPER: I think there's two  
19 questions in there.

20 A. Yeah. If you could give me one question  
21 at a time, that would help.

22 (WHEREUPON, the question was read by the  
23 reporter.)

24 A. Well, again, Nebraska has an obligation  
25 to be in compliance in the future.

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1 BY MR. WILMOTH:

2 Q. I don't think that's responsive.

3 A. Okay. Then give me just that one  
4 question one more time.

5 Q. My question is not whether Nebraska has  
6 an obligation to be in compliance. My question  
7 is, in order to satisfy Kansas's demands in this  
8 proceeding, does Nebraska have to present to you  
9 an IMP that will ensure that compliance for an  
10 indefinite future period under all condition?

11 A. We --

12 MR. DRAPER: You're asking for his  
13 administrative opinion, not for the legal  
14 conclusion that's --

15 MR. WILMOTH: I'm asking --

16 MR. DRAPER: -- embedded in that?

17 MR. WILMOTH: -- with regard to his  
18 expert view, if that's necessary.

19 A. Well, I -- you know, we've initiated this  
20 action because of Nebraska's past noncompliance.  
21 We're seeking a remedy that works to ensure future  
22 compliance.

23 BY MR. WILMOTH:

24 Q. But not in all conditions?

25 A. Well, Nebraska must be in compliance in

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1 all conditions. The judgment here is -- my  
2 judgment here is what's sufficient to not continue  
3 forward with. You know, I have to advise the  
4 governor and the legislature, and I'm -- we have  
5 -- we -- we need a plan that can persuade us that  
6 Nebraska has a reasonable opportunity to be in  
7 compliance in all potential futures.

8 Q. So is that a yes? I'm really not --

9 A. I'm not sure.

10 Q. -- trying to be obtuse. I'm trying to  
11 ask a yes or no question. I'll try again, if  
12 you'd like.

13 MR. DRAPER: I think it would be helpful  
14 to restate the question at this point.

15 BY MR. WILMOTH:

16 Q. Sure. The question is, does Kansas seek  
17 in this proceeding or perhaps do you seek as an  
18 expert speaking on behalf of Kansas --

19 A. Uh-huh.

20 Q. -- an assurance that the IMPs in place  
21 today will ensure compact compliance indefinitely  
22 into the future under every condition? That's a  
23 yes or no question, I think.

24 MR. DRAPER: And you're not asking the  
25 legal question, what are we asking for in our

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1 petition, which is compliance in all cases.  
2 You're asking him what his -- what -- apparently  
3 what affects his decision as to whether what  
4 Nebraska is doing is sufficient.

5 MR. WILMOTH: Yes. He has offered an  
6 opinion that the IMPs are inadequate, and I'm  
7 trying to understand if they are inadequate  
8 because, as we sit here today, in Mr. Barfield's  
9 view, they don't ensure compliance indefinitely  
10 under all conditions? I'm trying to understand  
11 the definition of inadequacy.

12 A. Okay. I think the answer is no, and I'm  
13 not trying to be coy either, here, but --

14 MR. WILMOTH: Could you read that back? I  
15 just want to make sure that's clear. There's a  
16 lot of --

17 (WHEREUPON, the answer was read by the  
18 reporter.)

19 BY MR. WILMOTH:

20 Q. Let me just say one more time, to clarify  
21 the record, are you suggesting in your capacity as  
22 Kansas's expert that the present IMPs must ensure  
23 compact compliance into the future indefinitely  
24 under all possible conditions?

25 A. Okay. My answer was no.

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1 Q. Thank you.

2 MR. WILMOTH: I think we should take a  
3 break. Let's have lunch. Thank you.

4 (WHEREUPON, there was a recess from 11:34  
5 AM to 12:36 PM.)

6 BY MR. WILMOTH:

7 Q. Good afternoon, Mr. Barfield. Thank you  
8 for coming back.

9 A. Did I have a choice?

10 MR. BLANKENAU: That hasn't always  
11 occurred.

12 MR. DRAPER: It's not a given  
13 necessarily.

14 BY MR. WILMOTH:

15 Q. I wanted to divert for a moment from the  
16 expert report you prepared and ask you just a  
17 series of questions about your relationship with  
18 the Bureau of Reclamation and the coordination  
19 between the state of Kansas and the bureau.

20 You summarize on your -- in your report the  
21 views of the bureau, and I was curious if you  
22 could identify the basis of your understanding of  
23 the bureau's concerns.

24 A. And you're talking about page 34 and  
25 following?

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1 Q. Yes.

2 A. Yeah. Well --

3 Q. And I'm less concerned about the --

4 A. History?

5 Q. -- content of the concerns and more  
6 interested in your -- the basis for those views.

7 A. Well, obviously the bureau is a  
8 significant player in the compact and the business  
9 of the compact administration. Some of that  
10 expression is just quoting statements that they've  
11 made in the compact record, first of all, and in  
12 responses to IMPs. So, I guess, you know, we've  
13 listened and heard those, and I'm sort of reciting  
14 those expressions of concern that they have that  
15 parallel ours.

16 Q. Do you coordinate your efforts to  
17 interpret or opine on the IMPs with the bureau?

18 A. As a general matter, no. I mean, I think  
19 our analysis and theirs have been fairly  
20 independent from one another. I do recall one  
21 interaction, meeting with them where we were sort  
22 of looking at the IMPs together, sort of trying to  
23 understand it.

24 Q. Do you recall when that interaction  
25 occurred or meeting occurred?

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1 A. I don't recall specifically, but it was  
2 concerning the third-generation of IMPs.

