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## Trial Transcript, Vol. 91, Morning Session

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Case # 4993

File # 198

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

IN RE: )  
)  
THE GENERAL ADJUDICA- )  
TION OF ALL RIGHTS TO )  
USE WATER IN THE BIG ) Civil No. 4993  
HORN RIVER SYSTEM AND )  
ALL OTHER SOURCES, )  
STATE OF WYOMING. )

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

VOLUME 91

BE IT REMEMBERED that on this 27th day of July,  
1981, at Room 302, State Capitol Building, Cheyenne,  
Laramie County, Wyoming, the above-entitled matter  
resumed for hearing before the Honorable Teno Roncalio,  
Special Master Presiding, whereupon the following proceed-  
ings were had, to wit:

PROCEEDINGS:

**ORIGINAL**

APPEARANCES

1

2

3

FOR THE STATE  
OF WYOMING:

HALL & EVANS  
2900 Energy Center Building  
717 17th Street  
Denver, CO 80202  
BY: MR. JAMES MERRILL

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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

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FOR THE SHOSHONE  
TRIBE:

SONOSKY, CHAMBERS & SACHSE  
2030 M. Street, N.W.  
Washington, DC 20006  
BY: MR. HARRY SACHSE and  
MR. WILLIAM PERRY

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FOR THE ARAPAHOE  
TRIBE:

WILKINSON, CARGUN & BARKER  
1735 New York Ave., N.W.  
Washington, DC 20006  
BY: MR. R. ANTHONY ROGERS

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CLERK TO THE  
SPECIAL MASTER:

MR. LEO SALAZAR and MS. BILLY EDWARDS  
Attorneys at Law  
701 Rocky Mountain Plaza  
Cheyenne, WY 82001

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FOR THE PRIVATE  
WATER HOLDERS:

MR. GEORGE RADOSEVICH  
Attorney at Law  
910 15th Street, Suite 866  
Denver, CO 80202

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Handwritten notes in the left margin, including "1-1", "mr-cb", and a vertical list of numbers from 1 to 25.

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THE SPECIAL MASTER: May we come to order, please. We have one item for disposition before we begin this morning, and that is a pending motion for expedited discovery filed by the United States. I have given this some thought and I cannot believe that it would inconvenience or seriously impair the State's case and continuing preparation of its case to comply with the Motion for Expedited Discovery, so I do hereby grant it.

MR. MERRILL: Your Honor, may I be heard on the motion? I understand you've already ruled, but --

THE SPECIAL MASTER: Because I really believe it -- If you wish to make an argument that you think can reopen my mind, you're welcome to, Jim, but it's not all that serious an impairment, I think it's a routine procedure, but if you'd like to do so, you may.

MR. MERRILL: I'd just like to make a couple points, if I might, Your Honor, and before beginning, I'd like to introduce to the Court two of the law clerks who are working with our firm this summer in helping prepare this case for trial. First is Mary Ellen Hoffman is a

1 third year law student at the University of  
2 Idaho in Moscow, and Joe Dischinger is a third  
3 year student at the University of Virginia and --

4 THE SPECIAL MASTER: What is his name?

5 MR. MERRILL: Joe Dischinger, and he's  
6 studying law at Charlottesville, at the University  
7 of Virginia.

8 THE SPECIAL MASTER: Very fine. I hope  
9 you enjoy the experience of this lawsuit. It's  
10 one of the unique ones in America: We don't  
11 intend to make another United States versus  
12 A T & T out of this, but we hope the machinery  
13 in the law of the west can be up to the job  
14 of adjudicating these water rights in a United  
15 States Court, which we're attempting to do.

16 All right, Mr. Merrill.

17 MR. MERRILL: Thank you, Your Honor. Very  
18 briefly, Your Honor, I would remind the Court of  
19 a stipulation that was entered into between the  
20 State of Wyoming and the United States, but which  
21 the Tribes did not join in. That stipulation was  
22 made between the Federal Government and the  
23 State of Wyoming on April 18, 1980. You'll recall  
24 that during the boundaries trial, Wyoming served  
25 a rather large set of interrogatories on the

1 United States and moved for expedited discovery  
2 with respect to those. And the parties reached  
3 a stipulation in which you later approved and  
4 adopted as an order allowing the United States  
5 45 days to answer those interrogatories, and  
6 that same stipulation allowed the United States  
7 45 days after the filing of Wyoming's response  
8 to serve Federal interrogatories upon the State  
9 without regard to the 30 interrogatory limitation  
10 that's contained in the uniform rules for the  
11 District Court. And pursuant to that stipulation,  
12 the State was also to have 45 days to answer that  
13 unusually large volume of interrogatories.

14 I think first, in light of this stipulation,  
15 that it is inappropriate to require the State  
16 to answer these interrogatories which contain  
17 over 300 questions including subparts, within  
18 20 days of their service.

19 Secondly, I'd like to point out that the  
20 United States has already scheduled, and you've  
21 probably received the notice of depositions of  
22 approximately four full weeks of depositions  
23 to commence in August right before the State  
24 begins putting on its case in chief, and there  
25 are yet another six witnesses or so to be scheduled.

1 We believe that the information that the  
2 Federal Government is seeking in these  
3 interrogatories is the same information that  
4 they'll be getting during the depositions and  
5 that what we have going on here is duplicative  
6 discovery.

7 The last point that I want to make with  
8 respect to expedited discovery on these  
9 interrogatories is the very nature of the  
10 questions contained in them. For example,  
11 Question No. 5 which looks like a very innocent,  
12 easy to answer question in an interrogatory and  
13 in fact asks the State to list every document,  
14 memorandum, report, treatise, book or other  
15 writing including any exhibit already in evidence  
16 and any document obtained from the United States  
17 or its witnesses, utilized by each expert to  
18 form his opinion or used to support his opinion.  
19 That amounts to literally thousands of documents.  
20 And Interrogatory No. 6 asks us to describe for  
21 each of those documents the nature of the  
22 document, the substance of its contents, and  
23 manner in which it is thought to support each  
24 expert opinion.

25 THE SPECIAL MASTER: Mr. Merrill, may I only



1 interrupt to say No. 5 can be answered with one  
2 beginning statement; of the 610 State exhibits  
3 already in evidence we propose that virtually all  
4 of them may be used by our experts upon our case.

5 They know what they are, they saw them  
6 presented, they voir dired them, so you've  
7 taken care of 5.

8 MR. MERRILL: Your Honor, I would propose  
9 that if we're held to the 20-day limit, that is  
10 exactly the kind of answers the United States  
11 is going to get.

12 THE SPECIAL MASTER: I rather suspect -- I  
13 rather imagine that's what the United States is  
14 expecting on answers to questions like No. 5 at  
15 this posture in the lawsuit.

16 MR. MERRILL: As long as that's the under-  
17 standing, then we don't really have --

18 THE SPECIAL MASTER: I don't make that  
19 understanding. You may have some new document,  
20 you know, you may have some new study, some of  
21 your new -- your witnesses may have, and then they  
22 have a right to know what that is, but I assume  
23 that the bulk of the exhibits in this case are  
24 already in evidence and if there are some others  
25 that are not that qualify or contradict or impeach

1 existing materials and then I think that's what  
2 the questions like 5 and 6 are addressed to, but  
3 go ahead, I want to hear you out.

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MR. MERRILL: Well, I only wanted to make a couple other points, Your Honor. First, as long as there is an understanding given about the haste with which answers to these interrogatories are requested, and I presume to be ordered by you to be answered, which will be by this Wednesday, that that will be largely illustrative of the kinds of answers we will give. We won't have the typists to put together the specificity I expect the United States is hoping to get in this time period. I would point out to the Court's attention Interrogatory No. 11, which says, "What areas depicted on United States Exhibit C-41 through C-54, 56 through 136 and 158 through 231 do you contend are non-arable?" Well, it seems to me that it's largely answered already through the cross-examination of the Federal Government's experts, and with the understanding we will largely incorporate that cross-examination into our answers, again we can answer them within the time provided.

The last kind of interrogatory I want to point out to the Court is No. 15 on Page 5 which asks us to describe all studies conducted or relied upon by the State regarding lands outside

1 the exterior boundaries of the Reservation. As  
2 the Court will recall, we had quite a flap about  
3 introducing land classification standards from  
4 other Reservations, other areas, and the United  
5 States objected strenuously and you upheld their  
6 objection. It seems to me rather ungainly for  
7 the United States to then turn around and demand  
8 the same information of Wyoming that they so  
9 strenuously objected to producing themselves. So  
10 I will point out to the Court and to the United  
11 States on the record now that we will have some  
12 objection to some of these interrogatories as well,  
13 and if they want to come in and move to compel  
14 discovery, we can cross that bridge when we get  
15 to it with the understanding we will do the best  
16 we can in the time we have. We will try to answer  
17 them in the 20 days, but I will point out to the  
18 Court and to the Federal Government that if we  
19 have another 10 days, the 30 days allowed under  
20 the rules, that they will get a lot more  
21 information.

22 THE SPECIAL MASTER: I would say -- well,  
23 Mr. Sachse, you were not involved. I will say,  
24 Mr. Clear, you ought to give some thought to  
25 granting them a few days.

1 MR. CLEAR: Yes, sir. I think at the time  
2 our motion was made we felt there was a problem  
3 with scheduling depositions because of vacations,  
4 and I think there was some feeling on Mr. Echohawk's  
5 part there was a threat that the answers would  
6 not be given at all. But I think Mr. Merrill and  
7 Mr. Echohawk have reached a schedule of depositions  
8 which are basically in the last two weeks of  
9 August, and if we have ten more days I think we  
10 would have these answers before the crucial  
11 depositions are taken.

12 THE SPECIAL MASTER: Would you grant a ten-  
13 day extension to Mr. Merrill on the expedited  
14 motion to --

15 MR. CLEAR: Why don't we just go to the  
16 normal 30 days under the rules and we will  
17 withdraw the motion with the understanding --

18 THE SPECIAL MASTER: The motion is withdrawn.  
19 Thank you. Let's proceed before we have any  
20 changes of mind.

21 MR. MERRILL: Thank you, Your Honor.

22 MR. PERRY: If there are no more preliminaries,  
23 Your Honor, the Tribes call Mr. Keith Higginson.

24 THE SPECIAL MASTER: Mr. Higginson, let's  
25 swear you in again. I forgot if we did before or

1 not.

2 KEITH HIGGINSON

3 was called as a witness by the Tribes, and, having been  
4 first duly sworn, was examined and testified as follows,  
5 to wit:

6 DIRECT EXAMINATION

7 BY MR. PERRY:

8 Q Would you state your name, please?

9 A My name is Keith Higginson.

10 Q What is your address, Mr. Higginson?

11 A 2890 South 450 East in Bountiville, Utah.

12 Q What is your occupation?

13 A I'm a consulting civil engineer.

14 Q Where do you work, Mr. Higginson?

15 A I have an office in Salt Lake City, Utah.

16 Q Are you self-employed?

17 A I am, yes.

18 Q And prior to being self-employed, where did you  
19 work?

20 A I worked for the Sutron Corporation in Fairfax,  
21 Virginia.

22 Q And your work with respect to this case began  
23 while you were employed with Sutron?

24 A That's correct.

25 higinson-direct-perry

- 1 Q And you were also a private consulting engineer  
2 with Sutron?
- 3 A I was employed under a title of principal  
4 engineer for Sutron Corporation, assigned  
5 entirely to this particular study.
- 6 Q Okay. And before you were in private consulting,  
7 what was your job?
- 8 A I was previously the Commissioner of the U.S.  
9 Bureau of Reclamation.
- 10 Q What years did you serve in that capacity?
- 11 A From 1977 to January, 1981.
- 12 Q Okay. And what were your duties as Commissioner  
13 of Reclamation?
- 14 A My responsibility was the conduct of all of the  
15 business of the Bureau of Reclamation, the  
16 direction of the activities of that agency and  
17 its approximately 8,500 employees who operate in  
18 the 17 western states; the review of all new  
19 projects coming to Washington for recommendation  
20 to the Secretary, to the Administration, to the  
21 Congress for appearances before Congressional  
22 Committees in support of or in opposition to  
23 legislation and budgets and so forth.
- 24 Q Thank you. And prior to being Commissioner, did  
25 higginson-direct-perry

1 you hold positions in state governments with  
2 respect to water use and water rights?

3 A Yes, I did in two states.

4 Q Would you explain what those positions were?

5 A I was Director of the Idaho Department of Water  
6 Resources and under other titles, Director of  
7 the State Water Agency in the State of Idaho  
8 for a total period of 12 years, and prior to that  
9 was Chief of the Water Rights Branch of the Utah  
10 State Engineer's office for eight years.

11 Q And what were your duties in those respective  
12 positions?

13 A Well, as Director of Water Resources in Idaho  
14 I was responsible for the administration of the  
15 state water rights system, for adjudication and  
16 recommendation to the Court on determination  
17 of water rights, for the management of the State  
18 Water Master System, the distribution of water  
19 to those entitled to its use.

20 Q So this position is akin to being State Engineer?

21 A It was the equivalent to State Engineer. As a  
22 matter of fact, at one time it was called State  
23 Reclamation Engineer prior to a change in title.

24 Q And as engineer in Utah, what were your

25 higinson-direct-perry



1 responsibilities?

2 A As chief of the water rights branch I was  
3 responsible for the processing and the handling  
4 of all applications for new water right permits,  
5 approval of all construction of new dams, the  
6 drilling of wells, licensing of well drillers,  
7 preparation of proposed determinations for  
8 adjudication of water rights, and the distribution  
9 of water to those under court decrees.

10 A And what years did you serve in that position  
11 in Utah?

12 A From 19 -- I was not in that position the entire  
13 time, but I was in the office from 1957 to 1965,  
14 and held that position about six of the eight  
15 years.

16 Q Okay. And in these jobs did you have experience  
17 working with diversion requirements, cropping  
18 patterns, irrigation efficiencies, water  
19 availability, soils?

20 A Yes, it was very much a part of the jobs that  
21 I have held. I have prepared a number of studies  
22 of irrigation demand, water requirements,  
23 recommendations to the court of the amount of  
24 water to be awarded in connection with court

25 higginson-direct-perry

1 decrees.

2 Q And have you ever served as a witness in a water  
3 rights adjudication prior to this?

4 A Yes, I have, on a number of occasions. One  
5 particular occasion I served as a witness for  
6 the State of Utah in the Arizona-California  
7 lawsuit.

8 Q What was the subject of that testimony?

9 A I had worked for two years gathering information  
10 in southwestern Utah in Utah's portion of the  
11 lower Colorado River Drainage, had prepared  
12 information concerning water supplies and their  
13 use in the three-county area bordering on  
14 Arizona and Nevada, which includes the Virgin River,  
15 Kanab Creek and Johnson Creek Run, and they are  
16 the Utah tributaries below Lee's Ferry on the  
17 Colorado. And as a result of that gathering  
18 of that field information concerning present use  
19 of water in Utah, I was called as a witness in  
20 the Arizona-California case.

21 Q Have you ever served as a Master in a water  
22 rights adjudication?

23 A Yes, I did on one occasion.

24 Q Would you explain that situation?

25 higinson-direct-perry

1 A The occasion was the -- a lawsuit that had been  
2 filed for the determination of water rights on  
3 the Hayden Lake Drainage in Northern Idaho. The  
4 Court requested of the department that we gather  
5 field information and prepare maps of present  
6 uses of water and determine who was using the  
7 water. The Judge subsequently appointed me as  
8 Special Master for the purpose of hearing witnesses  
9 and taking testimony in preparing a final  
10 recommended determination of rights for the  
11 Court's determination.

12 Q And was that recommended determination that you  
13 made adopted by the Court?

14 A It was, yes.

15 MR. PERRY: Your Honor, at this time we will  
16 offer Mr. Higginson as an expert in the field of  
17 water resources engineering.

18 THE COURT: I'm going to admit him. Is there  
19 any voir dire?

20 MR. MERRILL: Yes, Your Honor.

21 THE COURT: Let me ask a question while we  
22 are waiting, Mr. Higginson. Is La Verkin Springs  
23 a tributary to one of the three springs you  
24 mentioned?

25 higginson-direct-perry

1 A Yes, La Verkin is in the virgin river drainage  
2 near the town of Herriman, Utah.

3 THE SPECIAL MASTER: I recall a tremendous  
4 annual discharge of salts from that sulphur.

5 THE WITNESS: Nearly 12,000 parts per  
6 million.

7 THE SPECIAL MASTER: Into the Colorado River,  
8 and in addition to those caused from Big Sandy  
9 all the way down.

10 THE WITNESS: Yes.

11 THE SPECIAL MASTER: That provoked Mexico  
12 into finally getting a desalinization plant  
13 down at the border?

14 THE WITNESS: Yes.

15 THE SPECIAL MASTER: Thank you.

16 MR. MERRILL: Thank you, Your Honor.

17 VOIR DIRE EXAMINATION

18 BY MR. MERRILL:

19 Q Mr. Higginson, I note in listening to your  
20 answers to Mr. Perry's questions concerning your  
21 experience in the water resources field, it  
22 sounds like for the past 25 years or so your  
23 experience has been largely as an administrator  
24 of water resources planning agencies and bodies,  
25 higginson-voir dire-merrill

1 is that largely true?

2 A Its been part of my duties, yes.

3 Q During your tenure, for example, as Commissioner  
4 of the United States Bureau of Reclamation, now  
5 the Water and Power Resources Service --

6 A I would correct you, it is the Bureau of  
7 Reclamation again.

8 Q Oh, it is, okay. I stand corrected.

9 THE SPECIAL MASTER: As of this week.

10 Q (By Mr. Merrill) During your tenure with the  
11 Bureau of Reclamation, did you do any hands-on  
12 engineering work, in other words, designing  
13 systems or evaluating soils, or was your work  
14 confined to more administrative type matters?

15 A Well, I can't say -- I can't say I did a whole  
16 lot of hands-on detailed design engineering, no.  
17 It was largely administrative, but in connection  
18 therewith I was required to understand the  
19 engineering and the other professional work that  
20 came to my attention in order to review it and  
21 approve it and pass on it.

22

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higginson-voir dire-merrill

1 Q (By Mr. Merrill) As part of your work with the bureau,  
2 did you do any soils surveys or land classification studies  
3 in which you actually participated in the formulation of  
4 the basic information involved?

5 A I would not go in the field and take a soil sample, no.

6 Q Did you do any of this type of work, with the hands on  
7 engineering, let's call it, while you were the director  
8 of the Idaho Department of Water Resources?

9 A Yes.

10 Q What kind of work did you do there that involved hands  
11 on engineering?

12 A I made calculations of water requirements, of consumptive  
13 use irrigation, water demand. I reviewed in detail the  
14 soils information brought in by the soil's individuals  
15 and made calculations of requirements for the irrigation  
16 of some state water projects we were planning.

17 Q Thank you. Do you have any previous experience with  
18 engineering or soils work within the State of Wyoming?

19 A I worked on one small project, an interbasin diversion  
20 project in the Wheatland Reservoir area with Mr. Wayne  
21 Criddle, who was then the State Engineer of Utah, and  
22 we were hired to review the uses of water in an area from  
23 which the water was to be taken and diverted into another  
24 basin.

25 higginson - voir dire -- merrill



1 Q. When was that work?

2 A. I would guess it was in the early '60s.

3 Q. Mr. Higginson, as a Water Resource Engineer, do you have  
4 a professional opinion as to the definition of irrigable  
5 land?

6 A. Yes.

7 Q. What is that definition, please?

8 A. It is land that is of a soil type and texture and the  
9 slopes are such and it is within reasonable proximity  
10 to a water source that with a usual amount of effort  
11 water could be brought to the land and it could grow  
12 agricultural crops.

13 Q. I'm going to read you a statement concerning the defi-  
14 nitions of arable and irrigable lands and I'd like to  
15 ask you, before I read it, to think about whether you  
16 agree with the two definitions and the distinction that  
17 this statement makes between them. "Arable is a deter-  
18 mination of lands which physically and chemically sustain  
19 long term irrigation. Irrigable are those lands that  
20 meet the test of economics and design in the other portions  
21 of the studies that we talked about."

22 MR. PERRY: Your Honor, I object to this. I don't  
23 see what this has to do with Mr. Higginson's qualifica-  
24 tions; this is voir dire.

25 higginson - voir dire - merrill



1 THE SPECIAL MASTER: Objections are overruled, he  
2 may answer.

3 THE WITNESS: I wonder if you'd read those again  
4 for me.

5 Q (By Mr. Merrill) Sure. "Arable is a determination of  
6 lands which physically and chemically sustain long term  
7 irrigation. Irrigable are those lands that meet the  
8 test of economics and design in the other portions of  
9 the studies that we talk about."

10 A. Well, I understand the first definition, I don't under-  
11 stand the second because I don't know what study we're  
12 talking about and I don't know what design and other  
13 considerations are built into the second one. The  
14 first one I certainly agree that arable lands are those  
15 that can sustain irrigation.

16 Q Do you agree that irrigable lands are those lands that  
17 meet the test of economics and design?

18 A. Certainly economics and design are part of the determin-  
19 ation of whether lands can be irrigated.

20 MR. MERRILL: Your Honor, we have no objection to  
21 the tender.

22 THE SPECIAL MASTER: Mr. Higginson, for my own in-  
23 formation, what was your formal education as a young  
24 man right out of high school?

25 higginson - voir dire - merrill





1 THE WITNESS: I'm a graduate in Civil Engineering  
2 with a Bachelor's Degree from Utah State University.

3 THE SPECIAL MASTER: What year?

4 THE WITNESS: 1957.

5 THE SPECIAL MASTER: When you were a young man.

6 All right. I'm going to admit Mr. Higginson as an expert  
7 in this lawsuit in the field of water resources' engineer-  
8 ing.

9 DIRECT EXAMINATION (RESUMED)

10 BY MR. PERRY:

11 Q Mr. Higginson, generally what was the scope of your work  
12 for the Tribes in this case?

13 A. The -- We were asked to make a determination of the --  
14 with relation to the lands held in fee by individual  
15 tribal members or their descendants within the Wind  
16 River Indian Reservation, and to determine whether those  
17 lands were presently irrigated, practicably irrigable,  
18 nonirrigated; the amount of water that would be required  
19 to serve those lands and whether there were any presently  
20 existing state water rights held in connection with such  
21 lands.

22 Q Okay. Mr. Higginson, I show you what has been marked as  
23 Tribes' Exhibit 8 and ask you to identify that, please.

24 A. Tribes' Exhibit 8 is a copy of the report that I prepared  
25 as a result of the contract with the Tribe.

higginson - direct - perry

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(307) 237-1493

1 Q And it shows your conclusions with respect to the areas  
2 you've just described?

3 A. Yes, it does.

4 Q. Okay. I'll also show you what has been marked as  
5 Tribes' Exhibit Number 9 and ask you to identify it.

6 A. Tribes' Exhibit 9 are several pages from the report  
7 that have been corrected to take care of typographical  
8 and other errors.

9 Q. Okay. So these are, in effect, replacement pages that  
10 supercede the existing pages --

11 A. Yes.

12 Q. -- in Exhibit 8?

13 Okay. When Mr. Merrill asked you for a definition  
14 of irrigable, is the definition you gave, does that  
15 correspond to the way in which you used the term practi-  
16 cally irrigable in this report and in your work for the  
17 Tribes in this case?

18 A. Yes, it does.

19 MR. MERRILL: Your Honor, I didn't have a chance  
20 to get my objection in there. I'd ask that the witness  
21 define practicably irrigable as he used it for --

22 MR. PERRY: I was only trying to --

23 MR. MERRILL: To incorporate that term in the  
24 question.

25 higinson - direct - perry



1 MR. PERRY: I was only trying to clarify --

2 THE SPECIAL MASTER: It is of no moment, gentlemen.  
3 Go ahead with your question.

4 Q (By Mr. Perry) Okay. In making your determination of  
5 whether lands were practicably irrigable, did you use  
6 any sort of formal benefit cost analysis or other formal  
7 economic analysis?

8 A. No, I did not.

9 Q. And why is that?

10 A. Well, there's a couple of reasons. First, it's my  
11 belief that, and my experience that Indian lands, from  
12 an irrigation standpoint, are treated differently than  
13 you would treat normal federal project or the irrigation  
14 of land under the reclamation program. They come under  
15 a different procedure, under the principles and standards  
16 of the Water Resources Council. There are considerations  
17 that are both social and political that take them beyond  
18 this type of determination that you would make for a  
19 federal reclamation project, which must be based upon  
20 benefit cost analysis.

21 And secondly, in connection with the lands that I  
22 looked at in connection with this study, for the most  
23 part those lands are adjacent to, within the confines  
24 of existing canals and ditches serving already irrigated  
25 higginson - direct - perry



1 land. And I felt it unnecessary to make an extensive  
2 economic analysis to determine whether water could be  
3 brought to that land because it was simply, in most  
4 cases, a matter of extending the ditch or a lateral  
5 in order to bring water to the land.

6 Q. In other words, it was clear without doing any formal  
7 economic analysis in your professional opinion that  
8 these --

9 A. For the most part.

10 Q. Okay. Mr. Higginson, where did you get the list of  
11 fee lands owned by members of the Tribes or their  
12 direct descendants which were the subject of your  
13 study?

14 A. I obtained it from Elsie Kolstad through the tribal  
15 attorneys.

16 Q. Did you exclude from your study any of the tracts  
17 which were identified by Mrs. Kolstad as being owned in  
18 fee by members of tribes or their direct descendants?

19 A. Yes. The list was modified from the original list I  
20 obtained. There was some tracts eliminated, I assume  
21 on the basis of lack of evidence of tribal membership.

22 Q. Were certain tracts also eliminated on the basis of size?

23 A. Yes. In consultation with the attorneys, we did elimin-  
24 ate all of those tracts that were five acres or less in

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1 size that are located in the vicinity of communities,  
2 where there were community water systems.

3 Q. Okay. And the basis of that exclusion?

4 A. The basis was that we assumed that those lands would  
5 receive domestic water if necessary, and they were pri-  
6 marily domestic tracts; not through the community water  
7 system and it would not be appropriate to claim a dupli-  
8 cate water right for them under the fee lands claim.

9 Q. Thank you. Is a legal description of the lands which  
10 you studied found in your report which has been designated  
11 Exhibit 8?

12 A. Yes, in table 6.

13 Q. That contains a legal description of each tract which  
14 was the subject of your study?

15 A. Yes, within the description of each tract there is a  
16 section, township and range and then a subdivision of  
17 that section, township and range indicated.

18 THE SPECIAL MASTER: Were there corrections to that  
19 list that required being noted in your Exhibit 9?

20 THE WITNESS: Two pages, Your Honor, that -- of  
21 that table 6 that are corrected because of inadvertent  
22 omissions of information.

23 THE SPECIAL MASTER: All right, thank you.

24 Q (By Mr. Perry) Okay. Mr. Higginson, next to you on your  
25 higginson - direct - perry



1 left are a series of photographs which have been marked  
 2 as Tribes' Exhibit 10-1 through 10-40. I'd ask you  
 3 to identify those, please.

4 A. Those are photographs that I used in reviewing the present  
 5 irrigation and the status of the fee lands on the Wind  
 6 River Reservation.

7 Q Okay. When did you obtain those photographs?

8 A. I obtained these copies through HKM Associates in Billings,  
 9 Montana.

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1 Q (By Mr. Perry) And are these what are commonly  
2 referred to in this case as the hydrographic  
3 photographs?

4 A It's my understanding from discussing with Mr.  
5 Billstein that these are copies of the hydro-  
6 graphic photo maps that we used.

7 Q And did you locate on these photographs and  
8 plot the fee tracts which were identified as  
9 being owned by members of the Tribes or their  
10 direct descendants?

11 A Yes, I did.

12 Q And are overlays of those plottings found in  
13 your report?

14 A Yes, in Appendix B, I believe it is in the back  
15 of the report are copies of the hand-sketched  
16 overlays that I used for each tract which  
17 correspond with what's on the aerial photos.

18 Q How did you determine the acreage for these  
19 plots that were identified?

20 A The acreage of the irrigated land and the arable  
21 land I determined by planimeter.

22 Q Let me hand you what has been marked for  
23 identification as Tribes Exhibit 11.

24 THE SPECIAL MASTER: Where is -- Oh, here it  
25 higinson-direct-perry

1 is. Appendix B is a rather large exhibit, is it  
2 not -- Appendix, is it not?

3 THE WITNESS: Yes, it is. It has about  
4 120 little sketch maps.

5 THE SPECIAL MASTER: All right, thank you.  
6 Go ahead.

7 THE WITNESS: Tribes Exhibit 11 is a list  
8 giving the photo identification numbers and the  
9 exhibit numbers for those photos.

10 MR. PERRY: Okay. This is just a tool,  
11 Your Honor, for helping to identify which  
12 photos correspond to which exhibit numbers.

13 THE SPECIAL MASTER: All right.

14 Q (By Mr. Perry) And how were these -- were  
15 these photos numbered Exhibits 10 -- 1 through  
16 10-40 used by you as a tool in interpreting  
17 if lands were being irrigated currently?

18 A Yes, I used them in the office as an office  
19 study to review the apparent condition of the  
20 lands, whether there was any evidence of ditches,  
21 evidence of current irrigation on those lands,  
22 and I also used them in the field to help me  
23 further identify the tracts in the field and to  
24 make further notations concerning what I found

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1 on those field visits.

2 Q In addition to these photos in determining  
3 which lands were currently in irrigation and  
4 which were practicably irrigable, what published  
5 sources and materials did you rely on?

6 A I used reports published by several Federal  
7 Government agencies, particularly the Soil  
8 Conservation Service, the Bureau of Indian  
9 Affairs and the Bureau of Reclamation.

10 Q Okay. And how were these sources used in your  
11 analysis?

12 A Well, in connection with any tract of land that  
13 was not currently in irrigation, I reviewed the  
14 soils and land classification data from reports  
15 of these government agencies to determine if  
16 there had been any prior classification of those  
17 lands and soils as far as their irrigability,  
18 and I made notations on my worksheets and on  
19 the photo maps of the results of that investigation.

20 Q Okay. And are these sources the kinds of sources  
21 which you have relied on previously in your  
22 career in making similar determinations if lands  
23 are being irrigated or irrigable?

24 A Yes, they are the standard sort of thing I would  
25 higginson-direct-perry

1 use, sources from which I would get information  
2 concerning the character of land and its  
3 irrigability, yes.

4 Q Now, you mentioned that you did get out in the  
5 field to visit these tracts. How many days did  
6 you spend in the field?

7 A It was a total of seven or eight days in the  
8 field over a period of some three months.

9 Q And how many of these tracts did you -- of the  
10 120 tracts that you studied, did you personally  
11 visit?

12 A I personally visited all but four of the 120  
13 tracts.

14 Q In visiting these tracts and the Reservation  
15 generally, did you form a professional opinion  
16 on the nature of farming practices by Indians  
17 on the Reservation.

18 A Yes, I did.

19 Q And what was that opinion?

20 MR. MERRILL: Objection, foundation.

21 THE SPECIAL MASTER: That's awfully general.  
22 You got 120 tracts and he saw them all in a  
23 ten-day -- not a casual, but certainly a hurriedly  
24 visit to touch that many in seven days, and he's  
25 higinson-direct-perry

1 asking you to form a judgment on irrigating  
2 practices and I would think that is based on  
3 something more than that.

4 MR. PERRY: I'm not asking for a specific  
5 appraisal of each tract, in fact, I'm asking for  
6 a general impression of what his view of farming  
7 practices on the Reservation is.

8 MR. MERRILL: Your Honor, I'm wondering now  
9 if the question goes to farming practices on the  
10 Reservation or farming practices by Indian fee  
11 owners who are farming their own lands on the  
12 Reservation. There is quite a distinction  
13 involved, and there are still foundation objections  
14 such as how does he know who owned the particular  
15 tracts of land he was looking at and whether  
16 they were Indian.

17 THE SPECIAL MASTER: I appreciate that. I  
18 think it is a very, very generalized question,  
19 but we will permit it. I presume it applies to  
20 the fee land parcels, not to the general practice  
21 of the entire Tribes on the trust lands, too.

22 MR. PERRY: Well, what I'm asking, he did  
23 specifically focus on the fee lands tracts, and  
24 I'm wondering whether he has an opinion of

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1 how farming is done on those tracts in relation  
2 to his -- other things he has seen in his career  
3 elsewhere on the Reservation or in other places.

4 MR. MERRILL: Well, Your Honor --

5 THE SPECIAL MASTER: That asks for  
6 comparability, and I suppose that's permissible.  
7 Go ahead and answer it.

8 MR. MERRILL: May I object? He based that  
9 on three different things, what he has seen in  
10 his career, elsewhere on the Reservation, and  
11 maybe if we could focus on the Reservation, what  
12 these practices are as opposed to another set of  
13 practices, the question and answer would both  
14 have more meaning.

15 MR. PERRY: If you will, the comparison  
16 I would like to bring out is between the fee  
17 land owned by members of the Tribes and other  
18 lands on the Reservation.

19 THE SPECIAL MASTER: All right, go ahead  
20 and try to answer that.

21 THE WITNESS: Well, I was able to observe  
22 the practices on the fee lands and I found them  
23 to not be any different than the adjacent lands  
24 that were not owned in fee and were not those I

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1 was looking at. In other words, they appeared  
2 to be comparably managed and irrigated.

3 Q (By Mr. Perry) Thank you. Did you also meet  
4 with and interview certain Tribal members in  
5 connection with your work?

6 A Yes, I did.

7 Q And when was that?

8 A I attended a meeting that had been called by the  
9 Tribal attorneys at Fort Washakie on February 24th,  
10 at which time I spent time visiting with and  
11 interviewing a number of Tribal members, then I  
12 subsequently made individual contacts with  
13 several Tribal members in the field and by  
14 telephone.

15 Q And what kinds of information did you obtain from  
16 these --

17 THE SPECIAL MASTER: Mr. Perry, are these  
18 Tribal members who owned fee land or Tribal  
19 members who did not own fee land or some of both?

20 THE WITNESS: The Tribal members who owned  
21 fee lands.

22 Q (By Mr. Perry) And what was the sort of  
23 information that you derived from these interviews?

24 A I was interested in information concerning the  
25 higginson-direct-perry

1 description of their lands, the legal description  
2 of their lands, what crops they were growing on  
3 those lands, if the lands were currently irrigated,  
4 the amount of water they applied and information  
5 concerning yields and farming practice.

6 Q And how was all this information from the photos,  
7 from the published sources, from the field work  
8 and from the interviews and so forth, how was all  
9 this compiled by you to form an opinion as to  
10 whether the lands studied were in irrigation or  
11 practicably irrigable?

12 A For each tract of land that had been identified  
13 as individually Indian-owned fee land, I prepared  
14 a worksheet on which I then summarized the  
15 information gathered in the field from the soil  
16 and land classification studies from my personal  
17 inspection of the tracts of land, and from  
18 the interviews and discussions with the individual  
19 fee owners.

20 Q Okay. And are the results of that analysis  
21 summarized in Table 6?

22 A Yes. The results of that are Table 6 in my  
23 report.

24 Q Perhaps we could go to Table 6 and you could  
25 higinson-direct-perry

1 explain how that is set up.

2 A Table 6 is a lengthy tabulation summarizing the  
3 results of my investigation of each of the 120  
4 tracts in which the tract is identified by a  
5 number which I assigned to it. Numbers were put  
6 on there simply in alphabetical order by name  
7 of fee owner.

8 MR. PERRY: Excuse me just a minute, Mr.  
9 Higginson.

10 THE SPECIAL MASTER: Okay, Table 6 begins on  
11 the page after Page 15, does it not, that is  
12 unnumbered?

13 THE WITNESS: That's correct.

14 MR. PERRY: Right.

15 THE WITNESS: The tract owner's name is  
16 given, the section, township and range, and then  
17 there are four symbols, an "I" which indicates  
18 irrigated land, a "P" for practicably irrigable,  
19 "N" for non-irrigated, and then a "WR" symbolizing  
20 whether there was any state water right found,  
21 and then across the table under the headings of  
22 the quarter section of land within that particular  
23 section are the acreages that are determined from  
24 my inspection of the lands and aerial photos, total  
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1 given at the end of that tabulation, column  
 2 which says "Other uses" and where the symbols  
 3 "D" and "S" and "R" are used to symbolize that  
 4 there is domestic and stock water or recreational  
 5 use of water on that land, then the state water  
 6 right information is given in the final column  
 7 on the right-hand side.

8 MR. PERRY: Thank you.

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 25 higginson-direct-perry



1 Q (By Mr. Perry) Thank you. With respect to those  
2 state-awarded water rights of the total acreage  
3 which you studied, how many of those Indian-owned  
4 fee lands have state-adjudicated water rights?

5 A. How many tracts?

6 Q. How many acres?

7 A. There are 2,106.3 acres.

8 Q. Okay.

9 THE SPECIAL MASTER: How many acres were  
10 studied in total?

11 THE WITNESS: In total, I looked at 14,484  
12 acres.

13 Q. (By Mr. Perry) Mr. Higginson, what were your con-  
14 clusions with respect to how many acres of Indian-  
15 owned fee land were currently in irrigation?

16 A. Could I correct the number I just gave? I was  
17 looking at the uncorrected page.

18 THE SPECIAL MASTER: That's all right.

19 THE WITNESS: Total is 14,544 acres. The  
20 irrigated land currently irrigated is 6,431 acres;  
21 there are some 3,943 that appear to be practicably  
22 irrigable.

23 THE SPECIAL MASTER: May I have that figure  
24 again?

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1 THE WITNESS: 3,943. And the balance is non-  
2 irrigated.

3 Q (By Mr. Perry) Okay. Once you identified these  
4 irrigated and irrigable tracts, did you then go on  
5 to determine diversion requirements needed to serve  
6 those lands?

7 A. Yes, I did.

8 THE SPECIAL MASTER: Mr. Higginson, that total  
9 of the 6,431 irrigated and 3,943 that you felt were  
10 practicably irrigable, I get 10,374. Is that what  
11 you get?

12 THE WITNESS: Yes, that's correct.

13 THE SPECIAL MASTER: And the difference  
14 between that and the 14,544 is accountable in what?

15 THE WITNESS: Non--

16 THE SPECIAL MASTER: Type VIIs that have never  
17 been irrigated?

18 THE WITNESS: Right, nonirrigable.

19 THE SPECIAL MASTER: Nonirrigable. All right,  
20 thank you.

21 Q (By Mr. Perry) In making your determination of  
22 diversion requirements, how did you determine  
23 which crops are appropriate for use in your analysis?

24 A. I gathered information from a number of sources

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1 concerning the crops normally grown in the area,  
2 crop reports of the Bureau of Indian Affairs,  
3 information from Bureau of Reclamation concerning  
4 the reclamation project on the Reservation, and  
5 from work done by other consultants in this case.

6 Q. Okay. And using that information, did you develop  
7 cropping patterns for the Reservation?

8 A. Yes, I did.

9 Q. And what were they?

10 A. Cropping pattern is included in my report in Table  
11 III on Page 10.

12 Q. And why, Mr. Higginson, did you divide the Reserva-  
13 tion into an upper and a lower area for these pur-  
14 poses?

15 A. Well, there is a slight difference in the type of  
16 agriculture practice in the upper portion of the  
17 Big Wind River system and the lower area near the  
18 Riverton area and near Fort Washakie. There are  
19 some crops that are grown in the low area that  
20 are not grown in the upper area, and the ratio of  
21 the hay and pastureland is slightly different in  
22 the upper and lower area.

23 Q. Okay. Let's move now to the climate data you  
24 relied on. What were your sources of climate

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1 information?

2 A. I used information from the National Weather  
3 Service of the Department of Commerce, the pub-  
4 lished weather data there and also relied upon a  
5 report published by the State of Wyoming as part  
6 of its planning series, Planning Report No. 5, I  
7 believe.

8 Q. And these provided data with respect to what  
9 weather stations, where are those weather stations  
10 located?

11 A. Used information from weather stations at Dubois,  
12 Diversion Dam, Fort Washakie and Riverton.

13 Q. Okay. Taking this cropping information, cropping  
14 pattern you developed in this climate information  
15 from these sources you described, what formula did  
16 you use to determine consumptive use requirements?

17 A. Well, there are a number of formulas available,  
18 but I'm generally familiar with the, and have used  
19 extensively, the Blaney-Criddle formula, and I use  
20 the Blaney-Criddle formula for estimating irriqa-  
21 tion water requirements.

22 Q. And did you determine the consumptive irrigation  
23 requirement for each crop for the upper and the  
24 lower?

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1 A. Made a determination for both the upper and lower  
2 areas, and I weighted that requirement by crop use,  
3 a cropping pattern mix that I had determined, and  
4 came up with a weighted consumptive irrigation re-  
5 quirement for the upper area and lower area.

6 Q. And what were the results, what were the weighted  
7 irrigation requirements?

8 A. For the upper area, the weighted requirement is  
9 18.33 acre-inches per acre. For the lower area,  
10 it's 19.93 acre-inches per acre.

11 Q. Okay. Now, we have the consumptive irrigation  
12 requirements. To obtain diversion requirements,  
13 we need --

14 A. Need --

15 Q. -- need to look at the efficiencies?

16 A. Need to look at the efficiencies and examine avail-  
17 able published reports. I made observations of the  
18 area and from an examination of those reports, from  
19 my personal experience over the years, it was my  
20 opinion that the irrigation practices were about 35  
21 percent efficient in delivering the water from the  
22 streams to the land.

23 Q. Is that efficiency you're describing for gravity  
24 irrigation?

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- 1 A. That's for gravity irrigation.
- 2 Q. And what about for sprinkler?
- 3 A. For sprinkler it would not be a whole lot better  
4 than that because the current ditch and canal  
5 system would be used as the main conveyance to  
6 bring the water to the vicinity of the land, and  
7 the on-farm irrigation efficiency would be im-  
8 proved from the present practice, but the total  
9 efficiency would not be much above about 40 per-  
10 cent.
- 11 Q. Okay. And these efficiencies you're describing  
12 now are combined, total conveyance and on-farm?
- 13 A. On-farm and conveyance combined total efficiency.
- 14 Q. Okay. And using these efficiencies as the consump-  
15 tive irrigation requirements, which you discussed,  
16 would you then calculate the diversion requirements?
- 17 A. I did. You take the irrigation requirement and  
18 divide it by the efficiency and you get a diversion  
19 requirement.
- 20 Q. And what were your diversion requirements?
- 21 A. For the lower area, 4.75 acre-feet to the acre  
22 for gravity irrigation and 4.15 acre-feet per acre  
23 for sprinkler. And for the upper area, 4.36 acre-  
24 feet per acre for gravity and 3.82 acre-feet per  
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1 acre for sprinkler.

2 Q. Are your conclusions with respect to the annual  
3 diversion requirements for each tract which you  
4 studied reflected in a table in your report?

5 A. Yes. That's in Appendix C, which are the last  
6 three pages of the report, but they are in the  
7 corrected pages that are part of Exhibit 9.

8 Q. Fine. And how much water in total is needed to  
9 irrigate all of the fee lands owned by members of  
10 the Tribes or their direct descendants which you  
11 determined to be currently irrigated or practi-  
12 cally irrigable?

13 A. The total is shown in Appendix C, a total of  
14 46,724 acre-feet per year.

15 THE SPECIAL MASTER: What page do you give  
16 that?

17 THE WITNESS: It would be in the corrected  
18 pages, the separate exhibit, the very last page.

19 THE SPECIAL MASTER: Can I have just a minute,  
20 Mr. Perry?

21 Total, 46,724, did you say?

22 THE WITNESS: Yes, sir.

23 THE SPECIAL MASTER: And you break it down  
24 by --

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1 THE WITNESS: Individual tracts.

2 THE SPECIAL MASTER: And that's the first  
3 number. The first column on the left of that is  
4 the tract number?

5 THE WITNESS: Tract number. Diversion require-  
6 ment is next.

7 THE SPECIAL MASTER: And then the diversion  
8 requirement is next, and the third column?

9 THE WITNESS: That's currently irrigated land.

10 THE SPECIAL MASTER: Next column?

11 THE WITNESS: Practicably irrigable.

12 THE SPECIAL MASTER: Next column?

13 THE WITNESS: The total of those two.

14 THE SPECIAL MASTER: Next column?

15 THE WITNESS: And the water requirement for  
16 that tract.

17 THE SPECIAL MASTER: And the last column  
18 is source?

19 THE WITNESS: Most logical source from which  
20 the water might be obtained.

21 THE SPECIAL MASTER: All right, thank you.  
22 We've been at it an hour. Anybody want a break?

23 All right, let's take five minutes.

24 (Thereupon a five-minute recess  
25 (was taken.

END



1 THE SPECIAL MASTER: We will come to order,  
2 please. Will the record show the appearance  
3 of Mr. George Radosevich in these proceedings,  
4 Counsel from Lander, City of Lander and other  
5 defendants. All right.

6 Q (By Mr. Perry) Mr. Higginson, did your work for  
7 this case also include some work with respect to  
8 the availability of water to serve these fee  
9 lands?

10 A Yes, it did.

11 Q Okay. With respect to the Big Wind System,  
12 first of all, how many acres of fee land owned  
13 by members of the Tribes or the direct descendants  
14 did you find to be in irrigation?

15 A In the Big Wind System there are a total of 4,451  
16 acres currently in irrigation.

17 MR. MERRILL: Your Honor, I would object to  
18 the question and move to strike the answer.

19 THE SPECIAL MASTER: May I hear the question  
20 and answer, please?

21 (Whereupon, the Reporter  
22 (read back, "Q Okay. With  
23 (respect to the Big Wind  
24 (System, first of all, how  
25 (many acres of fee land  
(owned by members of the  
(Tribes or the direct  
(descendants did you find to  
(be in irrigation?)

1 (A In the Big Wind System  
2 (there are a total of 4,451  
3 (acres currently in  
4 (irrigation."

4 THE SPECIAL MASTER: That is permissible.  
5 Based on one of the streams is all.

6 MR. MERRILL: I'm wondering what the  
7 definition of the Big Wind System is. The word  
8 "system" really has me bothered because I don't  
9 know how many tributaries that includes of the  
10 Big Wind.

11 THE SPECIAL MASTER: Well, what acres did  
12 that include, did that include the --

13 THE WITNESS: Your Honor, this was -- these  
14 acres are irrigated directly from the Big Wind  
15 River or from its principal tributaries. It  
16 does not include what the HKM study determined  
17 were minor tributaries coming in from the north.

18 THE SPECIAL MASTER: It did not include the  
19 Popo Agie, the Little Wind, North Fork?

20 THE WITNESS: No.

21 THE SPECIAL MASTER: Did it include the five  
22 from the north, like the Crow Creek?

23 THE WITNESS: It did not.

24 THE SPECIAL MASTER: Big Pasup?

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1 THE WITNESS: Did not.

2 THE SPECIAL MASTER: Is that better? Is that  
3 okay?

4 MR. MERRILL: That helps, Your Honor. I  
5 still have an objection since we don't know  
6 exactly what boundaries.

7 THE SPECIAL MASTER: It's such a vague  
8 question and the answer really doesn't help us,  
9 but proceed with the question and see if you can  
10 clarify it.

11 Q (By Mr. Perry) Mr. Higginson, did you define  
12 Big Wind System the same as Mr. Billstein did in  
13 his systems operations?

14 THE SPECIAL MASTER: He would really have to  
15 know what Mr. Billstein testified before he can  
16 answer that, obviously. If you know the definition  
17 of the Big Wind System, you can ask him if that's  
18 what he had.

19 MR. PERRY: Well, I can't describe what the  
20 Big Wind System is.

21 THE SPECIAL MASTER: You should be able to,  
22 but forgive me for making that observation at  
23 this stage in the lawsuit.

24 Do you want to pull the exhibit so we can have  
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1 a look at it or do you want to take a minute to  
2 get the exhibit you are talking about, or do you  
3 have a better way of proceeding?

4 MR. PERRY: Your Honor, maybe we can go about  
5 this in a different way.

6 Q (By Mr. Perry) Mr. Higginson, let's refer to your  
7 Appendix C to your report. Could you describe  
8 with reference to your Appendix C, and in  
9 particular what you list as the most convenient  
10 source, what you categorized as the Big Wind  
11 System?

12 A The Big Wind System would be all of those tracts  
13 that I have identified as the most logical source:  
14 The Big Wind River and certain tributaries of the  
15 Big Wind River, and those tributaries would be --  
16 would include Willow Creek, Muddy Creek, Dry  
17 Creek, Red Creek, and I believe that's it.

18 MR. MERRILL: Your Honor, I'm still a little  
19 unclear. I hate to keep making a point of this,  
20 but I think it's a fairly important point. Are  
21 we talking about lands that are located within  
22 the drainages of these systems, or are we talking  
23 about lands that are served out of these systems?  
24 That's my first question.

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1           The second is where are the boundaries --  
2           where does the Big Wind River System stop and  
3           some other side creek drainage system start?

4           THE SPECIAL MASTER: I would sustain that  
5           observation as an objection to this line of  
6           questioning because I, too, am confused, and the  
7           answer would not mean anything. If they are not  
8           meaningful, they have no probative value and  
9           aren't serving any good purpose. Do you want to  
10          take a minute and get any one of the last three  
11          or four large maps as an exhibit and put it on the  
12          tripod so the Witness can refer specifically to  
13          whether this acreage was included or whether it  
14          was not included?

15          MR. PERRY: If it would be helpful, Your  
16          Honor. I'm not sure what the source of confusion  
17          is. We are talking about what the source is to  
18          serve particular tracts which are located by  
19          Mr. Higginson's study. Maybe I should -- maybe  
20          I should not have used the word "system." Maybe  
21          that is what is throwing everybody off. But I'm  
22          not --

23          THE SPECIAL MASTER: Well, do you want the  
24          Witness to give the total in acres that are  
25          higginson-direct-perry

1 served from the mainstem of the Big Wind River.

2 MR. PERRY: And the tributaries that he  
3 just listed.

4 THE SPECIAL MASTER: And that's the figure  
5 he gave you, I believe.

6 THE WITNESS: Yes.

7 MR. PERRY: That's right.

8 THE SPECIAL MASTER: All right. Now, what  
9 is your next question?

10 Q (By Mr. Perry) Okay. With respect to these  
11 lands which you have just described as being  
12 served out of the Big Wind and these listed  
13 tributaries, did you supply certain information  
14 to Mr. Bleisner, another Tribal expert, for his  
15 use in analyzing water availability?

16 A Yes, I did.

17 Q And what information did you provide to Mr.  
18 Bleisner?

19 A I provided information concerning my determination  
20 of the currently irrigated land in these tracts,  
21 the practicably irrigable land in the tracts,  
22 my calculation of diversion requirement of  
23 consumptive irrigation requirement, an estimate  
24 of the percent of the return flow, and consulted

25 higinson-direct-perry

1 with him concerning the location from which the  
2 water could be diverted to the land and where  
3 you might reasonably expect the return flow to  
4 return to the system.

5 Q Okay. You have already described for us how you  
6 determined where these irrigated or irrigable  
7 lands are located, and the acreage figures and  
8 the diversion requirements, that has been the  
9 subject of your testimony already. How did you  
10 determine the monthly consumptive irrigation  
11 requirements which you provided to Mr. Bleisner?

12 A I again made a calculation using the same source  
13 data from which I had determined the annual  
14 requirements, broke it down by crop, by month,  
15 weighted it again according to the cropping  
16 pattern for the upper and the lower area and came  
17 up with a weighted consumptive irrigation  
18 requirement on a monthly basis for each of the  
19 areas.

20 Q Okay. Could you give us those figures, your  
21 results with respect to the monthly consumptive  
22 irrigation requirements for the upper and lower  
23 areas?

24 A Yes. For the upper area, April, two-tenths of  
25 higinson-direct-perry

1 an acre inch per acre; May, 1.95; June, 4.06;  
2 July, 5.5; August, 4.14; September, 1.94; and  
3 October, 0.55.

4 MR. MERRILL: Your Honor, I would move to  
5 strike the answer, including the figures the  
6 Witness just gave on the grounds there has been  
7 no foundation at all for how those numbers were  
8 developed thus far.

9 THE SPECIAL MASTER: Oh, I will let them in  
10 the record.

11 Q (By Mr. Perry) Mr. Higginson, what was the  
12 source of your calculation for determining those  
13 monthly figures?

14 A I thought I indicated I used the same source  
15 data I used for the annual figures that are in  
16 the report. I used the State of Wyoming's planning  
17 report No. 5, I used the Blaney-Criddle formula,  
18 I used the same information I had used to develop  
19 the other annual figures, and broke it down on  
20 a monthly basis.

21 Q Could you get for us now your figures with respect  
22 to the lower area?

23 A To the lower area, April, 0.38; May, 2.14;  
24 June, 4.48; July, 5.93; August, 4.38; September, 2.06;  
25 higginson-direct-perry



1 and October, 0.57.

2 Q Okay. And with respect to return flows, you  
3 said you gave an estimation to Mr. Bleisner of  
4 how to calculate return flows for these lands.  
5 What would that be?

6 A Its been my experience that you can't simply  
7 take the difference between the diversion  
8 requirement and the consumptive irrigation  
9 requirement and assume that all of that water  
10 returns to the river system. Based upon my  
11 observation of the area and some prior measure-  
12 ments that I have made over the years of return  
13 flow, I assumed that about 25 percent of the  
14 difference between diversion and consumptive use  
15 would not return to the system, it would be non-  
16 recoverable water.

17 Q Okay. And is this a professionally -- one of the  
18 professionally recognized methods for calculating  
19 return flows?

20 A It's a rule of the thumb that I would use and  
21 have used in similar situations elsewhere.

22 THE SPECIAL MASTER: How much of the non-  
23 recoverable do you think has been lost by  
24 evaporation, how much of it returns to deeper

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1 aquifers or --

2 THE WITNESS: I think in this area, Your  
3 Honor, most of it is evaporated or consumed  
4 by vegetation, wet areas, cat tails.

5 Q (By Mr. Perry) Okay. If we could move now to  
6 the Little Wind. Again, with reference to  
7 Appendix C, could you describe for us which  
8 lands, and with respect to the most logical  
9 source column?

10 A All of those that are identified in there as  
11 either the Little Wind River or tributaries of  
12 the Little Wind River, I'm trying to -- I don't  
13 see -- no, there would be Sage Creek Tributary  
14 which would also be a Little Wind Tributary,  
15 but all of those acres were determined to be  
16 irrigable from the Little Wind River System, and  
17 I made calculations there of the depletion that  
18 would result from the irrigation of those lands.

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higginson-direct-perry

- 1 Q (By Mr. Perry) Okay. And how many lands are we  
2 talking about, how many acres are we talking about?
- 3 A. In the Little Wind system the total is 1,583 acres  
4 of irrigated and irrigable lands.
- 5 Q. How many of those are actually in irrigation there  
6 in the Little Wind?
- 7 A. 1312 acres.
- 8 Q. Okay. And the remainder is?
- 9 A. 271 of irrigable lands.
- 10 Q. Okay. And how did you determine the depletions for  
11 serving the Little Wind?
- 12 A. Again, I used the consumptive irrigation requirement  
13 for the lower area. I then determined that differ-  
14 ence between that requirement on a monthly basis  
15 and the diversion requirement, and applied my 25  
16 percent reduction for return flows and came up with  
17 the depletion on a monthly average basis in cubic  
18 feet per second.
- 19 Q. Okay. And what were those monthly average deple-  
20 tions for the Little Wind?
- 21 A. For April, 1.22 cubic feet per second; in May, 6.69;  
22 in June, 14.47; July, 18.54; August, 13.70; Septem-  
23 ber, 6.66; and October, 1.78.
- 24 Q. Okay. And using these depletions, did you make any  
25 higginson - direct - perry

1 assessment of water availability to serve --

2 THE SPECIAL MASTER: Let me interrupt you,  
3 please, before I get more confused than I am. On  
4 the earlier set you asked for the monthly consump-  
5 tive requirements in the two areas, the upper and  
6 the lower. Now, you're asking questions about the  
7 depletions --

8 MR. PERRY: That's correct, Your Honor.

9 THE SPECIAL MASTER: -- on the Little Wind.  
10 Is there a relation to these two or what is the  
11 rationale?

12 MR. PERRY: With respect to the Little Wind,  
13 the depletions will be done by Mr. Bliesner, and  
14 he was providing only certain input. With respect  
15 to the input, he did the depletions.

16 Q. (By Mr. Perry) Okay. Mr. Higginson, did you then  
17 go to make an assessment of water availability to  
18 serve these lands on the Little Wind?

19 A. I reviewed the study done by HKM Associates, their  
20 depletion study of the effects upon the stream  
21 flow of the irrigation of trust lands, and com-  
22 pared my numbers to the data obtained in those  
23 computer printouts, particularly at control point  
24 or Node No. 29, which is at the mouth of the Little

25 higginson - direct - perry

1 Wind River system.

2 Q. Okay. And what were the results of your comparison?

3 A. It appeared that there was an adequate water supply  
4 on the average and most years to provide for the  
5 irrigation of these additional fee-owned lands.

6 MR. MERRILL: Your Honor, I would object to  
7 the question and move to strike the answer on two  
8 separate grounds. First, there is no foundation  
9 for what he actually did. He said he looked at a  
10 computer printout and it appears in most years  
11 there was enough water. It would be helpful to  
12 know for what years, what exact kinds of calcula-  
13 tions and analyses were performed to determine  
14 whether water is available, how many years out of  
15 ten, or some more meaningful information other than  
16 saying most of the time we can get some water to  
17 these lands.

18 MR. PERRY: I think those are acceptable  
19 questions.

20 THE SPECIAL MASTER: Normally, I would sus-  
21 tain, but on this I'm going to overrule because I  
22 believe it is a sufficient corolary or substantial  
23 supplemental statement to the HKM matters already  
24 in evidence. Go ahead.

25 higinson - direct - perry

1 Q. (By Mr. Perry) Okay. Have you -- Would you again  
2 repeat what --

3 THE SPECIAL MASTER: Please don't repeat  
4 anything. Why don't you go on with the next  
5 thing; what's in the record is in the record.  
6 He said he found there is adequate water supply.

7 Q. (By Mr. Perry) Did you make any assessment of  
8 water availability to serve fee lands to be listed  
9 to be served out of the Owl Creek?

10 A. With regard to Owl Creek, I reviewed the testimony  
11 of Mr. Billstein earlier in this case and compared  
12 that with the requirements to serve the two tracts  
13 of land that are held in fee, Tract Nos. 99 and 100,  
14 and determined that the total of 477 acres could be  
15 irrigated and would deplete the system in the peak  
16 use month of July by something like 4 second feet  
17 additional beyond what Mr. Billstein testified to.

18 Q. And how would you characterize the effect of addi-  
19 tional depletion of 4 c.f.s.?

20 A. Well, the additional depletion of 4 second feet  
21 in that system would be, have an effect of slightly  
22 increasing the shortages that would otherwise be  
23 experienced that he testified to. But again, I  
24 agree with his testimony that those shortages are

25 higginson - direct - perry

1 manageable.

2 MR. PERRY: Okay. Your Honor, at this time  
3 we would like to offer into evidence Tribes'  
4 Exhibit No. 8, which is Mr. Higginson's report;  
5 Exhibit No. 9, which are certain amended pages to  
6 that report; Exhibits 10-1 through 10-40, which  
7 are the aerial photographs; and Exhibit 11, which  
8 is a list of those photographs by exhibit number  
9 correlating with photograph number.

10 THE SPECIAL MASTER: Give me a better defini-  
11 tion or a better description, will you, of those  
12 hydrographs once more. Are there comparable  
13 numbers of what they are in evidence?

14 MR. PERRY: If we could show you one, Your  
15 Honor.

16 THE SPECIAL MASTER: Are they marked by a  
17 prior exhibit number?

18 For example, 10-1 you find is H-5264, and  
19 that will go by the photo number on them, all  
20 right, just as you have done.

21 All right, thank you. If a man were to chase  
22 down from the -- if a person were to attempt to find  
23 from the tract number the photo on which that tract  
24 appears, how would you proceed, Mr. Higginson?

25 higginson - direct - perry

1 THE WITNESS: Your Honor, he would go to the  
2 Appendix B, which has the sketch overlays, and at  
3 the bottom of that there is an overlay photo num-  
4 ber identification.

5 THE SPECIAL MASTER: And he takes that number --

6 THE WITNESS: And you go to the photo.

7 THE SPECIAL MASTER: For example, if I were  
8 looking at the 6-acre tract that I would want to  
9 find, Tract No. 64, I would go to 279-223?

10 THE WITNESS: Yes.

11 THE SPECIAL MASTER: 2-7-223, all right,  
12 thank you.

13 As long as we have a way to work.

14 Do you wish to voir dire these, United States?

15 MR. CLEAR: No, Your Honor.

16 THE SPECIAL MASTER: Do you wish to voir dire,  
17 Mr. Radosevich?

18 MR. RADOSEVICH: No, Your Honor.

19 THE SPECIAL MASTER: The State of Wyoming?

20 MR. MERRILL: No, Your Honor. I'll reserve  
21 my voir dire as I have done in the past until my  
22 cross-examination and make Motions to Strike at  
23 that time.

24 THE SPECIAL MASTER: All right, very fine.  
25 I'll hold up on these until we are through with



1 cross-examination.

2 MR. PERRY: I have no further questions,  
3 Your Honor.

4 THE SPECIAL MASTER: All right, thank you  
5 very much.

6 United States?

7 MR. CLEAR: No cross-examination, Your Honor.

8 THE SPECIAL MASTER: Other defendants?

9 MR. RADOSEVICH: Yes, Your Honor, I have a  
10 few questions. First of all, I have to apologize  
11 for missing the first part of Mr. Higginson's  
12 testimony.

13 CROSS-EXAMINATION

14 BY MR. RADOSEVICH:

15 Q. Mr. Higginson, I note in Tribes' Exhibit No. 9  
16 and from the testimony, you described present land  
17 uses including that that's irrigable and that that  
18 is practicably irrigable. How does your definition  
19 of practicably irrigable -- What is your definition  
20 of practicably irrigable?

21 A. Well, I gave it earlier. Practicably irrigable  
22 lands are those lands that are of a soil character  
23 or type, quality, texture, slopes or such and are  
24 in reasonable proximity to a water supply so that

25 higinson - cross - radosevich

1 with the usual amount of effort you could bring  
2 water to the land and it could grow agricultural  
3 crops.

4 Q Is it based upon crops that you normally find in  
5 an agricultural -- In other words, it's just not  
6 the growth of vegetation, it's the growth of --

7 A. The growth of agricultural crops to the area.

8 Q. In that definition is there any inclusion of the  
9 economic liability of the use of that land for that  
10 crop?

11 A. That's a consideration, yes.

12 Q. Was this included then in your consideration of  
13 determining the practicably irrigable acreage?

14 A. I did not make an economic calculation for these  
15 lands for reasons that I previously gave.

16 Q. All right. Your study then is based upon an obser-  
17 vation of the water supply and the soil texture for  
18 plant growth?

19 A. Soil determination based upon published reports of  
20 government agencies.

21 Q. In your determination of this, did you go over these  
22 tracts of land, did you make a physical observation  
23 of the lands?

24 A. Yes, I did in most cases.

25 higginson - cross - radosevich

1 Q And in what season did you or what time of year did  
2 you go over there on the land?

3 A. I was there earlier in the year, but I was also  
4 back there the first couple of days of the month  
5 of May.

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- 1 Q. (By Mr. Radosevich) Early in the year, you mean by --
- 2 A. February and early March.
- 3 Q. All right. And during the month of May had the crops
- 4 already been planted?
- 5 A. Some crops are perennial crops, other annual had not
- 6 been planted in all cases.
- 7 Q. Was there any observation at all made during the
- 8 cropping -- during the growing season, say, in August
- 9 around harvest time of the soils?
- 10 A. Well, obviously not August since we haven't had
- 11 August yet since I got on the study.
- 12 Q. I guess this should be a question. What year did
- 13 you make this observation?
- 14 A. Early spring this year.
- 15 Q. You didn't observe the crops last year, then?
- 16 A. No.
- 17 Q. Did you use photos in determining the crop water
- 18 requirements?
- 19 A. Yes, I did.
- 20 Q. And what types of photos were used?
- 21 A. The hydrographic surveys of photos I obtained from
- 22 HKM Associates.
- 23 Q. Were these colored, black and white or --
- 24 A. Black and white.
- 25 higginson - cross - radosevich

1 Q. Were any color photos used at all?

2 A. No.

3 Q. No color photos were used in determining either the  
4 plant growth or determining the run-off characteristics?

5 A. No.

6 Q. These tracts of land, and according to this heading  
7 on appendix c, states that it's a water supply for  
8 Indian owned fee lands. Your study only included  
9 Indian fee lands?

10 A. That's correct.

11 Q. In your calculation for the irrigation efficiency  
12 and depletion allowances of water supply, all of  
13 this was only done on Indian fee land?

14 A. Well, a calculation would be usable for any of the  
15 lands in the area, but I applied it only to the  
16 fee lands that I was studying.

17 Q. All right. On the observations you made and the  
18 studies that you made, were there ever situations  
19 in which there was water supply serving Indian fee  
20 land and non-Indian fee land?

21 A. Yes, that's -- there were several situations like  
22 that.

23 Q. Did you make any distinction between the crop water  
24 requirements on Indian fee land versus non-Indian

25 higginson - cross - radosevich

1 fee land?

2 A. No, I did not.

3 Q. To your knowledge is there any difference in the  
4 water use requirements for Indian fee land and non-  
5 Indian fee land?

6 A. I don't see any basis for any difference.

7 Q. Are the lands treated the same?

8 A. They appear to have the same quality of appearance  
9 and quality of agriculture, yes.

10 Q. I see, okay. As far as the lands are treated in  
11 dispersing water, is there any difference to your  
12 knowledge between the use of water on Indian lands  
13 and non-Indian lands?

14 A. Well, I'm not familiar with the distribution prac-  
15 tices, whether there's any distinction made as to  
16 whether the land is owned in fee or not owned in  
17 fee in someone's delivery of water to the land,  
18 but I see no basis for any difference between fee  
19 and nonfee lands as far as one acre versus another  
20 acre.

21 Q. Okay. And the practices appear to be the same on  
22 adjoining lands?

23 A. I could see no basic difference.

24 Q. All right. You testified on return flow methods used  
25 higinson - cross - radosevich

1 to estimate, you mentioned that you made an obser-  
2 vation of the area and you came up with apparently  
3 25 percent of the return flow that is nonrecoverable.  
4 Is that --

5 A. 25 percent of the difference between the diversion  
6 and the consumptive use of the crops would be non-  
7 recoverable as return flow.

8 Q. So then 75 percent is recoverable to downstream  
9 users then, is that correct?

10 A. Comes back into the system at some point downstream  
11 from the point where it's diverted.

12 Q. