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## Trial Transcript, Vol. 85, Morning Session

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IN THE DISTRICT COURT FOR THE FIFTH JUDICIAL DISTRICT  
WASHAKIE COUNTY, STATE OF WYOMING

IN RE: )  
)  
THE GENERAL ADJUDICATION OF )  
ALL RIGHTS TO USE WATER IN )  
THE BIG HORN RIVER SYSTEM )  
AND ALL OTHER SOURCES, )  
STATE OF WYOMING. )

FILED \_\_\_\_\_  
8/3 1981  
*Margaret V. Hampton* CLERK  
DEPUTY

VOLUME 85

BE IT REMEMBERED that on this 9th day of July, 1981,  
at Room 302, State Capitol Building, Cheyenne, Laramie County,  
Wyoming, the above-entitled matter resumed for trial before  
the Honorable Teno Roncalio, Special Master Presiding, where-  
upon the following proceedings were had, to wit:

PROCEEDINGS :

**ORIGINAL**



APPEARANCES

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FOR THE STATE  
OF WYOMING:

HALL & EVANS  
2900 Energy Center Building  
717 17th Street  
Denver, CO 80202  
BY: MR. MICHAEL D. WHITE and  
MR. JAMES MERRILL, Special  
Assistant Attorneys General

FOR THE UNITED STATES  
OF AMERICA:

MR. JAMES CLEAR  
Attorney at Law  
Land and Natural Resources Division  
Department of Justice  
P.O. Box 7415  
Benjamin Franklin Station  
Washington, DC 20044

and

MR. THOMAS ECHOHAWK  
Attorney at Law  
Land and Natural Resources Division  
Department of Justice  
1961 Stout Street  
Denver, CO 80294

FOR THE SHOSHONE and  
ARAPAHOE TRIBES:

SONOSKY, CHAMBERS & SACHSE  
200 M. Street, N.W.  
Washington, DC 20006  
BY: MR. WILLIAM PERRY

CLERK TO THE  
SPECIAL MASTER:

MR. LEO SALAZAR  
Attorney at Law  
701 Rocky Mountain Plaza  
Cheyenne, WY 82001



1 THE SPECIAL MASTER: All right. May we come to  
2 order please, ladies and gentlemen.

3 Mr. White, before we begin we have a couple of  
4 preliminary matters --

5 MR. WHITE: Excuse me, Your Honor.

6 THE SPECIAL MASTER: It won't take but a minute.  
7 There is only one motion that was pending that would be  
8 eligible for disposition today and there are no others  
9 pending. And that was Wyoming's motion to strike the  
10 United States' brief in support of the United States'  
11 amended motion to take judicial notice and for an order  
12 that the adjudicated State water rights are prima facie  
13 evidence of irrigability in determining reserved water  
14 rights.

15 I have read this brief and I have given a lot of  
16 thought to that subject matter. The fact that we have  
17 have ruled that the existence of an adjudication and a  
18 State water right given to a chunk of land not  
19 in irrigation, is prima facie evidence of its irrigability  
20 doesn't automatically qualify it as a practicably  
21 irrigable acre. The fact that flaunts in one's face to  
22 answer that presumption is if it is a practicably  
23 irrigable acre, why isn't it being irrigated and that's  
24 the answer that will determine the decision, I think,  
25 pretty much. And in many of those acres they may well



1 be held to be practicably irrigated acres, and entitled  
2 to a date and a duty and others may find not having been  
3 irrigated for 18 years, I see no reason to hold that they  
4 are now practicably irrigable acres because the very  
5 proof of their nonuse for that many years gives credence  
6 to their inability that they are no longer P.I.A.'S.

7 MR. WHITE: Your Honor, I believe that Mr. Krob of  
8 our office, and Mr. Membrino from the United States, had  
9 reached an accomodation under which that motion would be  
10 argued and called up by the State next week rather than  
11 this week.

12 Is that correct, Tom, do you recall?

13 MR. CLEAR: I think that was the motion to strike  
14 our brief.

15 MR. WHITE: Well, that's the motion.

16 MR. CLEAR: All right, yeah, fine.

17 MR. WHITE: So if it would please the Court, perhaps  
18 we could lay that over --

19 THE SPECIAL MASTER: Until a week from now?

20 MR. WHITE: We would not propose to argue since we  
21 agreed with Mr. Membrino that we would not argue it until  
22 he was here.

23 THE SPECIAL MASTER: All right. We'll pass it over  
24 for one week.

25 The next item for appropriate discussion at this time,



1 is the May 11th letter that I have written to Judge  
2 Joffe together with an order amending the first order of  
3 certification in which I asked for some additional time  
4 for the preparation of a report and also asked that  
5 Paragraphs 2 and 3 of the first order of certification  
6 be stricken because I felt that the determination of  
7 uncanceled permits was of such a minimal legal importance  
8 to the determination and confirmation of an adjudicated  
9 water right that I felt it need not be addressed in these  
10 proceedings. He seemed to concur and did concur with  
11 that observation on the telephone and said that he would  
12 like notice given that this was ready -- the time would  
13 be extended and that he would strike these from the  
14 referral to me, but I still do not have a copy of the  
15 signed ammended referral. And, I believe the reason for  
16 that is that the Judge is giving some thought to whether  
17 or not an order removing Paragraph 2 or 3 from the first  
18 referral may trigger an unreasonably long, arduous  
19 extension of this litigation. And, if it does, then I  
20 believe he's probably entertaining some alternative to  
21 that so that this can be concluded in one general  
22 mainstream adjudication. And I will be conferring with  
23 him soon to see what the upshot of that is.

24 MR. WHITE: On behalf of the State, Your Honor, we  
25 would agree that those issues need to be addressed as a



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part of this adjudication. We have no objection, however, if the Court should amend the order of referral to you so that you don't have to be the Master to address those issues. We think they need to be addressed either by the Court, by you or some other Master, but on behalf of the State we have no objection to your not having to handle them and your being able to concentrate on these issues.

\* \* \* \* \*





1 THE SPECIAL MASTER: I would respectfully hereby  
 2 request that counsel for the Tribes and the United States  
 3 and for the State of Wyoming, to see if you can't confer  
 4 in one of these days in this month or next month when  
 5 we are not in trial about a stipulation or agreement  
 6 regarding an adjudication of uncanceled permits. All  
 7 of you know what the status is of a permit in the water  
 8 law of the west. All of you know that it takes precious --  
 9 It takes virtually no legal status recognition until  
 10 such time as works are perfected, and even then it takes  
 11 its place at the low, low end of a paper right and of  
 12 low priorities, and I believe that if you can come up  
 13 with something of that kind, you may be able to expedite  
 14 proceedings, whereby we can indeed have a review of a  
 15 certain percentage of these permits and some agreement  
 16 that my ruling thereon might apply to the rest of the  
 17 uncanceled permits issued by the State Engineer.

18 MR. WHITE: We'd be glad to get together and chat  
 19 with opposing counsel.

20 I think the record should reflect that at least  
 21 the State's position on the permits is a little different  
 22 than the position which the Master just described. There  
 23 are many permits under which water is being diverted, and  
 24 that's perfectly lawful under Wyoming law, where there's  
 25 already been construction, diversion, irrigation, but



1 the part of going through the certification phase has  
2 simply not been complied with for some reason or other.

3 The second thing is some of these permits have been  
4 kept alive for a long time, including some of the permits  
5 serving Indian owned lands, and if those are eventually  
6 certificated, and then instead of coming in at the bottom  
7 of the list, they go in with the priority date as of the  
8 date of the permit application. I just want to make those  
9 clear so it didn't appear on the record we were ceding  
10 or acquiescing in that observation.

11 THE SPECIAL MASTER: I appreciate that. Then there  
12 are also those permits being filed and nothing done, and  
13 an extension granted and nothing done, and a second  
14 extension granted, and the moment of truth is at hand  
15 on some of those. I rather suspect it's a statutory  
16 duty of the State Engineer to cancel them, but who are  
17 we, I don't think it's my duty to order the State Engineer  
18 to cancel these permits that have -- that's his function,  
19 and one that I believe has been well fulfilled and  
20 administered by that office over the decades in Wyoming.  
21 So we do have something that needs to be addressed, and  
22 I'll be grateful to you if you can have a conference,  
23 Mr. Echohawk, you and Mr. White and other counsel.

24 MR. ECHOHAWK: That's fine. We'll get with Mr.  
25 White. And we pretty much concur with Mr. White in



1 the fact that something has to be done in this adjudi-  
2 cation about the unadjudicated permits --

3 THE SPECIAL MASTER: All right.

4 MR. ECHOHAWK: -- whether it's by you or by Judge  
5 Joffe or some other Master, but in order for it to be  
6 a general mainstream adjudication, those have to be  
7 considered.

8 THE SPECIAL MASTER: Addressed and considered.

9 The third thing which warrants mentioning now,  
10 only because it's been my policy in this lawsuit to  
11 discuss once in a while informally, but always with  
12 both sides present, but sometimes on the record, as  
13 the record is being done now, the feeling, my feeling  
14 in zeroing in on a position regarding one of the many,  
15 many determinations I have to make. I did not have  
16 to read in this morning's paper that the Attorney General  
17 of Wyoming is not too pleased with the Colville  
18 Confederate Tribe's case, but I also find that it  
19 comes up with something a little different than what  
20 I had previously said I thought was going to be my  
21 conclusion regarding the rights of a non-Indian to  
22 inherit the rights of an Indian allottee who sold him  
23 some land. And I find that this case does indeed give  
24 a Circuit Court of Appeal an approval to the consent  
25 that a non-Indian successor acquires a right to water



1 being appropriated by the Indian allottee at the time  
2 he takes title from the Indian allottee. And the non-  
3 Indian also acquires a right with a date of reservation  
4 priority date to what he or she appropriates, with  
5 reasonable diligence after passage of title.

6 If the full measure of the Indian's reserved  
7 water right is not acquired by this means and maintained  
8 by continued use, it is lost to the non-Indian successor.

9 In other words, the State law, five years' non-use,  
10 can damage this right once it's in the hands of a non-  
11 Indian, but it cannot damage that right so long as it  
12 stays in the Indian allottee. The State water right does  
13 not apply to the Indian allottee, but apparently I'm going  
14 to have to consider this in my determination. I think  
15 that's appropriate to mention that now.

16 With that, Mr. White, I think we can resume, and  
17 we're at the posture of cross-examination of Mr.  
18 Billstein.

19 MR. WHITE: Yes, sir. I believe the direct and  
20 cross-examination by Mr. Donnell had just been completed  
21 when we adjourned last time.

22 THE SPECIAL MASTER: Very good. I'll remind you,  
23 you're still under oath.

24 THE WITNESS: Yes, sir.

25 THE SPECIAL MASTER: Have been for, lo, these many



1 months.

2 CROSS-EXAMINATION

3 BY MR. WHITE:

4 Q Mr. Billstein, as I recall, your operations study  
5 used conclusions reached by Mr. Keene for virgin flows  
6 or natural flows, and the conclusions provided you by  
7 Mr. Toedter on return flows as input into the HEC-3  
8 program, from which you've reached your conclusions.

9 Is that a fair generalization of the mechanics through  
10 which you went?

11 A. Those input data were supplied by Mr. Keene and Mr.  
12 Toedter.

13 Q Was there any input data used by you that was not  
14 supplied by Messrs. Keene and Toedter?

15 A. Certainly the water diversion, water duties were  
16 supplied by other experts in the case. That again,  
17 was an input data into the HEC-3 program.

18 Q That would have been Stetson and Mesghinna?

19 A. That's correct. And from that point, I developed  
20 the operational scheme. I did the input for the  
21 storage facilities, and I established the operational  
22 constraints or criteria of the systems study from that  
23 point.

24 Q With respect to the virgin or natural flows, did you use  
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1 any facts and data in your analysis which was not supplied  
2 by Mr. Keene to the Court?

3 A. Not to my knowledge.

4 Q. Specifically, what information did you receive from  
5 Mr. Toedter concerning return flows?

6 A. Mr. Toedter established the percentage of irrecoverable  
7 loss, which established the overall volume of return  
8 flow, and he also established the temporal or the  
9 monthly distribution of those recoverable return flows.

10 Q. Are those percentages the same percentages to which --  
11 if you know -- to which Mr. Toedter testified during  
12 his depletion analysis testimony?

13 A. The percent irrecoverable loss is different.

14 Q. Well, perhaps you can give that to me then. What percent  
15 irrecoverable loss did you use, which was supplied to you  
16 by Mr. Toedter?

17 A. Twenty percent of diversion.

18 Q. And that meant that 80 percent of the diversion came  
19 back with the, in the system in some form of return flow?

20 A. That is incorrect.

21 Q. What does that mean then?

22 A. After you satisfy the net irrigation requirements, then  
23 you have what is known as total return flow, and then  
24 you subtract out 20 percent of the diversion from that

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1 total return flow, and then you subtract out 20 percent  
2 of the diversion from that total return flow volume,  
3 and you get a net recoverable return flow.

4 Q Okay. And what monthly distribution of the recoverable  
5 return flow did you use as provided by Mr. Toedter?

6 A I have a table.

7 MR. WHITE: I knew we'd get into the notebooks,  
8 Your Honor.

9 THE SPECIAL MASTER: I was afraid of that; a very  
10 thick one.

11 A We did, however, as I pointed out the last time, it does  
12 show up in the computer printout, but it's just as easy  
13 to give a summary table.

14 Q (By Mr. White) Would it be just as easy to show me what  
15 that is in one of the Hanover Exhibits? Why don't you  
16 tell me which of the Hanover Exhibits you're looking at?

17 A I just have my own copy.

18 Q Is that Hanover Exhibit 1?

19 A Yes.

20 MR. ECHOHAWK: Could we have the title of that?

21 I mean, is it the Little Wind or Big Wind?

22 MR. WHITE: It's the Big Wind.

23 MR. ECHOHAWK: Big Wind? And that's Hanover Exhibit  
24 what?

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23 MR. ECHOHAWK: Big Wind? And that's Hanover Exhibit  
24 what?

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1 MR. WHITE: One.

2 A. In Hanover Exhibit No. 1, under the job control  
3 printout, we see Control Point No. 27, East Fork  
4 Wind River, dummy diversion. This is the dummy  
5 diversion concept that I spoke to during my last  
6 period of testimony. The percentages of those  
7 monthly return flows are shown under diversions,  
8 diversion equals, and then we get into the  
9 distribution of the monthly percentages, starting  
10 with the month of October, then going through the  
11 entire water year.

12 So beginning with the month of October, 6.9  
13 implies 6.9 percent, and continuing through the  
14 rest of the month, it sums to a hundred percent of  
15 recoverable return flows.

16 Q (By Mr. White) Did those percentages stay the same  
17 for each control point, or do they vary between control  
18 points?

19 A. Those stayed the same.

20 Q And is the same thing true for all three studies?

21 A. That's correct.

22 Q What is the basis of assuming that the percentage of  
23 return flow by month will remain the same at all of  
24 the control points within the system?

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1 A. Well, that's an input that I received from Mr. Toedter.  
2 He'll speak to that.

3 Q. And you felt it was reasonable to rely on that sort of  
4 assumption, that return flow percentages stay the same  
5 throughout the system?

6 A. I felt so. We looked at some previous reports; the  
7 current Wind River study that the U. S. Bureau of  
8 Reclamation was doing, the old Owl Creek study, and  
9 some earlier studies that were done by the Corp of  
10 Engineers, and they went with a constant return flow  
11 percentage, and in lieu of better site specific infor-  
12 mation, that we felt was a legitimate decision.

13 Q. What information did you have, if any, from Mr. Toedter  
14 concerning the location of return flows?

15 A. I established the nodes and performed a preliminary  
16 breakout of the return flow areas contributing to those  
17 collection nodes. Mr. Toedter then went into my pre-  
18 liminary study and analyzed it in terms of any technical  
19 parameters that would impact that, for instance, if  
20 there was any barrier problems, this type of thing, and  
21 then he either accepted or modified the return flow  
22 boundaries as presented in one of the exhibits that's  
23 already been shown to the Court.

24 \* \* \* \* \*

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1 Q Are the precise numbers which Mr. Toedter provided you  
2 shown in the computer printouts, which are on Hanover  
3 Exhibits 1 through 3?

4 A Precise numbers, I don't understand.

5 Q Well, the numbers which Mr. Toedter gave you and which  
6 you --

7 THE SPECIAL MASTER: Numbers like numbers of notes,  
8 numbers of percentages of returns?

9 Q (By Mr. White) Percentages or volumes which Mr. Toedter  
10 gave you, are those shown in other places aside from the  
11 location you just described in Hanover 1?

12 A The monthly percentages of return flow are shown in that  
13 common place. Whatever the dummy diversions was that was  
14 utilized in the respective operational study in the Big  
15 Wind case, I think it was Node 27, in the Little Wind case  
16 it was another node you just simply have to go to that  
17 particular node description where it says dummy diversion,  
18 go into the control card associated with that and you  
19 would be able to extract those monthly percentages.

20 MR. WHITE: Your Honor, let me get this map up for  
21 him.

22 THE SPECIAL MASTER: All right. Very well.

23 Q (By Mr. White) Ron, could you point out quickly the  
24 dummy control points, or the dummy -- the control points  
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1 which you used for your dummy run?

2 A Okay. Again, these are described in the control point  
3 handouts that are part of the Court exhibits as well as  
4 the schematics but to simplify things, it's Control  
5 Point 27 in the Big Wind System and Control Point No. 1  
6 in the Little Wind System, and if you look at the computer  
7 printout in the fishery operational study for the Popo  
8 Agie, Little Wind, Big Horn operational study, it is also  
9 Control Point No. 1.

10 Q Mr. Billstein, I would like you to assume a couple of  
11 facts so I can ask you a hypothetical question. It may  
12 clear up for me exactly how you dealt with the return  
13 flows.

14 I would like you to assume that during June of 1950  
15 you diverted 100 acre-feet at Control Point No. 4 in the  
16 Big Wind study group. What happens within the model to  
17 that 100 acre-feet to determine the amount and the location  
18 of return flows?

19 A Okay. What happens is that you cumulatively for a  
20 particular water year, add in all -- add together all the  
21 diversion quantities then you apply the net irrigation  
22 requirements or the depletions, then you apply the  
23 irrecoverable losses so you result in a volumetric net  
24 recoverable loss.

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1 Q This is for the entire year?

2 A That's right.

3 Q Okay.

4 A Then you go back and distribute those flows on a  
5 percentage basis as supplied by Mr. Toedter.

6 Q Using the 6.9 percent for October --

7 A That's right.

8 Q -- and so forth.

9 And where are those return flows -- are those return  
10 flows assumed at Control Point No. 4 or Point 27?

11 A As previously pointed out in the other exhibits, there  
12 are certain control point nodes. The control point nodes  
13 designated as return flows control point nodes are the  
14 collection points for the respective diversions for the  
15 tributary area that returns to that node.

16 Q As a practical matter, however, return flow does not  
17 accumulate and return to the system typically at the  
18 concentrated point, a point of discharge, does it?

19 A Oh, certainly not. It continues along a reach of stream.  
20 Again, from a practical reasonable matter, I chose certain  
21 collection points simply from the purpose of analyzing  
22 water availability in reaches of streams. It wasn't  
23 important to me to make minor differentiations along  
24 that reach. I felt that I could make the proper conclusions

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by respective nodes.that I had chosen.

\* \* \* \* \*

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**Frontier Reporting Service**



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1 Q Is it true that -- I'm sorry, Your Honor.

2 THE SPECIAL MASTER: Let me ask a question  
3 right here, Mr. White. I think it is appropriate.

4 Is it true that none of the return flows on the  
5 projects that you have on this systems operations  
6 study map before us, 305, that none of the return  
7 flows join in with any of the return flows of the  
8 existing non-Indian projects, for example, the  
9 Ocean Lake return, which is all return flow of that  
10 project, and none of this on the new Indian project  
11 would join that water at all?

12 THE WITNESS: Our study was for Indian trust  
13 lands only, and we accumulated and accounted for  
14 diversion as well as return flow only relative to --

15 THE SPECIAL MASTER: Their land?

16 THE WITNESS: -- trust lands.

17 THE SPECIAL MASTER: Uh-huh. But as a matter of  
18 fact, doesn't the whole eastern portion of the North  
19 Crowheart Unit that's planned have a natural drainage  
20 along with that of the northwest portion of the Midvale  
21 Irrigation District?

22 THE WITNESS: Your Honor, there are certain portions  
23 of the North Crowheart Unit as planned that return to  
24 the Big Wind system a goodly portion that returns to the

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1 Big Horn System via Fivemile Creek, Muddy Creek, perhaps  
2 Cottonwood Creek. We made a differentiation in terms of  
3 our operations study as to what proportion of those flows  
4 return to the Big Wind versus the Big Horn, and only  
5 those that return to the Big Wind were accounted for  
6 in our operational study. The rest would be accounted  
7 for in the Big Horn River. With the definition that the  
8 Big Horn River begins at the confluence of the Big Wind  
9 and the Little Wind River.

10 THE SPECIAL MASTER: Why was that done that way?  
11 Why let the accountability for that return flow be  
12 further downstream?

13 THE WITNESS: Your Honor, what we were trying to  
14 do in the systems study was to evaluate what flows  
15 would be in the system. Given we only had a trust  
16 land irrigated base, and we were looking at the ability  
17 of a downstream node to have a water supply. Therefore,  
18 if in fact Mr. Mesghinna's plan was to drain the North  
19 Crowheart Unit away from the Big Wind system and into  
20 the Big Horn system, we would be double accounting for  
21 that flow, if we brought it all back cumulatively into  
22 the Big Wind system. Essentially, we would be giving  
23 ourselves an optimistic water supply rather than a  
24 realistic one, as defined by the irrigation plan of  
25 Mr. Mesghinna.





1 THE SPECIAL MASTER: I think I understand. Go  
2 ahead, Mr. White.

3 Q (By Mr. White) Mr. Billstein, it couldn't be true,  
4 could it, that you have modeled return flows returning  
5 to the stream prior to the time the water was diverted  
6 and accounted for those return flows?

7 A. You go from water year to water year. In this particular  
8 case being that the diversions were constant and the  
9 same, you could apply the same monthly distributions  
10 from water year to water year. Also, the basic assump-  
11 tion was that you were in equilibrium at the beginning  
12 of the operational period.

13 Q So, it is possible that you had return flows coming  
14 back to the stream before the water is taken out by  
15 diversions?

16 A. Under the assumption of equilibrium, long term equilibrium,  
17 it is not --

18 Q It is not possible?

19 A. It is not the conclusion.

20 Q Let's see, I want to make sure I understand. You're  
21 saying it is not possible in your study to have water  
22 returning before it is diverted, or would Mr. Toedter  
23 be the person to ask that question?

24 A. The flows in, say, water year 1946 that were diverted in  
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1 May and such would carry through the rest of the water  
2 year, '46, and into water year '47. Then you would go  
3 through the same cycle in water year 1947. The point  
4 is, we are using the same diversion quantities. Therefore,  
5 the cycle return flows should have been repetitive, and  
6 if we assumed at the beginning of 1946 that we had an  
7 equilibrium system such as we operated, using 1946 then  
8 again, we should be able to pick up the end of that  
9 previous year's cycle.

10 Q Did you tell the Master that the return flows in your  
11 model from the eastern portion of the North Crowheart  
12 went to the Big Horn? I just didn't understand --

13 A That's right, a certain portion of those.

14 Q Does your systems operation model assume that diversions,  
15 at point of diversion, result in return flows at only  
16 one return flow node, or does it distribute return flows  
17 from one point of diversion over several return flow nodes?

18 A The areas that were outlined on the return flow exhibit  
19 are sites specific to a particular tract of land, so  
20 every acre is accounted for only at the return flow node  
21 associated with that service point.

22 Q But isn't it true the return flows even from one acre are,  
23 as a practical matter in the real world, spread out so  
24 that they don't return to one particular node or point

25 billstein-cross-white



1 of discharge?  
2 A. They could. That was one of the technical reviews that  
3 Mr. Toedter performed. We took a look at the return  
4 flow boundaries that were established and defined whether  
5 it was reasonable that all the return flows for the  
6 series of acres within that return flow boundary could,  
7 in fact, be collected at that node.

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1 Q (By Mr. White) You spoke of increasing efficiencies  
2 through better management practices in order to deal  
3 with sporadic shortages in the system, and I'd like to  
4 ask you whether, when you increased your efficiencies  
5 to deal with those sporadic shortages, whether you  
6 also decreased your return flow for those years?

7 A Well, in the initial operations study that was run  
8 where there were shortages, there was no result in  
9 decrease in return flow. Now, that's the reason that  
10 I ran the 45 percent efficiency scenarios, and 45 percent  
11 efficiency scenarios do take into account a similar  
12 decrease in return flow. So that secondary run, that  
13 was undertaken for those selected years, say in the  
14 Little Wind River system, did, in fact, take that into  
15 account.

16 Q And that's true with respect to all your systems?

17 A Just --

18 Q All the study areas?

19 A Just the 45 percent case that I presented, counsellor.  
20 In the Big Wind system, because the shortages were so  
21 minor, I didn't feel it was necessary to go through  
22 an exercise of, say, increasing efficiencies in the  
23 Wind River A Canal, and, therefore, and correspondingly  
24 decrease the return flows because I felt it wouldn't

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1 make any difference to the conclusion.

2 Q How about on the minor tributaries?

3 A Well, there's no operational studies done on minor  
4 tributaries.

5 Q How did you feel with return flows from one system that  
6 entered directly into another canal that don't get to  
7 the river, such as the Ray Canal return to the Coolidge  
8 Canal, or Dinwoody Canal return to the Wind River A  
9 Canal?

10 THE SPECIAL MASTER: Coolidge returns to the Wind  
11 River A?

12 MR. WHITE: Dinwoody to Wind River A.

13 A Well, that goes back into the selection of the proper  
14 nodes and proper schematic. For the example, the first  
15 example you presented, counsellor, for the collection  
16 of the return flows from, say the Ray Canal that were  
17 reutilized in the Coolidge Unit, we had a collection  
18 point.

19 THE SPECIAL MASTER: Why don't you point at it on  
20 the map.

21 A Collection Point No. 5, and Collection Point No. 5 does,  
22 in fact, serve as a study unit that collects the return  
23 flow that's diverted into the Ray Unit and is, in fact,  
24 reflected by means of the Trout Creek River system, and

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1 correspondingly reduced in the Coolidge Canal.

2 Q (By Mr. White) So that control point is not on the  
3 river, but is on the canal, receiving canal?

4 A. That control point would be on Trout Creek, just about  
5 its confluence with the Coolidge Canal. And in a  
6 practical sense, what happens is Trout Creek comes  
7 directly into the Coolidge Canal, Coolidge Canal is  
8 capable of taking all the flow of Trout Creek, or they  
9 can use an overflow structure to allow some additional  
10 water to spill over and return down into the Little  
11 Wind. So historically, that's the way it's been  
12 utilized in the past, and we went ahead and build that  
13 into our system.

14 So you do have the capability of sending water  
15 down Trout Creek from Ray Canal or using that point  
16 only to collect return flows. In this operations  
17 study, counsellor, we chose Point No. 5 only to collect  
18 return flows, we didn't move water from, say Node No. 19  
19 down Trout Creek to supply Coolidge. We allowed that  
20 water to move down South Fork and down into the primary  
21 or initial Coolidge diversion point.

22 Q Did you do the same thing with the Dinwoody going into  
23 the Wind River A?

24 A. Okay. With respect to Dinwoody going into the Wind River A,  
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1 there is no collection of return flow at any of these  
2 Dinwoody Bench Canal points, be it 8, 17 or 22. Those  
3 are points along the canal itself. So you do not  
4 utilize any return flow points along the Dinwoody A  
5 Canal.

6 Now, with respect to the ability to use water  
7 from Wind River A being supplied from return flows  
8 from Control Point No. 8, that is certainly an alterna-  
9 tive that I could have used in the system plan, but  
10 I felt that the amount of return flow wasn't major,  
11 and therefore, I felt that I would collect all the  
12 return flow for ease of presentation at Control Point  
13 No. 24, simply a decision point for ease of presentation  
14 of the results.

15 The other thing is, you start getting into multiple  
16 or additional nodes, and we could very easily triple,  
17 quadruple the Hanover No. 1, in terms of computer  
18 printout, with no measurable increase to the accuracy  
19 of the information.

20 Q Mr. Billstein, if return flows from one canal get into  
21 another canal and it increases the water supply in that  
22 second canal, and if that increased supply water in the  
23 second canal reduces the amount of water which the second  
24 canal has to divert, did you reduce the diversion by

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1 either the Coolidge Canal or the Wind River A to  
2 accomodate or account for the return flows that  
3 entered those canals along their reaches?

4 A. The systems study was set up so that all the  
5 requirements along the river system were met.  
6 We very seldom got into a situation where we had  
7 excess water, for instance, being diverted out  
8 of Coolidge above and beyond that which would be  
9 added to supply the needs from the return flow  
10 point.

11 We had a series of runs, counsellor, and  
12 basically reiterated back into a diversion amount.  
13 coming into the Coolidge Canal which takes place at  
14 Node No. 4. So that very situation you talked about  
15 was, in fact, not occurring.

16 Q How about on the Wind River A?

17 A. On the Wind River A, I did not program in any return  
18 flows coming back into the service area, so therefore,  
19 that's a moot question.

20 Q Let me ask, jump back for just a moment. When you  
21 used the term "efficiency" during your direct testimony  
22 and during our colloquy when it was necessary to employ  
23 management practices to deal with temporary shortages,  
24 what do you mean by the term "efficiency", what kind

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1 of efficiency are you talking about?

2 A I'm talking about total system efficiency.

3 THE SPECIAL MASTER: Talking about what?

4 THE WITNESS: Total --

5 THE SPECIAL MASTER: Total?

6 THE WITNESS: Total efficiency, which would  
7 be a combination of conveyance as well as on-farm.

8 THE SPECIAL MASTER: On-farm.

9 Q (By Mr. White) Did you assume, based on what Mr.  
10 Toedter provided you, that the return flows --  
11 Excuse me, the diversions during one water year  
12 resulted in return flows or all the -- Excuse me,  
13 let me start again.

14 Did you assume that all the return flows from  
15 diversions during a particular water year returned  
16 during that water year?

17 A No, counsellor, that's a cycliche pattern. I was talking  
18 about, that the diversions during a particular water  
19 year would carry through the remainder of that water  
20 year and then into the following year until, say, the  
21 May period began again, because we had a constant water  
22 duty year to year, then one did not have to go in and  
23 manually modify this carry-over pattern.

24 Q But your percentages beginning with 6.9 in October add  
25 billstein-cross-white



1 up to a hundred during any one water year, don't they?

2 A. Sure. Again, it's the same, the cyclical pattern allows  
3 us to do that because you're diverting the same amount  
4 of water year after year, and you have the same distribu-  
5 tion pattern.

6 THE SPECIAL MASTER: The debit in the fall becomes  
7 a credit in the spring?

8 THE WITNESS: Certainly.

9 THE SPECIAL MASTER: So --

10 THE WITNESS: Now, if we were changing efficiencies  
11 as such, then there would be a different bookkeeping task  
12 at hand, but in this particular case, we went with a  
13 common water -- water duty year after year, as defined  
14 by the Agricultural Engineer, and therefore, the per-  
15 centages were able to be maintained.

16 Q (By Mr. White) Mr. Billstein, isn't it true that the  
17 only way that you can use that approach is to assume  
18 that there is a common water duty year after year?

19 A. Certainly, otherwise I would have to mix modifications.

20 Q As a practical matter in the real world, the water  
21 duty doesn't stay the same year after year, does it?

22 A. In a practical sense, I would agree with that, counsellor.  
23 Again, I was charged with analyzing water availability  
24 for a certain set of input data.

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1 Q What assumptions were you directed to make in your  
2 study, which had you designed the study yourself,  
3 you would have done differently?

4 THE SPECIAL MASTER: Go ahead.

5 MR. ECHOHAWK: Could I have the question read  
6 back, please.

7 (Thereupon, the following question  
8 (was read back as follows: "Q  
9 (What assumptions were you directed  
10 (to make in your study, which had  
11 (you designed the study yourself,  
12 (you would have done differently?"

13 MR. ECHOHAWK: Objection, Your Honor.

14 THE SPECIAL MASTER: Well, let's assume that he asked  
15 are there some assumptions existing so, and if there are,  
16 which ones are they?

17 MR. WHITE: I agree, Your Honor.

18 THE SPECIAL MASTER: That's close enough.

19 MR. WHITE: It's like, when did you stop beating  
20 your wife; I apologize.

21 THE SPECIAL MASTER: We're far enough into the  
22 lawsuit. That's an interesting question.

23 THE WITNESS: I would have --

24 MR. ECHOHAWK: Your Honor, could I have a clarification  
25 as to what the question is?

MR. WHITE: Let me rephrase it.

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1 THE SPECIAL MASTER: Take it again from, Are there --

2 Q (By Mr. White) Are there assumptions which you make  
3 such as the one we just discussed about the constant  
4 duty of water, which, if you were allowed a free hand  
5 in designing your system or your analysis, you would  
6 have reached or created different assumptions?

7 MR. ECHOHAWK: Objection, Your Honor, calls for  
8 speculation. If the question is limited to only the  
9 assumptions that he used that went into the study,  
10 that's one question, but if he asks a question as to  
11 what else he would have done had he done it a different  
12 way, is totally beyond the scope of direct, and it's  
13 speculation.

14 THE SPECIAL MASTER: I'm going to overrule the  
15 objection, Mr. Echohawk, because I think as a professional  
16 he has the right to consider alternatives that he might  
17 have used other than those that were cranked into his mode  
18 from other experts that were working with him, and if  
19 there were some, he might have done them differently. I  
20 think he can testify to that.

21 MR. ECHOHAWK: If he had -- My point is, if he would  
22 have had a free hand totally without direction from the  
23 lawyers or from the other experts or anything --

24 THE SPECIAL MASTER: No, totally --

25 billstein-cross-white



1 MR. ECHOHAWK: He would have just gone -- No telling  
2 where he would have gone.

3 THE SPECIAL MASTER: Without the direction from  
4 his other co-workers from HKM Associates, that's the  
5 question.

6 MR. ECHOHAWK: My point --

7 MR. WHITE: We'll get to the other one later on.

8 MR. ECHOHAWK: He's asking Mr. Billstein to take  
9 a shotgun approach as to what things he would have con-  
10 sidered, had he done it with no real guidelines.

11 MR. WHITE: Well, Your Honor, Mr. Billstein under-  
12 stands the question, there's no doubt in his mind that  
13 the question means --

14 THE SPECIAL MASTER: The answer may be -- I'm going  
15 to overrule the objection. The answer may be no, and  
16 we're all through with this line of questioning, but  
17 I overrule the objection. You may answer if you're  
18 any less confused now than you were at the beginning.

19 THE WITNESS: Talking about a purely speculative  
20 basis, --

21 THE SPECIAL MASTER: No, I don't want your specu-  
22 lation.

23 MR. ECHOHAWK: That's my objection.

24 THE SPECIAL MASTER: I would have sustained it if  
25 Mr. White was asking for speculation. Mr. White, will



1 you rephrase the question one more time?

2 Q (By Mr. White) Mr. Billstein, as with the assumption  
3 that the duty of water remains constant from year to  
4 year, are there other assumptions, or were there other  
5 assumptions which you used in your study which you  
6 were directed to use and which, if you designed the  
7 study yourself, you would not have used?

8 MR. ECHOHAWK: Objection, Your Honor, assumes  
9 facts not in evidence. I think we have to get  
10 established exactly what he was directed to do, what  
11 assumptions he was directed to use, and then we can  
12 go from there.

13 MR. WHITE: Okay. We'll take it from the beginning,  
14 we may be here ten days, but I can do that as well.

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THE SPECIAL MASTER: I would overrule that objection, also I would like to hear the answer to the question, yes or no.

Will you read back that question, please?

(The above question was read (back by the Reporter as (follows: "Q Mr. Billstein, (as with the assumption that (the duty of water remains (constant from year to year, (are there other assumptions, (or were there other (assumptions which you used in (your study which you were (directed to use and which, if (you designed the study your- (self, you would not have (used?"

A Well, with respect to water diversions, I would have taken a look at the actual climatic information on a year to year basis to get some sense of feel for the varying water requirements from year to year and that, of course, would have ramifications in terms of the percentages of corresponding return flows if I chose to use a variable water duty.

There are a lot of studies, compact allocations, that are built upon the constant water duty and so without getting into an analysis of what those results would have shown me, I really don't know how much difference it would have impacted the study.

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1 Q. (By Mr. White) Any other assumptions?

2 A A lot of that would depend on the impact that these  
3 variable water duties would have if they resulted in  
4 additional shortages or major shortages then one would  
5 get into some economic considerations. And, again, without  
6 having gone that route, I'm certainly not in a position  
7 to say whether, in fact, that would have occurred here.

8 Q Anything else?

9 A Nothing I can think of right now.

10 Q Mr. Billstein, with respect to the western part of the  
11 North Crowheart Unit, isn't it true that during the first  
12 few years after construction after the North Crowheart  
13 starts to be irrigated the return flow patterns, locations,  
14 timing and amount will be much different than the return  
15 flow patterns after the North Crowheart Unit has been  
16 in operation for several years?

17 A That's correct. It takes awhile for a new irrigation to  
18 establish an equilibrium situation and the return flow  
19 patterns to finalize or establish.

20 Q Didn't you assume, however, that equilibrium was reached  
21 in one year based on the 100 percent distribution of a  
22 water year of your return flows?

23 A That doesn't follow, Counselor. What we said is that we  
24 had an equilibrium situation and we operated the system

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1 under an equilibrium situation. We took a base period to  
2 analyze a study unit. What we are saying is that that  
3 study unit was in a return flow equilibrium at the time  
4 that it went into the analysis.

5 Q So your study then assumes that -- or strike that.

6 The results of your study are based on the assumption  
7 that the system's in equilibrium, which means that the  
8 various projects and all the lands claimed as shown on  
9 Exhibit 305, have been irrigated for a number of years,  
10 is that correct?

11 A That's correct. I also looked at the -- what would occur  
12 if we essentially had no return flow from the North  
13 Crowheart, would that affect my conclusions relative to  
14 water availability for the agricultural claim. If, in fact,  
15 I had zero return flow such as what Counselor was speaking  
16 to, given that the whole North Crowheart project could be  
17 built in a very limited number of years and that limited  
18 number of years would be such that the like pattern of  
19 return flow had still not reached the Big Wind System.  
20 That did not make any difference to the water availability  
21 that I came up with.

22 Q Let me ask you this about that then: I would like you to  
23 assume solely for the purposes of this question --

24 A Uh-huh.

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1 Q -- that it would take 20 years for all the lands claimed  
2 for irrigation as shown on Exhibit 305 to go into  
3 operation.

4 THE SPECIAL MASTER: Of all five projects?

5 MR. WHITE: All five projects as well as the  
6 historic. All of the lands shown on 305 -- 20 years before  
7 they are all being irrigated.

8 Q (By Mr. White) Isn't it true that your conclusions would  
9 be inapplicable to that 20-year period?

10 A Well, you have stated something that is totally  
11 unrealistic, Counselor. A goodly portion of those lands  
12 are in existing use. Everything you see in black and a  
13 goodly portion of that which you see in blue, are  
14 currently in use. What you're talking about is a small  
15 number of Type VII and Type VIII's and for all practical  
16 purposes, the future land base.

17 Q Okay. Well, let me for the purposes of this question  
18 agree with you and then ask you to assume that for the  
19 purposes of this question solely that it takes 20 years to  
20 get the rest of the lands in operation.

21 A Okay.

22 Q Isn't it true that the results of your study are  
23 inapplicable to that 20-year period?

24 A No.

25 billstein-cross-white



1 Q Okay. Haven't you assumed, for purposes of your study,  
2 that the system's in equilibrium?

3 A That's right, Counselor, but then you have to go --

4 THE SPECIAL MASTER: You're duplicative and you're  
5 repeating things that you've already brought out, Mr.  
6 White, but if you don't proceed too far --

7 MR. WHITE: I think it is necessary --

8 THE SPECIAL MASTER: I just wanted to raise a note  
9 of caution.

10 THE WITNESS: Counselor, in the Big Wind System if  
11 we were to do away with all return flow, which is the  
12 alternative that you were just speaking to, we would  
13 still -- that does not impact the conclusion on the water  
14 availability because return flows are not critical for  
15 the 1868 priority case that we are looking at. It simply  
16 adds to the amount of flow, river flow remaining in the  
17 stream at selected points. That's the reason, for  
18 example, that I collect flow at downstream nodes such as  
19 24 and 30 and 32.

20 Q Well, that may be true for water availability for irrigation  
21 purposes --

22 A Yes.

23 Q -- but is it also true for water availability for fish  
24 flows?

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1 A It would have more of a measureable effect on water  
2 availability of fish flows. I would have to take a look  
3 at that hypothetical case and find out during each month  
4 what volume of return flow is contributing to the net  
5 river flow and then be in a position to make a conclusion  
6 on that basis.

7 Q I'm sorry, go ahead, I didn't mean to interrupt you.

8 A I suspect that in the reaches that we have major impacts  
9 for the agricultural claim that it makes little or no  
10 difference, it simply accelerates slightly that impact.  
11 The only meaningful review would be in the lower reach  
12 below the confluence of Bull Lake Creek and no, I haven't  
13 looked at it. Mainly because the vast majority of the  
14 lands, or a goodly portion of the lands, are already in  
15 use.

16 Q Ron, I direct your attention to what has been admitted as  
17 U.S. Exhibit C-281, which is the fish flow map. I think  
18 you are familiar with it.

19 What conclusions did you reach with respect to water  
20 availability for fish flows in reach or Stretch No. 6,  
21 as shown on C-281?

22 A The conclusion was that there was no impact.

23 Q Okay, how did you go about reaching that conclusion since  
24 it's outside of the study areas that are delineated on  
25 billstein-cross-white



1 Exhibit 305?

2 A With respect to the operational study performed for the  
3 Popo Agie, Little Wind, Big Wind, Big Horn which we call  
4 the fishery study, we did have a node that showed the flow  
5 of the Big Wind System below its confluence with the Little  
6 Wind System and simply using the summary tables of  
7 remaining river flow at that point and comparing that  
8 against the recommended flows by Mr. Vogel, the conclusion  
9 was made on that basis.

10 Q Well, doesn't that conclusion assume then, the Boysen  
11 Reservoir isn't operated, doesn't fill?

12 A It assumes Boysen Reservoir isn't there.

13 Q That's right, Boysen Reservoir isn't part of the study,  
14 isn't that correct?

15 A That's right.

16 Q How about water availability based on lack of return flows  
17 in the Little Wind System. Were your results the same as  
18 for the Big Wind System?

19 A The first thing that should be pointed out in the Little  
20 Wind System, Counselor, is we only have a very small  
21 amount of future lands built into that. I think it is  
22 1,700 acres, which I'll point out on C-305 as being this  
23 portion of the Big Horn Flats. The vast majority of the  
24 lands are historic in use, and we had a very small amount

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1 of Type VII and Type VIII's. I believe the number was  
2 3,700 to 3,800 acres, so again, the hypothetical  
3 situation that you pointed out, I certainly didn't  
4 consider at all because of the fact of the preponderance  
5 or the dominance of existing use in this particular  
6 study unit.

7 Q Mr. Billstein, I would like you to assume that there were  
8 two tracts of land, A and B, beside one another --

9 THE SPECIAL MASTER: A and B what?

10 MR. WHITE: Beside one another, immediately adjacent  
11 to one another.

12 Q (By Mr. White) And I would further like you to assume  
13 that A and B are now receiving full service irrigation,  
14 and I would like you to assume that for whatever reason,  
15 Tract B is no longer irrigated. Isn't it true that the  
16 elimination of irrigation on Tract B may have a significant  
17 effect on the return flows from Tract A?

18 MR. ECHOHAWK: Objection, Your Honor, it calls for  
19 speculation.

20 THE SPECIAL MASTER: I'm going to sustain that  
21 objection. It's fraught with so many imponderables. What  
22 size, what elevation, what pitch, what crop, what  
23 saturation all sorts of things, I think.

24 MR. WHITE: Your Honor, --

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1 THE SPECIAL MASTER: I suppose the question, if you  
2 could work on it a little bit -- identical lands,  
3 identical characteristics, identical types and classes,  
4 identical size that type of thing?

5 MR. WHITE: I can do that, Your Honor.

6 THE SPECIAL MASTER: And both are irrigated from the  
7 same canal, both from the same on-farm system, both side  
8 by side on the same farm and B is no longer irrigated,  
9 does it affect the return flow of A?

10 MR. WHITE: I would like to adopt your question,  
11 Your Honor.

12 THE SPECIAL MASTER: Well, all right, go ahead. I  
13 think that might remove the objection. I tried to anyway.

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1 THE WITNESS: If, in fact, Tract B, which is the  
2 idle tract, was, say downstream and in position to consume  
3 some of the return flow that passed through it toward  
4 the return, a return flow node, then it may have some  
5 impact of increasing total irrecoverable losses. However,  
6 it should be pointed out that Mr. Stetson did evaluate  
7 efficiencies, what he called the historical efficiencies  
8 of the product, and you have that very same situation,  
9 so it is my feeling that that's already built into this.

10 Q (By Mr. White) Mr. Billstein, I'd like you to assume  
11 that there are tracts of land interspersed among your  
12 study area, which, if the claims of the United States  
13 are granted, would be dried up, and with that assumption,  
14 ask you whether or not your analysis included a review  
15 of the effect of those lands being dried up on return  
16 flow from both the historic and the future lands as  
17 claimed by the United States?

18 MR. ECHOHAWK: Objection.

19 THE SPECIAL MASTER: I'm going to sustain the  
20 objection. We can assume that the decree will result  
21 in the fact that there will be thousands of more acres  
22 opened up and given water than is now, but that's hypotheti-  
23 cal and speculative. We can assume that the report, if  
24 sustained by the Court, will result in just what you

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1 said, Mr. White, some lands going to be dried up, but  
2 I think the question is to -- has an element of  
3 improbability and speculativeness that is outside  
4 the scope of both the direct, and too, ventures into  
5 some areas that don't make a meaningful area toward  
6 probative evidence, so I'm going to sustain it.

7 MR. WHITE: Let me try it a different way, Your  
8 Honor.

9 THE SPECIAL MASTER: I thought you would.

10 Q (By Mr. White) Mr. Billstein, to what extent did  
11 you analyze, as part of your systems operations study,  
12 the effect on return flows from any parcels of land  
13 currently irrigated which might be dried up as a result  
14 of the claims of the United States being granted?

15 MR. ECHOHAWK: Could I have the question read  
16 back?

17 (Thereupon, the following  
18 question was read back as follows:  
19 "Q Mr. Billstein, to what extent  
20 (did you analyze, as part of your  
21 systems operations study, the  
22 effect on return flows from any  
23 parcels of land currently irri-  
24 gated which might be dried up  
25 as a result of the claims of the  
26 United States being granted?"

23 MR. ECHOHAWK: For point of clarification, Mr.  
24 White, are you asking about the impact on non-Indian  
25 billstein-cross-white



1 lands?

2 MR. WHITE: No, I'm not.

3 THE SPECIAL MASTER: No.

4 MR. WHITE: I'm asking whether or not he took  
5 into consideration --

6 THE SPECIAL MASTER: Just on the reservation.

7 MR. WHITE: -- the effect on return flows from  
8 non-Indian lands being dried up.

9 THE SPECIAL MASTER: Trust lands.

10 MR. WHITE: Yeah, return flows from trust lands.

11 THE WITNESS: I believe I answered that one to the  
12 point that we didn't modify the overall volumes or the  
13 percentages. In part of the consideration, of course,  
14 was that Mr. Stetson did give us long term project  
15 efficiencies, and these very same type of things do  
16 occur in the project.

17 THE SPECIAL MASTER: Yes, but his reason for this  
18 having occurred in his studies were not based upon denials  
19 of a decree.

20 THE WITNESS: Certainly not, Your Honor, but in  
21 fact, there's land going into active and idle status  
22 all the time.

23 THE SPECIAL MASTER: All the time.

24 MR. WHITE: The point is, Your Honor, Mr. Stetson

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1 didn't indicate that his conclusions were based on any  
2 assumptions concerning lands going in and out of active  
3 or idle status. More particularly, he did not indicate  
4 that there were any assumptions based on what would happen  
5 if the United States' claims were granted.

6 THE SPECIAL MASTER: That's right. That's what I  
7 said.

8 MR. WHITE: The purpose of the question, which I  
9 think I should be allowed to explore a little further,  
10 is to deal with the validity of the study, which does  
11 not include some, perhaps negative effects of other  
12 lands being dried up that are now in operation.

13 THE SPECIAL MASTER: You may pursue that point a  
14 few more minutes, if you can bring out --

15 Q (By Mr. White) Mr. Billstein, did you assume or did  
16 you make any preliminary determinations of what lands  
17 would be dried up if the United States' claims were  
18 granted?

19 A. No.

20 Q Having made no such determination, how can you be  
21 certain that the effect on return flows from those  
22 lands being dried up has been accurately modeled in  
23 your study?

24 MR. ECHOHAWK: Objection, Your Honor. The question  
25 billstein-cross-white



1 is irrelevant. If the lands are not in production,  
2 the water remains in the stream.

3 MR. WHITE: He's missed the whole point of the  
4 question, Your Honor.

5 THE SPECIAL MASTER: I'll overrule the objection.  
6 He may answer, if he's able to.

7 A. It was a point that was considered early on, and we felt  
8 that the 20 percent irrecoverable loss that we did utilize  
9 in the study was a conservatively high one, and that it  
10 did take into account some contingencies for such examples  
11 as you presented, counsellor.

12 Q. (By Mr. White) Can you say with any certainty that the  
13 conservative nature of the 20 percent value takes into  
14 account all the contingencies that would result?

15 THE SPECIAL MASTER: He said it takes in those  
16 contingencies.

17 MR. WHITE: I thought he said "some", Your Honor,  
18 and I wanted to find out just how sure he was.

19 THE WITNESS: Research of literature, published  
20 reports such as the SCS puts out what they felt were  
21 acceptable return flow percentages, were down into the  
22 five and six percent. Some of the other early studies  
23 on Owl Creek, Shoshone Project, got into the 10 and 15  
24 percent of diversion. We felt that using the 20 percent

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1 gave us some flexibility.

2 THE SPECIAL MASTER: You felt that operation was  
3 fair to other users other than Indians and was on the  
4 down side or conservative side of your operations?

5 THE WITNESS: We felt that we could have used  
6 a smaller percentage and been optimistic on the amount  
7 of return flow. We went with a higher number to make  
8 our water availability determinations as --

9 THE SPECIAL MASTER: Free of error?

10 THE WITNESS: Yes.

11 THE SPECIAL MASTER: Let me ask some questions,  
12 Mr. White.

13 But did anybody in HKM Associates, you or your  
14 co-workers, to your knowledge, crank into any of your  
15 studies the imperative results of non-Indian use of  
16 this water as well as Indian use and the return flows  
17 of both Indian and non-Indian use as to the integrated  
18 effects upon the river system?

19 THE WITNESS: There's been no integrated analysis,  
20 Your Honor. We've only been asked to analyze water  
21 availability for the government claim.

22 THE SPECIAL MASTER: That's understandable, but  
23 unfortunate because it is one system, and it is one  
24 river, and it is one area.

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1 MR. WHITE: We might take a whack at that, Your  
2 Honor, when our case comes up.

3 THE SPECIAL MASTER: Secondly, one more question  
4 that falls right into it. You have predicated every  
5 bit of your study, have you not, upon an assumption  
6 of necessity that this is going to give an 1868 right  
7 to water so you can proceed to work with that water,  
8 as you crank in the other matters that are important,  
9 what's irrigable, what's arable, practically irrigable,  
10 what's economic, and so on?

11 Let us assume that a court reviewing my work sus-  
12 tains a finding that with respect to a new or future  
13 area north of the Big Wind like the North Crowheart  
14 Unit, it will have an 1868 date, all right, but it will  
15 be impressed with an obligation that it cannot use water  
16 that would be in detriment to those down in the project,  
17 Midvale Irrigation District, who took their land and  
18 titles from Indians as a result of the 1905 decision.  
19 You gave no thought whatever to what that would do to  
20 the fact that the acreage in North Crowheart can or  
21 cannot be PIA or can be diminished in their efficiency,  
22 in an economic justification, did you? Your work was  
23 always based on an 1868 period?

24 THE WITNESS: That's right.

25 THE SPECIAL MASTER: No qualification as to bad



1 years, no need to share with others on bad years?

2 THE WITNESS: That's right. We showed we had  
3 very few shortages at all during the entire period of  
4 record, and those that we did have we could manage.  
5 The object, of course, was to find out whether in  
6 fact the government claims, as presented to the Court,  
7 could be served.

8 THE SPECIAL MASTER: By the water available?

9 THE WITNESS: With the first priority.

10 THE SPECIAL MASTER: Okay, Mr. White, thank you.

11 We've been at it over an hour, anybody want a  
12 break?

13 MR. ECHOHAWK: That would be fine with me.

14 THE SPECIAL MASTER: Okay, let's take ten minutes.

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1 THE SPECIAL MASTER: Shall we proceed?

2 Okay, on the record, please.

3 Q (By Mr. White) Let's turn for a few minutes to the  
4 return flow -- strike that. You already answered that.

5 THE SPECIAL MASTER: Incidentally, before we get  
6 going, before I interrupt you, let me go off the record  
7 for just a second.

8 (Off-the-record discussion.)

9 Q (By Mr. White) Mr. Billstein, let me touch on something  
10 that was discussed during Mr. Donnell's cross-examination.  
11 Let me ask you to assume that you have a large canal that  
12 serves thousands of acres of land at the present time,  
13 but let me also ask you to assume that of those thousands  
14 of acres that are being served under that canal on a few  
15 hundred acres are trust lands, and let me also ask you to  
16 assume that those trust lands are located toward the end  
17 of the canal. Isn't it true if the non-trust lands under  
18 that canal were dried up that the duty of water which you  
19 have assumed for the trust lands would no longer be  
20 applicable?

21 MR. ECHOHAWK: Objection, Your Honor, it calls for  
22 speculation. The question is vague --

23 MR. WHITE: It doesn't call --

24 THE SPECIAL MASTER: I'll overrule the objection.

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1 I think it is an accurate and scientific question.

2 A Again, the duty of water was assigned by another expert,  
3 and I assume that he was probably cross-examined on this  
4 same matter.

5 Under Counselor's hypothetical example it would be  
6 very difficult to divert flow from several hundred acres  
7 when the capacity of the system was designed for several  
8 thousand and get flow to the end of the canal from a  
9 practical standpoint.

10 Q (By Mr. White) Doesn't that situation exist though on the  
11 Reservation?

12 MR. ECHOHAWK: Objection, Your Honor.

13 THE SPECIAL MASTER: Where? Well, on the Reservation --  
14 well, it is too vague.

15 Q (By Mr. White) Are you aware of anyplace on the Reservation  
16 which you have analyzed in your studies, where that  
17 situation exists?

18 A Again, Counselor, the purpose of my study, going back to  
19 the basics, was to analyze is there water available in  
20 the stream by stream reach relative to the water  
21 requirements as testified by other experts in the case,  
22 or could we serve the water requirements as defined by the  
23 agricultural consultant as well as some of the miscellaneous  
24 mineral requirements that Dornbusch and Company developed.

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1 So again, that was input data and certainly has nothing  
2 to do with my role in the study.

3 Q Doesn't that situation exist for these parcels in the  
4 withdrawal area that I am pointing to now, roughly north  
5 of the -- or the confluence of the Big and Little Wind?

6 MR. ECHOHAWK: Objection, Your Honor, these questions  
7 were properly addressed to either Mr. Stetson or Dr.  
8 Mesghinna and as Mr. Billstein pointed out --

9 THE SPECIAL MASTER: I would be inclined to sustain  
10 the objection.

11 MR. WHITE: Well, the purpose of inquiry, Your Honor,  
12 is to determine whether or not it is reasonable for this  
13 expert to rely on the conclusions given to him by other  
14 experts and I would expect without -- I'm sure this tips  
15 off the witness but I would suspect were we going into  
16 this cold, the witness would indicate that had he done  
17 that work rather than being directed to rely on the  
18 conclusions reached by other experts, he would have, in  
19 some way, tried to account for the fact that these  
20 isolated parcels down at the end of these long canals are  
21 going to have a vastly different duty of water. If the  
22 intervening land is dried up it is going to take a heck  
23 of a lot more water to get -- in other words, they don't  
24 share the canal water anymore.

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1 THE SPECIAL MASTER: Your question is based on sort  
2 of vague and speculative if's. It is to iffy, Mr. White.

3 MR. ECHOHAWK: It assumes facts not in evidence.

4 THE SPECIAL MASTER: Of course.

5 MR. WHITE: That it is going to be dried up?

6 THE SPECIAL MASTER: The acreage that you were just  
7 pointing to along the road to the north and east of  
8 Riverton, doesn't constitute one-tenth of one percent of  
9 the total irrigable lands on the Reservation, I don't  
10 think. So it is a minute thing. We are back again to the  
11 earlier stages of this lawsuit where we were questioning  
12 areas and we were spending hours and hours on 3.2 acres  
13 here out of a 1,400-acre tract.

14 MR. WHITE: I might say, Your Honor, it is an  
15 illustration of a problem that can be followed up to more  
16 significant acreage, but it is a stark example and I  
17 would like to try the question again to see if I could  
18 avoid the speculative nature of it.

19 Q (By Mr. White) Mr. Billstein, --

20 THE SPECIAL MASTER: I think he answered, but you  
21 go ahead one more time. You attempt --

22 MR. WHITE: I'll try it with a general question.

23 Q (By Mr. White) Mr. Billstein, in your analysis, is it  
24 true that you assumed that the duty of water even for  
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1 isolated parcels such as we have described, isolated  
2 meaning that they are isolated from other trust lands, is  
3 unaffected by the drying up of non-trust lands along the  
4 canal between the point of diversion and the trust lands  
5 themselves?

6 MR. ECHOHAWK: Objection, Your Honor.

7 THE SPECIAL MASTER: I'm going to sustain the  
8 objection or I would object to the question myself. If  
9 the isolated tract of trust lands are dried up and the  
10 claims of the United States adversely affected thereby  
11 by lands that will be withdrawn and no longer irrigated  
12 lands that will be dried up, that's your duty to show  
13 that they will be dried up and you can do that on your  
14 case.

15 MR. WHITE: I'm entitled --

16 THE SPECIAL MASTER: I think you're going beyond the  
17 scope of his direct examination in impressing this point.  
18 You may make an offer --

19 MR. WHITE: Maybe I can ask it a different way, Your  
20 Honor.

21 Q (By Mr. White) Mr. Billstein, did you make any assumptions  
22 with respect to the effect on the duty of water for  
23 isolated tracts resulting from intervening parcels between  
24 the points of diversion and the isolated tracts being  
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1 dried up?

2 MR. ECHOHAWK: Objection, Your Honor.

3 THE SPECIAL MASTER: Well, his answer is going --  
4 he's answered it for you on a theory, he's answered it for  
5 you on a hypothesis and he's answered it for you to the  
6 best of his ability, Mr. White. I think he answered --  
7 I'll overrule the objection. You may make your offer  
8 of --

9 MR. ECHOHAWK: Is the objection overruled?

10 THE SPECIAL MASTER: I mean I'll sustain the  
11 objection. You may make your offer of proof.

12 MR. WHITE: I am unable to make an offer of proof,  
13 Your Honor. I don't know what he did, this is the only  
14 person that can tell us.

15 Q (By Mr. White) Mr. Billstein, did you take into  
16 consideration or account for any return flows from the  
17 Ray Canal System to the North Fork of the Popo Agie?

18 A There is a small amount of return flow, I believe it's  
19 less than 200 acres that is served under the Ray Canal  
20 that the return flow patterns showed that they would  
21 return to the Popo Agie System. That acreage was broken  
22 out and the return flows allocated to the Little Wind  
23 System. They did not include the area that would return,  
24 in fact, to the North Fork of the Popo Agie. The area

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was so small that it wasn't included in the fisheries study.

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1 Q (By Mr. White) With respect to the manageable  
2 shortages which you previously testified, did you  
3 indicate the carry-over soil moisture would contribute  
4 to the the solution of those sporadic shortages?

5 A. In terms of the Big Wind and Little Wind Study Units,  
6 we did not get into carry-over soil moisture. It  
7 was simply a function of increase in demand by  
8 increase in the efficiency.

9 Q Did you consider carry-over soil moisture with  
10 respect to the minor tributaries?

11 A. There was some considerations there.

12 Q. What considerations, describe that? What calculations  
13 did you make with respect to the carry-over soil  
14 moisture on the minor tributaries?

15 A. I believe we used a figure of three inches.

16 Q. And how did you derive that value?

17 A. It was taken off of one of the curves of available  
18 water capacity for, I think, a light soil. It was  
19 felt to be conservative by our agricultural people.

20 Q. Which curve, what curve are you talking about?

21 A. I can't recall the publication that it came out of.

22 Q. Do you have a copy of that curve with you?

23 THE SPECIAL MASTER: He can't recall the publica-  
24 tion it came out of, he could hardly have a copy of it

25 billstein-cross-white



1 with him, if he can't recall the publication it came  
2 out of, Mr. White.

3 MR. WHITE: Could I still ask the question,  
4 Your Honor, because he might have forgotten where it  
5 came from but have it with him.

6 THE SPECIAL MASTER: It would be absurd for you  
7 to ask that question. It would be the same as if you  
8 asked him, did he bring a book along that he hasn't  
9 read yet and didn't know about. He doesn't know about  
10 it. How could he have a copy with him?

11 MR. WHITE: Then I would move to strike his  
12 testimony because he's unable to produce the facts  
13 and data upon which he --

14 THE SPECIAL MASTER: Objection overruled. He  
15 simply doesn't recall the professional publication  
16 from which this was taken.

17 Q (By Mr. White) Did you yourself select that value?

18 A No, that was supplied to me by one of my agricultural  
19 engineers.

20 THE SPECIAL MASTER: Would you yourself or did  
21 you?

22 MR. WHITE: I asked him, did he.

23 THE SPECIAL MASTER: Oh, I beg your pardon.

24 Q (By Mr. White) I'm sorry, I didn't hear your answer.

25 billstein-cross-white





1 A I said, no, it was supplied to me by one of my agricul-  
2 tural engineers. I asked him what range of soil texture  
3 he was dealing with, and he said that he was dealing  
4 with a light texture, and that three inches was a, he  
5 felt it was a conservatively low number for the area  
6 of consideration, which is the minor tributaries. As  
7 such, we decided to use that.

8 Q Which agricultural engineer was that?

9 A Mr. Randy Taylor.

10 Q How did you use carry-over soil moisture in reaching  
11 the conclusions that you reached concerning the minor  
12 tributaries?

13 A It wasn't used to any great extent. In terms of  
14 reviewing the relationships between water supply and  
15 water demand, going into those months where water supply  
16 decreased to the point where it could not accomodate  
17 water demand, available soil moisture was simply added  
18 to the budget to reflect that there would be additional  
19 number of days during the respective month when that  
20 recession took place, that the crop would have water  
21 available to it.

22 Q Did you analyze or did you determine or did you include  
23 in your analysis any replenishment of that soil moisture  
24 content during that particular irrigation season in which

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1 it was considered?

2 A. Yes. We took a look at whether in fact the soil profile  
3 was getting, or the lime base was getting a hundred percent  
4 service during a preceding month or two, and if, in fact,  
5 it was, then we used the soil moisture figure. If it was  
6 not getting replenished or there was not sufficient  
7 supply to meet demands for the preceding month or two,  
8 then it was reduced or dismissed.

9 Q. Isn't it true that the HEC-3 program which you used in  
10 your operations study is a program that was designed  
11 for reservoir system analysis?

12 A. That's an application of it. That's a primary purpose  
13 of the federal agency that developed it, which was the  
14 Corp of Engineers, because they were charged with having  
15 to analyze power in the major river systems that they  
16 had administration over. So, naturally, they would build  
17 that type of analysis very prominently into the program.

18 Q. If that's the case, why did you not consider the operation  
19 and storage of water of Bull Lake?

20 A. This particular case, Bull Lake was built by the federal  
21 government, it was not used specifically on the trust  
22 lands that were part of the claim, with the possible  
23 exception of some of the minor tracts in the Midvale  
24 and LeClair and Riverton Valley areas. We felt that we

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1 could not go into Bull Lake and take advantage of that  
2 storage water, that we would have to work from direct  
3 flow.

4 Q So then Control Point 29 in the Big Wind Study Area,  
5 you assumed natural flow conditions and discharges into  
6 the river and ignored any storage in Bull Lake; is that  
7 correct?

8 A We took no advantage of storage.

9 Q Which --

10 THE SPECIAL MASTER: As a matter of fact, the  
11 reservation and the Indians have virtually nothing to  
12 do with controlling the gates and releases at Bull Lake,  
13 isn't that right?

14 THE WITNESS: That's absolutely correct.

15 Q (By Mr. White) Does that mean that you assume, for  
16 purposes of your study, that Bull Lake would not store  
17 water?

18 A Storage was not built into the plan at Bull Lake.

19 Q Are you familiar at all with the current Bull Lake  
20 operations?

21 A Somewhat.

22 Q Do your studies indicate whether or not Bull Lake would  
23 be able to fill, in whole or in part, during your study  
24 period?

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1 MR. ECHOHAWK: Objection, Your Honor.

2 THE SPECIAL MASTER: I'd sustain the objection.

3 MR. WHITE: On what grounds, Your Honor? Maybe  
4 I can rephrase the question.

5 THE SPECIAL MASTER: It was not considered in  
6 their studies, he answered that. He felt he had no  
7 jurisdiction or right to consider it.

8 It's water that belongs to the Arapahoe -- it's  
9 function and control rests with Midvale Irrigation  
10 District. I was about to give away the water there  
11 for a minute.

12 MR. WHITE: Sorry, Your Honor, it's already  
13 given away.

14 Q (By Mr. White) Did your study analyze the operation --  
15 Excuse me, I already asked you that.

16 You did model the operations of Washakie Reservoir,  
17 didn't you?

18 A That's right.

19 Q Is evaporation loss considered as part of your operation?

20 A Certainly.

21 Q How was that considered?

22 A We used the pan evaporation information at Morton, which  
23 is in the vicinity of Pilot Butte. By reviewing the  
24 relationship between Morton and Fort Washakie, felt that

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1 there was approximately 90 percent of the evaporation  
2 applicable at the Fort Washakie area, so we reduced  
3 Morton Station by roughly .9, and to go from pan  
4 evaporation to lake evaporation, I used a co-efficient  
5 of .71. I think it came from the Climatic Atlas, 1968.

6 THE SPECIAL MASTER: I would call that anticipating  
7 your next three questions and answering them.

8 Q (By Mr. White) How did you run the reservoir in terms  
9 of the timing, temporal distribution of storage?

10 A Well, the physical input characteristics that are built  
11 into the HEC program has storage, elevation, area. You  
12 also have to check outlet capacity to make sure that  
13 you're not asking for releases which are more than that  
14 particular physical system has the ability to deliver.

15 And also analyze spillway capacities for the  
16 same reason. You build that all together into an  
17 operational set of criteria, and as you either release  
18 or accumulate inflows, then the system reacts to that  
19 in terms of either raising or lowering the elevation,  
20 spilling if necessary. It's a hydrologic balance.

21 Q Specifically with respect to Washakie, when did you  
22 store water in your model?

23 A When did we store water as part of the plan? One thing  
24 to recognize about Washakie Reservoir is that it's a  
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very small reservoir in relation to the drainage that it is sited on. It has a storage capacity of about 8,000 acre feet, and I believe the natural flow estimates at that location are about 80,000 acre feet. So it obviously fills every year.

Historically, what's happened is that you keep the releases down, draw the reservoir down until roughly May or June and then try to store as much flood surcharge as possible to keep the spillway discharges down to as low a volume as possible. So to answer your question, counsel, May, June, it always fills.

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billstein-cross-white



1 Q Did you ever have a situation in your analysis of  
2 Washakie Reservoir where there was a conflict between  
3 storage and satisfying direct flow diversions?

4 A I don't exactly understand your question.

5 Q Was there ever a situation where there was only enough  
6 water in the river for storage or for diversion?

7 THE SPECIAL MASTER: What would the storage  
8 requirements be?

9 MR. WHITE: To fill the reservoir.

10 THE SPECIAL MASTER: Who requires storage at Washakie,  
11 was it wildlife?

12 MR. WHITE: I don't know, Your Honor.

13 THE SPECIAL MASTER: Well, can you elaborate on your  
14 question?

15 Q (By Mr. White) Well, let me ask you this: Why is water  
16 stored at Washakie?

17 A Washakie Reservoir is an irrigation service facility, in  
18 times of low flow there is a small amount of incremental  
19 storage that is utilized to furnish minimal needs at the  
20 town of Fort Washakie.

21 THE SPECIAL MASTER: And to answer his question, do  
22 you know of any times when there was a conflict between  
23 a storage requirement of water for Fort Washakie and its  
24 duty as an irrigation --

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1 THE WITNESS: Your Honor, I believe my earlier  
2 answer to the fact that it fills every year due to the  
3 spring runoff, snowmelt runoff responds to that issue.  
4 It, in fact, fills every year. There is no conflict.  
5 Once it is full then you utilize the available storage  
6 as part of the Little Wind Unit of the Wind River Federal  
7 Irrigation Project.

8 Q (By Mr. White) How did you schedule releases from the  
9 reservoir?

10 A Release schedules are based on the water requirements of  
11 the system that we operated.

12 Q But specifically, how did you schedule the releases and  
13 what schedule did you develop for Washakie Reservoir?

14 A That schedule varies from year to year. The reason for  
15 that is because you go into Washakie Reservoir the HEC-3  
16 Program allows you to designate the control point nodes  
17 where you have water requirements that are to be serviced  
18 from Washakie Reservoir. So what the facility does is  
19 search in the upstream to the downstream direction and  
20 where it does need releases above and beyond but can be  
21 furnished by local or direct flow, it correspondingly  
22 releases so it is not a firm release schedule. It has to  
23 vary from year to year relative to the water supply from  
24 year to year.

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1 Q Did you place any limits on storage in Washakie Reservoir  
2 in terms of storage carry-over from year to year?

3 A Counselor, it fills every year. There is no --

4 Q You have no carry-over storage built in?

5 A It fills every year.

6 Q Is any allocation made for power generation?

7 A No power generation. This was operated as a single  
8 purpose irrigation facility with the possible of furnishing  
9 local flow water supplies to the town of Fort Washakie.

10 Q You are sure there is no carry-over storage from Washakie  
11 Reservoir?

12 A Are you talking about is there storage that is not  
13 totally utilized --

14 Q Uh-huh.

15 A -- in the course of a year, is that how you're defining  
16 carry-over storage?

17 Q Yes.

18 A Okay, Counselor, what I felt your carry-over storage  
19 definition was the fact that in a lot of reservoirs you  
20 have certain zones and that zone is built up over time  
21 to guard against long term drought, and therefore, you  
22 have the particular zone in a storage facility where you  
23 have what is called carry-over storage, but under your  
24 definition is there cases where we have storage remaining  
25 billstein-cross-white



1 at the end of an operational year, for example. Is that  
2 what you are asking me?

3 Q Uh-huh, yes.

4 A Yes, there are.

5 Q What amounts did you assume to be in storage during -- or  
6 in carry-over storage as we have mutually defined it, from  
7 year to year?

8 A Again, that is a function of the operation of the system.  
9 The operational constraint that we used was that at  
10 Control Point 27, which is the final major diversion on  
11 the system, that there be releases met to furnish those  
12 water requirements at Subagency Unit and only that. So,  
13 if in fact, there is carry-over as we defined the storage  
14 in the system, and that requirement has been met, that  
15 means that there is extra water in the system that we  
16 could have sent down the system and utilized for such  
17 things as maintenance or fishery flows.

18 Q Do you know of any year in which the carry-over storage  
19 of Washakie Reservoir was as much as 7,940 acre-feet?

20 A Are we talking about a month, a particular month,  
21 Counselor?

22 Q Pick a month in the carry-over period.

23 A Okay. Well, I still think we're not communicating.

24 You're saying carry-over period is any month of operation

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1 of the reservoir, I believe is what you're talking about.

2 Q Well, let's pick the month of January. Are you familiar  
3 with any year during your study period in which 7,940  
4 acre-feet were in storage in Washakie Reservoir?

5 A In January?

6 Q In January.

7 A That was really of no importance to me to record that  
8 kind --

9 THE SPECIAL MASTER: If you don't know, just say  
10 you don't know.

11 THE WITNESS: I don't know. I suspect that --

12 THE SPECIAL MASTER: Uh-huh.

13 THE WITNESS: I wouldn't think that it would be.

14 Q (By Mr. White) Let me ask you a similar question with  
15 respect to Ray Lake.

16 A Okay.

17 Q Do you know of any year during your study period wherein  
18 the month of January there were 7,140 acre-feet in  
19 storage in Ray Lake?

20 A In January?

21 Q In January.

22 A I can't recall that, no.

23 Q Mr. Billstein, I'm going to hand you an excerpt from the  
24 United States' Statement of Claims, which contains the  
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1 first page as well as Pages 14, 15 and 16, and I have  
2 opened it to Page 15 and I would direct your attention  
3 to about a fifth of the way down the page where it says  
4 reservoir maintenance. Isn't it true that your systems  
5 operation study did not consider or include the claims  
6 of the United States for reservoir maintenance as shown  
7 on Page 15 of the Statement of Claims?

8 A I did not build in an operational parameter to keep the  
9 level of Washakie and/or Ray Lake at the capacity so  
10 specified, no.

11 Q Would you turn back one page to Page 14. At the very  
12 bottom of Page 14 there is a claim for the water to  
13 maintain the level of all lakes within the Reservation  
14 in their natural state except Bull, Ocean, Boysen, Ray,  
15 Washakie and Pilot Butte. Did you find that statement?

16 A Yes, I do.

17 Q Was that claim included in your systems operations study?

18 THE SPECIAL MASTER: Were those the bottom four lines  
19 of Page 14, Mr. White?

20 MR. WHITE: Yes, sir. I'm sorry.

21 A No cataloging of all the natural lakes in the Basin was  
22 made to establish whether, in fact, the water level was  
23 maintained throughout.

24 Q (By Mr. White) Did your system allow Washakie Reservoir  
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1 to fill, release and refill during the course of an  
2 irrigation season?

3 MR. WHITE: I'm sorry, I'll withdraw the question if  
4 you want to ask him --

5 THE SPECIAL MASTER: No, go ahead.

6 A There are agricultural demands that take place in May,  
7 June and July when Washakie Reservoir is at or close to  
8 maximum capacity. I don't know the relationship as to  
9 whether the direct flows below Washakie could have  
10 satisfied all of those irrigation requirements or not.  
11 It is possible that there may have been some releases  
12 from the reservoir in July, perhaps June, possible May.  
13 It certainly wouldn't have turned the reservoir over once,  
14 I know that.

15 Q But in part, it could have?

16 A There may have been some release out of there, uh-huh.

17 THE SPECIAL MASTER: Mr. White, --

18 MR. WHITE: Yes, sir.

19 THE SPECIAL MASTER: I have a problem and maybe you  
20 can help me with it or maybe the witness can. I realize  
21 I should have the full statement and I do have --

22 MR. WHITE: I have the copy somewhere, Your Honor.

23 THE SPECIAL MASTER: No. Now reading, Page 14 is  
24 your Page 2, but at Page 14 of the claim I interpret the  
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1 last four lines to read that the United States is  
2 asserting a claim for water to maintain the level of  
3 all the lakes within the Reservation except Ray Lake and  
4 Washakie Reservoir --

5 MR. WHITE: That's what I meant to suggest to the  
6 witness, Your Honor. I didn't mean to mislead him.

7 THE SPECIAL MASTER: So then I realize when they come  
8 up with a reservoir maintenance claim on Page 15 for the  
9 water to maintain the levels of Washakie at its total  
10 capacity, and at Ray Lake at total capacity, that claim is  
11 in direct conflict with the claim they made one page  
12 earlier.

13 THE WITNESS: I don't think --

14 THE SPECIAL MASTER: What do I hear from you, Mr.  
15 Echohawk, but silence?

16 MR. ECHOHAWK: No, Your Honor, that's not -- they  
17 are not in conflict.

18 MR. WHITE: I would stipulate that they are a  
19 cumulative claim, Your Honor. I didn't mean to suggest  
20 that to the Court and in one place the claim is for  
21 natural levels for all lakes except several specified  
22 and then in the next page they go on to say and say, but  
23 with respect to a couple of those specified ones we claim  
24 specific levels.

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1 THE SPECIAL MASTER: I see. I see.

2 MR. WHITE: I would love to be able to ding them  
3 on that, but I don't think I ought to..

4 THE SPECIAL MASTER: All right.

5 MR. ECHOHAWK: In regards to the maintenance of all  
6 of the natural lakes that is part of the aesthetics and  
7 wildlife claim.

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1 THE SPECIAL MASTER: All right. As a practical  
2 matter, how can there be a reservoir granted for  
3 water to maintain the levels of the lake at 7940  
4 or volumes of lakes at 7940 and 7140, where their  
5 duty, from year to year, serves a given acreage with  
6 given water duty? That's what this is all about,  
7 and control of the reservoir is up to management,  
8 systems management. This area is not up to a decree  
9 awarding water.

10 You know, you can't ask a Court to say that  
11 you're going to have water for sufficient acreage  
12 of so many areas in this area, and there shall be  
13 at the same time sufficient water to guarantee levels  
14 of reservoirs. You're running the reservoir, not us.  
15 You see what I'm saying?

16 MR. ECHOHAWK: Yes, Your Honor.

17 THE SPECIAL MASTER: And if you can help me  
18 with that, I would be grateful to you. As we get  
19 nearer to a decree, that's my problem, because  
20 management will determine levels of the lake.

21 MR. ECHOHAWK: I believe that's correct.

22 THE SPECIAL MASTER: And management will maintain  
23 releases of water too.

24 MR. ECHOHAWK: I believe that's correct.

25 THE SPECIAL MASTER: All right, Mr. Echohawk, thank





1 you for that.

2 I didn't mean to interrupt you any more than  
3 is absolutely necessary, Mr. White.

4 MR. WHITE: That's fine, Your Honor. I have  
5 my script, and I follow it religiously; interruptions  
6 don't matter.

7 Q (By Mr. White) When you were discussing the releases  
8 from Washakie, Ron, did you mean to suggest that releases  
9 were made for fisheries purposes?

10 A No.

11 Q Okay.

12 A In reference to that, when I was talking about Control  
13 Point No. 27, what I'm saying is you can't simply go to  
14 the computer output and take a look and see that at  
15 Control Point No. 27, that the stream is essentially  
16 dried up or it could mean that they're all water  
17 requirements. What you have to do is see, yes, it  
18 did meet the water requirements, and that was the  
19 constraint that was applied upon the systems study.

20 What you have to do then is back up to the  
21 reservoirs, be it Washakie Reservoir and Ray Lake,  
22 and find out how much remaining storage is there to  
23 come up with an additional perspective of what addi-  
24 tional water could also be moved down the stream channel.

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1 And I said one of the possible uses of it was addi-  
 2 tional maintenance flows or fishery flows.

3 Q Is it possible from your computer output to determine  
 4 which facilities received the water released from either  
 5 Washakie or Ray Lake?

6 A The control points that are part of the operation from  
 7 those facilities are designated on the Hanover exhibits.

8 Q Could you show me? I'm sorry, I'm sort of dense when  
 9 seeing these things.

10 We're referring to Hanover Exhibit 3?

11 A Okay. South Fork Little Wind River, Washakie Reservoir  
 12 serving Control Point 6, 8, 10, 11, 19, 12, 7, 4, 9, 13,  
 13 15, 27, 29. So those particular nodes listed here that  
 14 have diversions would, in fact, be part of a possible  
 15 release schedule from Washakie.

16 Q Let me ask you a question right here. Is it possible to  
 17 know, from the computer output, how much of the, any  
 18 release from Washakie Reservoir was diverted at any  
 19 one of the control points you read off? For example,  
 20 Control Point 6?

21 A Well, okay. Control Point 6 is a bad example, that's  
 22 in fact Washakie itself.

23 Q Right.

24 THE SPECIAL MASTER: That's in fact the reservoir  
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1 itself?

2 THE WITNESS: That's Washakie itself.

3 One would have to go in with the schematic,  
4 take a look at what's known as the local flows, this  
5 column or Column 1 in the printouts, plat those and  
6 work down from upstream to downstream, then superimpose  
7 on the additional releases, and that would be the only  
8 way that you could do it.

9 There's no printout specifically that says so much  
10 goes to this node or that node. You would have to work  
11 that out.

12 Q (By Mr. White) Do you know whether or not the control  
13 points listed for Little Wind, Washakie Reservoir in  
14 Hanover 3 actually receive water released from Washakie  
15 Reservoir now or historically?

16 A All of the control points listed are in fact physical  
17 facilities within the Little Wind Unit.

18 Washakie Reservoir as well as Ray Lake were built  
19 specifically to develop storage water for the use of  
20 the Little Wind Unit. The use of that storage water  
21 is discretionary, depending on need. There are no  
22 water storage contracts, per se. It is up to the judgment  
23 and the administration of the Bureau of Indian Affairs  
24 to utilize both the direct flow resources of the Little

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1 Wind System, together with the storage releases of  
2 Washakie Reservoir and Ray Lake to meet the demands  
3 of the lands requesting service.

4 I would assume that some time over the, over the  
5 past that it's possible that releases from Washakie  
6 Reservoir could have been applied to each one of those  
7 diversion points that we've delineated.

8 Q Did your study on Owl Creek, Ron, take --

9 THE SPECIAL MASTER: You took a two hundred mile  
10 jump.

11 MR. WHITE: We may come back, but we are into  
12 another area of inquiry. I apologize, Your Honor.

13 THE SPECIAL MASTER: No apology necessary, I'm  
14 glad to see you moving ahead, moving on to other areas.

15 Q (By Mr. White) Did your study of water availability  
16 in Owl Creek consider the availability of water out  
17 of the storage capacity in Anchor Reservoir?

18 THE SPECIAL MASTER: In what?

19 MR. WHITE: Anchor Reservoir on South Fork of  
20 Owl Creek.

21 A No.

22 Q (By Mr. White) Why not?

23 A Same reason that we didn't use Bull Lake Creek. The fact  
24 that the Owl Creek Study Unit or service unit, that was

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1 developed to receive water from Anchor constitutes  
2 a multitude of acres, in excess of 10,000 acres, I  
3 believe, and that the Indian use area was only a  
4 small portion of that. Therefore, we didn't feel that  
5 we were in a position to command storage out of that  
6 facility, so, therefore, we simply went back to the  
7 direct flow, again, serving the 1868 water right  
8 priorities.

9 Q So was your approach similar to the approach you took  
10 for Bull Lake then, you just assumed that Anchor  
11 Reservoir wasn't there; is that correct?

12 MR. ECHOHAWK: Objection, Your Honor. He misstates  
13 the witness. The witness said that he couldn't use it, it's  
14 not that it wasn't there.

15 Q (By Mr. White) Let me ask him, did you assume that  
16 Anchor Reservoir was there in filling or did you assume  
17 it wasn't there or wasn't filling?

18 A. We used the direct flow.

19 THE SPECIAL MASTER: It went to the direct flow of  
20 the mainstream of Owl Creek.

21 Q (By Mr. White) And that is as if Anchor Reservoir is not  
22 there, is that correct?

23 A. We have shown that we could serve the 1868 priority from  
24 Anchor Reservoir -- I mean from the direct flow resources,

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1 so that would be by-passed water anyway, you wouldn't  
2 have storage water. So in effect, it's the same thing,  
3 we assumed it wasn't there.

4 Q Now, with respect to Anchor and Bull Lake, assuming  
5 that they are there, isn't it true that so long as  
6 water is stored by those facilities, there would be  
7 evaporative losses? And if so, did you consider those  
8 evaporative losses in your study?

9 THE SPECIAL MASTER: That confounds me. They are  
10 there, and they do have evaporative losses.

11 MR. WHITE: Perhaps I could restate the question.

12 THE SPECIAL MASTER: That's all right. They are  
13 there, Mr. Billstein knows that, and they do have  
14 evaporative losses. Were those evaporative losses  
15 considered in your study?

16 THE WITNESS: No. Again, we were talking about  
17 serving 1868 priority rights out of direct flow, therefore,  
18 we aren't dealing with storage water.

19 THE SPECIAL MASTER: Thank you.

20 THE WITNESS: That should be by-passed water.

21 THE SPECIAL MASTER: Would you define "by-passed"  
22 water".

23 THE WITNESS: That would be releases from, pass  
24 through releases through a reservoir to meet direct flow

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1 water right requirements.

2 THE SPECIAL MASTER: But is there a possibility  
3 that the claims you have can be diminished by that  
4 evaporation?

5 THE WITNESS: First of all, we have a legal issue  
6 as to whether that evaporation --

7 THE SPECIAL MASTER: Not legally, I mean physically,  
8 topographically, rather than legal issue-ish.

9 THE WITNESS: If there are evaporative losses,  
10 that, of course, affects the overall water supply.  
11 Again, it's my feeling that with the first priority  
12 water right, that that's not, certainly not jeopardizing  
13 us.

14 THE SPECIAL MASTER: You're back to legal. I  
15 could care less about the legal rights. Right now,  
16 physically, is it possible that your claim for water  
17 in the trust lands that are on the Owl Creek area  
18 portion of the reservation, is it possible that your  
19 water duties on those trust lands can be diminished  
20 by evaporation at Anchor Reservoir?

21 THE WITNESS: Evaporation at Anchor Reservoir  
22 would affect the water supply, and our lands are downstream  
23 from Anchor Reservoir.

24 THE SPECIAL MASTER: That's all I wanted to know.  
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1 That's what Mr. White wanted to know, I think.

2 Q (By Mr. White) Isn't it true that your systems  
3 operation study did not include the construction  
4 of future storage facilities?

5 A That's correct.

6 THE SPECIAL MASTER: Let me ask a question that  
7 has to be asked right there.

8 Let's assume that an air of great good will  
9 would overtake the people of the United States and  
10 of Wyoming, and it was decided that there would be  
11 a dam built according to the specification with which  
12 you are very familiar at Blueholes. Have you made any  
13 studies as to the effect that would have on downstream  
14 users or where the evaporative losses would be suffered  
15 or apportioned?

16 I know you have studies as to the net annual  
17 contributions to usage, net annual yield for that dam,  
18 but do you have any, have you had any studies or have  
19 you given any consideration whatsoever in your studies?  
20 You probably have not, is that a fact?

21 THE WITNESS: In the system operations study, no.  
22 We have looked at the site and have a feel for storage  
23 capacity of the site to translate that into yield. You  
24 then have to get into a fairly sophisticated analysis of  
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1 water rights, priority of water rights, exchange of  
 2 water right agreements, conjugal or conjunction use  
 3 with Bull Lake Creek, exchange waters with Boysen  
 4 Reservoir, impact of releases from Boysen, say for  
 5 hydro-power, whether some of that could be exchanged  
 6 over a long period of time. So to get into, on an  
 7 actual, final yield number, Your Honor, a lot of  
 8 effort is yet to come by someone.

9 THE SPECIAL MASTER: That effort has already  
 10 been expended by the Bureau of Reclamation, but none  
 11 of that work went into your systems operation study;  
 12 is that right?

13 THE WITNESS: That's right. Further, you must  
 14 recognize that the Bureau of Reclamation, of course,  
 15 did not take into account the future land claims of  
 16 the Tribe or the new additional lands, the sevens and  
 17 eights, and such that are being projected by the Tribes  
 18 as coming on as practicably irrigable acreage.

19 THE SPECIAL MASTER: Of course, that was your  
 20 function, but theirs was to come to a conclusion as  
 21 to what would be annual beneficial yield, and they  
 22 did that.

23 Go ahead, Mr. White.

24 \* \* \* \* \*

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1 A Under certain assumptions, yeah.

2 Q Well, Ron, isn't it true that you conducted fairly  
3 extensive studies as to reservoir site potential?

4 A Yes.

5 MR. ECHOHAWK: Objection, Your Honor, it is beyond  
6 the scope of direct.

7 MR. WHITE: Well, it was within the scope of the  
8 Master's question.

9 THE SPECIAL MASTER: Let me think about that. I  
10 don't recall all of the direct.

11 MR. ECHOHAWK: It has absolutely nothing to do with  
12 any sort of reservoir site analysis.

13 THE SPECIAL MASTER: Let me sustain it because it  
14 goes off into areas other than on the case. I will  
15 sustain that objection.

16 I took you off into this deep reservoir, and I might  
17 as well get you back onto the mainstream of our case.

18 THE WITNESS: I appreciate that.

19 THE SPECIAL MASTER: These are called hopeful asides  
20 that judges take into the settlement areas and back again  
21 into the hard facts.

22 MR. WHITE: I just thought you might be interested,  
23 Your Honor.

24 THE SPECIAL MASTER: I know.

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1 Q (By Mr. White) What did you do with Raft Lake as part of  
2 your systems study?

3 A Nothing. Raft Lake in its natural state is still there.  
4 There was no dam storage of any sort artificially built  
5 into the study, no.

6 Q Did you include the evaporation of the natural lake?

7 A The stream flows of Mr. Keene would have had all the  
8 depletions above the stream flow point on the North Fork  
9 of the Little Wind, which would have included the Raft  
10 Lake area.

11 MR. WHITE: Your Honor, do you want to take a short  
12 break or just press on until noon?

13 THE SPECIAL MASTER: Why don't we go on for another  
14 ten or fifteen minutes and we'll take an early lunch  
15 break -- or take a regular lunch break then, unless you --

16 MR. WHITE: I'm at a natural stopping point, but  
17 I can get into the next area.

18 THE SEPCIAL MASTER: It is 11:30. Let's adjourn  
19 until one -- I'll be here at 1:15, we can start then or  
20 1:30.

21 (Proceedings recessed,  
22 (11:27 a.m.)

23 \* \* \* \* \*

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