3 Q. Do you recall if you had a meeting like  
4 that in May of 2010?

5 A. It could have been in that time frame.

6 Q. Do you recall who was present at that  
7 meeting?

8 A. Not fully. I'm fairly sure Aaron was  
9 there.

10 Q. Mr. Thompson?

11 A. Mr. Thompson. Excuse me.

12 Q. That's all right. From the Bureau of  
13 Reclamation.

14 A. From the Bureau of Reclamation.  
15 Shouldn't use shorthand here. And two or three of  
16 his staff and then some of my staff and myself.

17 Q. Do you recall whether Kansas provided any  
18 analyses of the IMPs to the bureau at that  
19 meeting?

20 A. No, I don't recall that we did.

21 Q. Is it common practice for the bureau to  
22 keep Kansas apprised of its testimony on the IMPs?

23 A. No.

24 Q. At the May meeting we referred to  
25 earlier, did you seek any assistance from the

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1 bureau in understanding the IMPs?

2 A. I think, yes, would -- yes.

3 Q. Could you explain the nature of what you  
4 sought and what you received.

5 A. Only in a very general sense. My  
6 recollection is that they had had a meeting or  
7 series of meetings and interactions with the state  
8 of Nebraska, and, so, again, to seek to understand  
9 the IMPs and so there was an exchange of  
10 information about what they learned.

11 Q. Was that a verbal exchange, you mean?

12 A. Uh-huh.

13 Q. To your knowledge, though, the bureau  
14 didn't provide you with any modeling analyses or  
15 anything like that?

16 A. I don't recall any.

17 Q. If I could hand you a letter that --  
18 excuse me -- an e-mail that we received in  
19 response to our request for production to the  
20 state of Kansas. Do you recognize this  
21 correspondence? We'll mark this as Exhibit 7.

22 (WHEREUPON, Deposition Exhibit No 7 was  
23 marked for identification.)

24 A. I'm reasonably certain that it -- it's --  
25 I'm reasonably certain it's authentic here, yes.

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1 BY MR. WILMOTH:

2 Q. And what was the purpose of that  
3 transmission?

4 A. Well, in some discussion we had with  
5 them, I think I had learned that -- and probably  
6 requested this, that they had made such a  
7 statement and had requested it.

8 Q. Thank you. I'm going to hand you two  
9 pieces of correspondence. I think they relate to  
10 each other, which is why I'm giving them to you at  
11 the same time. These are also something we  
12 received in response to our discovery requests to  
13 Kansas. Just ask you if you recognize these  
14 pieces of correspondence, which we'll mark as  
15 Exhibit 8, and just go ahead if it's all right  
16 with you and mark these collectively as Exhibit 8,  
17 John?

18 (WHEREUPON, Deposition Exhibit No 8 was  
19 marked for identification.)

20 A. What's your question?

21 BY MR. WILMOTH:

22 Q. Do you recognize that correspondence at  
23 all?

24 A. I don't.

25 Q. Do you recognize any of the participants

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1 in the correspondence?

2 A. Certainly I do, yes.

3 Q. Who would they be?

4 A. Well, Scott Ross is on my staff and Pat  
5 Erger is on the bureau's staff.

6 Q. Can you discern from this correspondence  
7 the topic of their exchange?

8 A. I'm not really sure of the specific  
9 content of this.

10 Q. The document labeled KS 299 references a  
11 meeting. Do you have any knowledge of that  
12 meeting?

13 A. Without looking at my calendar I can't  
14 tell you precisely what this meeting was about.

15 Q. I direct your attention to KS 302 and ask  
16 if you see the reference to operational changes?

17 A. Uh-huh.

18 Q. Do you have any idea what that might be  
19 related to?

20 A. Again, I'm not certain without -- I'm not  
21 certain.

22 Q. Were you, as the chief engineer, seeking  
23 to address operational changes with the bureau at  
24 this point in time?

25 A. In the Republican River projects?

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1 Q. Yes, sir.

2 A. Not to my knowledge. Scott interacts  
3 with the bureau on other projects. I'm really not  
4 sure without consulting a calendar what this is  
5 about.

6 Q. Thank you.

7 (WHEREUPON, Deposition Exhibit No 9 was  
8 marked for identification.)

9 BY MR. WILMOTH:

10 Q. I'm going to hand you a copy of a  
11 PowerPoint presentation we received in response to  
12 our discovery requests to the Department of the  
13 Interior. We'll mark this as Exhibit 9. I'd just  
14 like to know if you can identify that document.

15 A. Yes, I'm familiar with the document.

16 Q. Can you discuss the purpose of the  
17 document for me, just explain its intent.

18 A. I believe my recollection was that this  
19 was -- purpose was to provide the bureau with a  
20 bit of a briefing on our filing in the U.S.  
21 Supreme Court.

22 Q. Just updating the bureau on your  
23 activities?

24 A. Correct.

25 Q. I apologize. These pages aren't

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1 numbered. I'd like to refer you to the slide that  
2 follows Figure 8.

3 A. On the same page?

4 Q. Yes, please. Yes. Did you prepare these  
5 slides?

6 A. I believe so.

7 Q. And this slide indicates that current  
8 compliance is due principally to wet conditions.  
9 Could you explain your meaning with regard to that  
10 statement.

11 A. Well, compliance is a function of  
12 allocation and use. Compliance is most  
13 challenging when the water supply is down and use  
14 is up. Compliance is less challenging when the  
15 water supply is higher and use is down. And since  
16 starting in 2007 we have been in a period of  
17 significantly above average precipitation, and,  
18 therefore, in conditions when water supplies are  
19 up and use is down and compliance has occurred.

20 Q. So is the inverse true, that  
21 noncompliance is generally due to dry conditions?

22 A. Compliance generally happens during dry  
23 conditions when allocations are lower, and  
24 groundwater depletions remain at their level.

25 Q. I'm not sure I understood the response.

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1 If compliance is due principally to wet conditions  
2 in the recent period, is noncompliance due  
3 principally to dry conditions in the recent  
4 period?

5 A. Well, and my answer was dry conditions  
6 are a significant contributor in that they produce  
7 lower allocations, and Nebraska's use is above  
8 those lowered allocations.

9 Q. Are those dry conditions the principal  
10 cause of noncompliance?

11 A. Nebraska's overuse is the principal cause  
12 of noncompliance.

13 Q. So if I understand correctly, you  
14 attribute Nebraska's compliance to -- principally  
15 to wet conditions, but their noncompliance  
16 principally to something other than the dry  
17 condition?

18 A. Well, I guess I'm just restricting this  
19 cause-effect direct relationship that it seems  
20 you're trying to postulate here.

21 Q. Well, I'm not trying to postulate it.  
22 I'm just trying to understand what you wrote in  
23 this --

24 A. Yeah.

25 Q. -- slide.

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1 A. Well, Nebraska has been asserting that  
2 they're now in compliance and there's been a  
3 suggestion that their IMPs are the reason for  
4 compliance.

5 Q. Do you disagree that Nebraska is in  
6 compliance?

7 A. I do not disagree that Nebraska is in  
8 compliance.

9 Q. But you disagree that the IMPs have  
10 anything to do with that.

11 A. I -- yes, they have -- they are not  
12 producing the compliance we're seeing right now.

13 Q. On what do you base that opinion?

14 A. I guess my experience with the  
15 accounting, you know, reviewing accountings and  
16 building accountings over the 17, 18 years that  
17 I've been doing it.

18 Q. I'd like to take you to one of the later  
19 slides, a couple of pages forward, there's a slide  
20 that says: What Kansas is seeking. Do you see  
21 that slide?

22 A. Yes, I do.

23 Q. Among other things it appears Kansas is  
24 seeking an injunction from further violations. Am  
25 I correct that you don't know when those

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1 violations will occur?

2 A. Yeah, I don't have a crystal ball.

3 Q. But you're confident that they will  
4 occur, correct?

5 A. Well, what my report says, if there's not  
6 significant changes in management, I'm confident  
7 they will occur in the future.

8 Q. On this slide you also suggest that  
9 Kansas is seeking significant reductions in  
10 groundwater pumping or the equivalent. Can you  
11 tell me what would be the equivalent in your view?

12 A. This slide sort of parrots our -- you  
13 know, our filing, I believe. We're just telling  
14 the bureau, this is what we're seeking. I think  
15 this is sort of shorthand. You know, we have sort  
16 of prescribed a level of pumping reductions that  
17 we think is necessary for a remedy, we've said, or  
18 hydrologically equivalent in that statement, so it  
19 could be a combination of lesser reductions and  
20 something that hydrologically is equivalent or a  
21 different -- instead of shutting down a specific  
22 area, maybe lower allocations. So there has to be  
23 something that does the same thing hydrologically.

24 Q. And gets Nebraska into compliance.

25 A. Well, that's the purpose, yeah.

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1 Q. One step further. You mention Nebraska's  
2 efforts to bypass federal projects, on the top  
3 slide. Do you see that?

4 A. What's the title of the slide?

5 Q. Kansas and federal concerns are largely  
6 congruent?

7 A. Yes.

8 Q. What do you mean by that?

9 A. Well, in the IMPs there's a provision  
10 that provides in compact call years that waters  
11 would -- there would be a call such that water  
12 could not be stored during those periods of time  
13 in the federal reservoirs including Harlan is how  
14 I read it.

15 Q. And do you interpret that to mean that  
16 water could therefore not be delivered to KBID?

17 A. Well, I interpret it as water -- I mean,  
18 KBID would still be able to access its storage, I  
19 presume, and river flows, but it would impact what  
20 would accrue in Harlan County and therefore its  
21 share of the supply.

22 Q. What if the call did not prohibit KBID  
23 from storing natural flow?

24 A. Help me understand what you're  
25 suggesting.

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1 Q. If the call that you're referring to did  
2 not prohibit explicitly KBID from storing natural  
3 flow, would that resolve your concern?

4 A. Now, you're talking about something  
5 that's different than what's in the IMPs now,  
6 right?

7 Q. Yes, I am.

8 A. So you're asking me to speculate about  
9 some other --

10 Q. Well, I'm talking about something that's  
11 different than what you explained as your  
12 interpretation of the IMPs.

13 A. Uh-huh.

14 Q. And I'm asking if the call that was  
15 placed allowed KBID or more precisely the bureau  
16 to store water for KBID's benefit, would that  
17 alleviate your concern about bypassing the federal  
18 system?

19 A. Well, I'd have to see the terms of that  
20 to, you know -- so we're just talking about a  
21 principle here, because how would you  
22 differentiate between KBIDs and NBIDs, and so I'd  
23 have to have the particulars to be definitive.

24 Q. Okay.

25 A. It wouldn't resolve all of Kansas'

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1 concerns because it doesn't deal with groundwater,  
2 but that specific -- it would certainly help  
3 address the specific concern that's --

4 Q. The bypass.

5 A. The bypass issue.

6 Q. Thank you. I'm going to hand you a  
7 document marked KBID 003 and just tell that we  
8 received this in response to a request for  
9 documents from KBID. We'll mark this as Exhibit  
10 10.

11 (WHEREUPON, Deposition Exhibit No 10 was  
12 marked for identification.)

13 BY MR. WILMOTH:

14 Q. Do you recognize this correspondence or  
15 generally its topic?

16 A. Okay. What's the question?

17 Q. Do you recognize either this  
18 correspondence in particular or the topic that  
19 it's addressing?

20 A. I do not recognize the specific  
21 correspondence, but I do recognize the topic.

22 Q. Does this document discuss coordination  
23 between the bureau and the state on lake levels?

24 A. Yes.

25 Q. Can you tell me how the state, through

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1 any of the named agencies, works with the bureau  
2 to manage lake levels?

3 A. Well, this correspondence specifically  
4 discusses lake level management plans in federal  
5 reservoirs. These management plans are done in  
6 certain corps and -- Corps of Engineers and Bureau  
7 of Reclamation reservoirs predominantly for fish  
8 and wildlife and recreation benefits, so don't let  
9 the pools rise a certain part of the year to  
10 enhance the fish spawn and --

11 Q. Yes, sir.

12 A. -- there's other actions for water fowl.

13 Q. These are principally nonirrigation  
14 activities?

15 A. That's correct.

16 Q. And I believe you know we spoke with Mr.  
17 Nelson from KBID yesterday.

18 A. Uh-huh.

19 Q. We spoke to him briefly about some  
20 drought relief funding and water storage that they  
21 engaged in in 2005 and 2006. Does any of that  
22 ring a bell to you? This would have been drought  
23 relief assistance that they received I believe  
24 through the Kansas Water Office, and it allowed  
25 them to hold water in Harlan County Lake in those

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1 years for nonirrigation use as I understand it.

2 A. I guess I'm not familiar as you describe  
3 it.

4 Q. Does any of that sound familiar in any  
5 regard? Does the state participate in such  
6 programs with KBID?

7 A. I'm not certain.

8 Q. At page 36 of your report, still talking  
9 about reclamation, you state that Nebraska's past  
10 efforts to facilitate compact compliance through  
11 surface water purchases, quote, raise concerns for  
12 Kansas. Could you identify your concerns in that  
13 regard.

14 A. Well, those concerns I think are  
15 articulated in the paragraph that follows, I  
16 guess. The concerns were that purchases providing  
17 the water to Kansas, again, that those operations,  
18 I guess, were not as effective and efficient I  
19 think as they could have been, and the notices in  
20 terms of when that supply was made available were  
21 quite short.

22 Q. Who does that compromise specifically?

23 A. Well, it makes it difficult for us to  
24 make use of the water supply that we're -- that  
25 the delivery was -- or the purchase was supposed

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1 to be for.

2 Q. By us, do you mean KBID?

3 A. Well, I meant Kansas, but KBID is the --  
4 is the -- would be the principal beneficiary of  
5 that.

6 Q. Thank you. If I understand this  
7 correctly, one of your concerns was that these  
8 purchases increased Kansas's allocation? Is that  
9 right? Or did I misread that?

10 A. No, I -- I'm not sure that was expressed  
11 as a concern. Let me read it, please. I'm not  
12 quite sure what that sentence is saying as I read  
13 it now.

14 Q. So just to be clear, there's no concern  
15 about increasing Kansas's allocation. Actions  
16 that would act to increase the allocation would  
17 not be of concern to you?

18 A. I don't believe so.

19 (Off-the-record discussion.)

20 Q. On page 36, Mr. Barfield, you have a  
21 heading that states: Surface water purchases are  
22 not a long-term solution and requires supervision  
23 by federal authority.

24 A. Uh-huh.

25 Q. Why is the supervision by federal

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1 authority a problem, in your view?

2 A. It's not a problem.

3 Q. Okay. You note that, generally, in this  
4 section, the purchases of surface water by  
5 Nebraska were generally harmful. Is that fair?

6 A. Do I say that?

7 Q. I'm asking. That's my interpretation.  
8 Is that fair? The purchases generally harmed  
9 Kansas?

10 A. Well, I don't think I made that assertion  
11 here.

12 Q. Okay. I misunderstood then. Do you  
13 think that a river master should be involved in  
14 overseeing those kinds of purchases?

15 A. We seek a river master to help  
16 superintend Nebraska's compliance effort, and part  
17 of the role we envisioned was -- is to sort of  
18 examine, have a neutral -- as a neutral party such  
19 purchases and the potential yield from such  
20 purchases and how that would relate to compliance.

21 Q. If the purchases were not harmful to  
22 Kansas, why do we need a river master to oversee  
23 them in your view?

24 A. Well, later in the report I think I talk  
25 a bit about the need for a river master and the

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1 potential role for the river master. I believe  
2 that's on page 39.

3 Q. That's fine. Let's transition to that  
4 generally.

5 A. Okay.

6 MR. WILMOTH: Could you restate my  
7 earlier question about the river master?

8 (WHEREUPON, the question was read by the  
9 reporter as follows:

10 "Q. If the purchases were not harmful to  
11 Kansas, why do we need a river master to  
12 oversee them in your view?")

13 A. Well, I say in the third paragraph on  
14 page 39 under subsection B: To the extent the  
15 court may allow Nebraska to use other means other  
16 than groundwater pumping reductions to achieve  
17 compliance, these will need supervision of a  
18 disinterested party. In addition to supervision  
19 -- in addition to the supervision the  
20 implementation of required groundwater reductions  
21 noted above, making sure those reductions do  
22 happen, the river master would annually evaluate  
23 Nebraska's plan for compliance, including its  
24 proposed sources of water and operation, expected  
25 yields. This would include conferring with Kansas

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1 on its evaluation of the plan, approve the plan  
2 and assure it's accomplished, so forth. So, yeah,  
3 that operation -- those operations had a benefit  
4 to Kansas. My point in the critique was they  
5 weren't as beneficial as they could be.

6 BY MR. WILMOTH:

7 Q. I see. Okay.

8 A. And there actually was one element that  
9 was detrimental to Kansas, but --

10 Q. Which element was that?

11 A. Well, Kansas was provided water and  
12 didn't have the opportunity to take all of that  
13 water in that year because of the late notice.  
14 Some of it carried over to the following year. It  
15 was distributed between NBID -- it was  
16 redistributed -- some of it was redistributed, and  
17 Kansas had to take the carryover water before its  
18 water, so it's just -- we just found the whole  
19 accounting and operation to be in a way that  
20 wasn't as beneficial to Kansas as it needed to be.

21 Q. So would the river master then dictate  
22 the timing of those types of purchases and conduct  
23 the accounting, for example?

24 A. Well, as I envision it here, especially  
25 if Nebraska seeks -- is an approve -- a plan is

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1 approved that's got groundwater cuts but not the  
2 extent that we've asked for here but instead wants  
3 to use other means, he or she would sort of  
4 collect Nebraska's plan, evaluate it, Nebraska  
5 would document, here's the source of water, here's  
6 how it's going to be operated, here's the yield  
7 from that operation. And there would be a process  
8 to sort of figure out if the plan and its elements  
9 and its proposed operation sort of would get  
10 Nebraska to compliance.

11 Q. Now, if I understand, you're talking  
12 about a broader plan than just a surface water  
13 transaction, is that right? Or are we just still  
14 talking about a surface water purchase?

15 A. Well, it could be -- it could have other  
16 elements in it, yeah. Nebraska is required each  
17 -- in water short years to provide us a plan by a  
18 certain date, and then there's another date at  
19 which it sort of provides I think a report of what  
20 it did. So this would probably work sort of in  
21 conjunction with that.

22 Q. In the past has Nebraska complied with  
23 those provisions that you're referring to?

24 A. They have sent us notice, yes.

25 Q. Let's continue down this river master

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1 concept. I'm intrigued by this. So what exactly  
2 do you mean by a river master? Would that be  
3 someone who is elected by the RRCA or appointed by  
4 the court or -- how long would the term be? Could  
5 you elaborate on your thoughts there.

6 A. It would be appointed by the court and --

7 Q. How would this person interface with the  
8 RRCA in your view?

9 A. I don't know that I've -- there are other  
10 river masters, and I guess I'm not sure of all the  
11 particulars of that interaction, but -- so I guess  
12 I'm not sure.

13 Q. Do you believe that the river master's  
14 decisions would be subject to review under the  
15 FSS? And by that I mean those provisions that  
16 have led us to this table.

17 A. Can I hear the question again.

18 (WHEREUPON, the question was read by the  
19 reporter.)

20 A. Well, as I understand what we're seeking  
21 to do here, we would ask the court to appoint a  
22 river master. I assume the court will prescribe  
23 exactly how that would work with respect to the  
24 states and the RRCA.

25 BY MR. WILMOTH:

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1 Q. You don't have an opinion on that,  
2 though?

3 A. How it should work?

4 Q. As to how it should work.

5 A. Well, I think I described a process here  
6 where --

7 Q. Let me ask you this way, if I may.

8 A. Uh-huh.

9 Q. Would you want that person's decisions to  
10 be subject to review under the FSS as an expert in  
11 water management?

12 A. Well, I think this person should be  
13 working with the states, but we need somebody who  
14 has the ability to independently evaluate and  
15 cause things to happen, so we can't have it  
16 structured so that there's a veto power of that  
17 person's ability to do that.

18 Q. So, for example, that person would be  
19 able to perhaps interface with the RRCA to gain  
20 some information but then would render some  
21 decision that would not be subject to a veto  
22 power.

23 A. Yeah.

24 Q. And then do you foresee any appellate  
25 review of that decision, or would that be final

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1 and unreviewable?

2 A. I'm not certain.

3 Q. You suggest that the river master ensure  
4 Nebraska make any court-ordered reductions in  
5 CBCU. How do you envision that working?  
6 Specifically would the master's authority trump  
7 state law?

8 A. Well, the compact is state law, and the  
9 purpose of any court-ordered reduction would be to  
10 return Nebraska to compliance.

11 Q. Would the master have the authority to  
12 regulate a reclamation facility, for example, as  
13 necessary to assure compliance?

14 A. I'm not certain.

15 Q. Would the master be able to approve  
16 augmentation plans over objections by certain  
17 states, for example?

18 A. Well, as I would envision it, it would be  
19 an independent -- he would be an independent -- he  
20 or she provide an independent review, and that  
21 review could not be vetoed by either state, I  
22 would guess.

23 Q. If the river master concluded that a  
24 particular accounting procedure should be changed,  
25 would the river master be able to approve that

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1 over the objection of other states?

2 A. I would not see that role for the river  
3 master.

4 Q. Why not?

5 A. I think the river master would -- role  
6 would be to, again, supervise Nebraska's efforts  
7 to come in compliance with the compact, not to  
8 seek to change in any way the -- the FSS or the  
9 accounting procedures.

10 Q. Would a river master be able to order a  
11 state to use less than its allocation in any given  
12 year?

13 A. As I envision it, not if -- not unless  
14 that was necessary to get into compliance with a  
15 multiyear period.

16 Q. By that do you mean the -- a term under  
17 the FSS?

18 A. Right.

19 Q. A multiyear term under the FSS.

20 A. Correct.

21 Q. So if I understand it, in summary, the  
22 master would not have the authority to override  
23 the compact or the FSS but would have some power  
24 to break deadlocks to the extent there was  
25 something needed to facilitate those documents.

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1 Is that a fair summary?

2 A. I don't think so.

3 Q. Would the master have the power to  
4 override the FSS?

5 A. No.

6 Q. Or the compact?

7 A. No.

8 Q. So which part of my statement did you  
9 disagree with?

10 A. What was the rest of it? Can you reread  
11 his statement?

12 (WHEREUPON, The question was read by the  
13 reporter as follows:

14 "Q. So if I understand it, in summary,  
15 the master would not have the authority to  
16 override the compact or the FSS but would  
17 have some power to break deadlocks to the  
18 extent there was something needed to  
19 facilitate those documents. Is that a fair  
20 summary?")

21 A. And the part of the statement was to  
22 break deadlocks. I'm not seeing him as a dispute  
23 -- him or her as a dispute resolution person. We  
24 have separate processes for resolving disputes.  
25 It is for supervising Nebraska's activities

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1 related to complying with the compact.

2 BY MR. WILMOTH:

3 Q. And in that regard you recommend that the  
4 master should be able to annually evaluate a  
5 compliance plan that Nebraska would need to  
6 present each year, is that right?

7 A. That's how I would envision it.

8 Q. And that would include a process of  
9 conferencing with Kansas, is that correct?

10 A. That's what I've suggested here.

11 Q. And what would be the outcome if Kansas  
12 objected to that compliance plan?

13 A. Well, the river master, as I articulated  
14 here, would receive Nebraska's compliance plan,  
15 the sources of water that it might have, the yield  
16 from those, and make a determination as to the  
17 sufficiency of those. The consultation with  
18 Kansas is to see if it has any idea, any input on  
19 Nebraska's proposal and expected yields and  
20 operation, and he or she would then again  
21 determine what is in fact necessary for compact  
22 compliance and make a decision based on those  
23 inputs, but not having Nebraska or Kansas be able  
24 to say -- veto that decision.

25 Q. Thank you. So neither state would have a

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1 veto power over --

2 A. Right.

3 Q. -- any particular plan or recommendation  
4 of the master.

5 A. That's how I envision it.

6 Q. But the master would be authorized to  
7 enforce a modification to a plan he or she found  
8 deficient.

9 A. Yes.

10 Q. You also recommend, I think, that  
11 sanctions be developed for future violations, and  
12 I will confess to a poor understanding of this  
13 section, so I don't want to overstate my  
14 understanding. What sanctions would be  
15 appropriate in your view?

16 A. Well, that -- I'm on page 40 here at  
17 subsection C, and, you know, the FSS does not  
18 prescribe sanctions for non-violations, and I'm  
19 suggesting here that the court include sanctions  
20 in its order to give Nebraska a strong  
21 disincentive to violate in the future.

22 Q. Now, how would you propose those  
23 sanctions be calculated? Do you have a dollar  
24 figure in mind?

25 A. I don't list one, so I don't, but a

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1 significant amount. Again, its primary purpose is  
2 to ensure future compliance.

3 Q. So to provide a hammer, if you will, to  
4 make it so that Nebraska doesn't want that to  
5 happen.

6 A. Correct.

7 Q. How would they be implemented? For  
8 example, are you suggesting here that the court  
9 establish today a schedule of sanctions that would  
10 apply if and when there was a future violation?

11 A. Well, I haven't prescribed that in my  
12 expert report, but I think that's correct.

13 Q. Would they be the same in all years or  
14 would there be any consideration of specific  
15 circumstances in the basin at the time?

16 A. What do you mean?

17 Q. Would they take into account crop yields  
18 or hydrologic conditions or other sources of water  
19 that might have been used to mitigate actual harm?  
20 Or would you just have a standardized number that  
21 you would multiply by a volume of water that you  
22 calculated?

23 A. I don't have an answer for that.

24 Q. If you don't have answers for these  
25 questions, how can you suggest that they're

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1 necessary and will incentivize compliance?

2 A. Well, I've suggested they be significant,  
3 and I think that is the deterrent.

4 Q. Does the state impose sanctions of this  
5 nature on its users?

6 A. For overuse?

7 Q. For overuse of their allocations?

8 A. We do have a compliance enforcement  
9 program that does prescribe for repeated offenses  
10 both monetary and water penalties.

11 Q. And what are the amounts involved in  
12 those sanctions, the dollar figures?

13 A. I believe -- this is for an individual  
14 water right I'm talking about now.

15 Q. Sure.

16 A. They can be a thousand -- I believe, a  
17 thousand -- I'm not sure. I cannot recall if it's  
18 a thousand dollars a day or \$5,000 a day. We  
19 could get that information for you.

20 Q. Do you know if you, as the chief  
21 engineer, set those in rule or regulation or if  
22 they're statutory?

23 A. They're not statutory.

24 Q. Who enforces that? Is that the districts  
25 or the chief engineer's office?

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1 A. I do. We do.

2 Q. Do you find that they are sufficient  
3 disincentives to noncompliance?

4 A. We have found water penalties are -- seem  
5 to be more -- a larger disincentive.

6 Q. Do you believe that the court in this  
7 matter should adopt the Kansas groundwater pumping  
8 remedy and the sanction remedy, or are they in the  
9 alternative?

10 A. We were seeking both.

11 Q. So Kansas is sufficiently uncertain of  
12 the effectiveness of its proposed restrictions  
13 that it feels an additional incentive is  
14 necessary? Is that a fair characterization?

15 A. Yes.

16 Q. In your conclusion you state that it is  
17 necessary for Kansas to propose a remedy that will  
18 ensure future compliance in every year. Is it  
19 your view that this combination of proposed  
20 groundwater reduction and sanctions will do that?

21 A. Well, the remedy that we propose I  
22 believe would put Nebraska in a position to get to  
23 compliance each year, to be reasonably expected to  
24 be able to get into compliance each year.

25 Q. And if Nebraska were compelled by the

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DAVID BARFIELD

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1 court to implement that remedy, do you have any  
2 idea how much water over and above its allocation  
3 Kansas would receive for the next 50 years?

4 A. Can you repeat the question.

5 (WHEREUPON, the question was read by the  
6 reporter.)

7 A. So just to be clear on your question,  
8 you're suggesting if they make these cuts, that  
9 will increase -- decrease ground water depletes  
10 and therefore increase water to Kansas in dry  
11 years and wet years.

12 BY MR. WILMOTH:

13 Q. Correct.

14 A. And thereby increase the water to Kansas.

15 Q. Correct.

16 A. In all years, even when you're in  
17 compliance.

18 Q. Correct.

19 A. Well, I have not calculated that number.

20 Q. All right. Thank you. Let's take 15  
21 minutes.

22 (WHEREUPON, there was a recess from 1:32  
23 PM to 1:51 PM.)

24 BY MR. WILMOTH:

25 Q. Mr. Barfield, thank you for returning.

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1 I'm going to hand you an excerpt, if you will,  
2 from one of the --

3 MR. DRAPER: Why don't we -- Tom, very  
4 good to thank us, but let me thank you for  
5 agreeing to have these depositions at this time.  
6 It gave me a little more time to recover from my  
7 operation, and I appreciate it.

8 MR. WILMOTH: No problem. You're  
9 welcome.

10 BY MR. WILMOTH:

11 Q. I'm just going to hand you an excerpt of  
12 a report entitled Future Impacts of Pumping on  
13 Groundwater Consumptive Use. Hopefully you'll  
14 recognize this excerpt as yours. I apologize I  
15 don't have a complete copy of the report. We'll  
16 mark this as Exhibit 11.

17 (WHEREUPON, Deposition Exhibit No 11 was  
18 marked for identification.)

19 BY MR. WILMOTH:

20 Q. This is just page 7 of the report,  
21 KS 688.

22 A. Okay.

23 Q. Do you recognize this excerpt as a  
24 portion of the actual report?

25 A. Yes, I do.

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1 Q. The question I have relates to the first  
2 sentence under the heading additional  
3 calculations. Can you explain to me the meaning  
4 of this first sentence.

5 A. Sure. Let me read it here for  
6 everybody's benefit.

7 Q. Of course.

8 A. At the request of David Barfield we  
9 conducted several calculations of future  
10 groundwater -- Nebraska groundwater CBCU using the  
11 RRCA model under various assumptions regarding the  
12 nature and duration of future pumping curtailment  
13 in Nebraska. And you want to know the meaning of  
14 the sentence?

15 Q. I think at some point earlier this  
16 morning you indicated that you had provided some  
17 direction to some of your folks.

18 A. Uh-huh.

19 Q. And I'm curious if you could explain what  
20 the nature of that direction was.

21 A. Right. Well, the calculations that  
22 follow are specific runs that were made for  
23 purposes of my expert report, and the results are  
24 included in the their report and in mine.

25 Q. Can you tell me why these scenarios were

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1 selected? And did you select them, I should ask?

2 A. Yes, I did.

3 Q. And can you tell me why they were  
4 selected?

5 A. Well, I wanted to better understand what  
6 the IMPs could potentially deliver in terms of  
7 water savings under the various conditions that  
8 are assumed.

9 Q. And where are these results located in  
10 your report?

11 A. Okay. It would be in section five,  
12 starting in the -- I believe on page 24, they show  
13 the -- the effect of suspending the rapid response  
14 areas, both during representative periods -- you  
15 know, future dry periods that are somewhat similar  
16 in duration to the most recent dry periods within  
17 the 15-year recurring interval, and then a  
18 complete suspension of the rapid response areas.

19 Q. I'm sorry if I'm repeating myself, but  
20 how did you elect to use these scenarios? Was  
21 there something that led you to the conclusion  
22 that those would be appropriate to use?

23 A. Well, the IMPs talk about if -- if the  
24 plans that are put forward by the NRDs are not  
25 sufficient, that this type of regulation could

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1 occur. So I wanted to evaluate -- and I express,  
2 I believe, in my report some concern whether this  
3 could actually be implemented, but I wanted to  
4 know if in fact the rapid response areas was  
5 curtailed over a sequence of years, what would be  
6 its hydrologic benefit in the future.

7 Q. And are these scenarios cumulative; in  
8 other words, does the second scenario that  
9 curtails the rapid response region include the 75  
10 percent pumping allowance?

11 A. These were done from our baseline future,  
12 which was the 80 percent reduction.

13 Q. Okay.

14 A. So that the 75 percent analysis was done  
15 separately.

16 Q. So they're not cumulative. In other  
17 words, the second scenario does not assume the 75  
18 percent figure, is that right?

19 A. That's my understanding.

20 Q. Okay. Nor does the third, then, I  
21 assume.

22 A. That's correct.

23 Q. And do any of these scenarios take into  
24 account any future action by the state or NRDs  
25 directed at compact compliance?

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1 A. No. They're just to determine the  
2 hydrologic benefit of that -- those particular  
3 actions.

4 Q. Does any of your analysis or modeling in  
5 any of the documents take into account any changes  
6 in management in the future?

7 A. Other than groundwater reductions?

8 Q. Yes.

9 A. Other than the -- I guess -- they -- in  
10 the baseline we have certain features included,  
11 the 20 percent reduction, the individual user  
12 allocations, and then we see the effect of these  
13 -- of going to 75 percent, '98 to 2002, and the  
14 effect of the rapid response areas. So your --

15 Q. So although there have been three  
16 iterations of the IMPs since 2004, this assumes,  
17 as does the rest of your modeling, that there are  
18 -- is not a fourth-generation IMP, for example.

19 A. I have not speculated about what a  
20 fourth-generation might look like, no.

21 Q. Why not?

22 A. How -- what would be the basis of that?

23 Q. I don't know.

24 MR. WILMOTH: That's all we have, John.

25 MR. DRAPER: Okay. Pete?

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1 MR. AMPE: I don't have anything.

2 CROSS-EXAMINATION

3 BY MR. DRAPER:

4 Q. I'd just like to ask one clarifying  
5 question. Mr. Barfield, I believe you stated that  
6 the allocations for groundwater pumping were  
7 included in the IMPs themselves. Is that right in  
8 your understanding?

9 A. No, I -- I characterized it that way, but  
10 they are actually in the NRD rules and  
11 regulations, not in the IMPs themselves.

12 MR. DRAPER: Thank you. That's it.

13 MR. WILMOTH: Thank you very much, Mr.  
14 Barfield.

15 THE WITNESS: Thank you.

16 MR. DRAPER: He'll read and sign.

17 (WHEREUPON, at 2:00 PM the deposition was  
18 concluded.)

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1 SIGNATURE

2 .

3 The deposition of DAVID BARFIELD was  
4 taken in the matter, on the date, and at the time  
5 and place set out on the title page hereof.

6 .

7 It was requested that the deposition be  
8 taken by the reporter and that same be reduced to  
9 typewritten form.

10 .

11 It was agreed by and between counsel and  
12 the parties that the deponent will read and sign  
13 the transcript of said deposition.

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1 AFFIDAVIT

2 .

3 STATE OF \_\_\_\_\_:

4 COUNTY/CITY OF \_\_\_\_\_:

5 .

6 Before me, this day, personally appeared,  
7 DAVID BARFIELD, who, being duly sworn, states that the  
8 foregoing transcript of his/her Deposition, taken in  
9 the matter, on the date, and at the time and place set  
10 out on the title page hereof, constitutes a true and  
11 accurate transcript of said deposition, along with the  
12 attached Errata Sheet, if changes or corrections were  
13 made.

14 .

15 \_\_\_\_\_

16 DAVID BARFIELD

17 .

18 SUBSCRIBED and SWORN to before me this \_\_\_\_\_  
19 day of \_\_\_\_\_, 2012 in the  
20 jurisdiction aforesaid.

21 .

22 \_\_\_\_\_

23 My Commission Expires

Notary Public

24 .

25 .

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1 DEPOSITION ERRATA SHEET

2 RE: APPINO & BIGGS  
3 REPORTING SERVICE, INC.

4 FILE NO.: 20014

5 CASE: STATE OF KANSAS vs.  
6 STATE OF NEBRASKA AND STATE OF COLORADO

7 DEPONENT: DAVID BARFIELD

8 DEPOSITION DATE: 1/26/12

9 To the Reporter:

10 I have read the entire transcript of my Deposition taken in the  
11 captioned matter or the same has been read to me. I request that  
12 the following changes be entered upon the record for the reasons  
13 indicated. I have signed my name to the Errata Sheet and the  
14 appropriate Certificate and authorize you to attach both to the  
15 original transcript.

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24 SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

25 DAVID BARFIELD

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1 CERTIFICATE

2 STATE OF KANSAS

3 ss:

4 COUNTY OF SHAWNEE

5 I, Michelle D. Hancock, a Certified  
6 Shorthand Reporter, commissioned as such by  
7 the Supreme Court of the State of Kansas,  
8 and authorized to take depositions and  
9 administer oaths within said State pursuant  
10 to K.S.A. 60-228, certify that the foregoing  
11 was reported by stenographic means, which  
12 matter was held on the date, and the time  
13 and place set out on the title page hereof  
14 and that the foregoing constitutes a true  
15 and accurate transcript of the same.

16 I further certify that I am not related  
17 to any of the parties, nor am I an employee  
18 of or related to any of the attorneys  
19 representing the parties, and I have no  
20 financial interest in the outcome of this  
21 matter.

22 Given under my hand and seal this  
23 day of \_\_\_\_\_, 2012.

24 \_\_\_\_\_  
25 Michelle D. Hancock, C.S.R. No. 0392

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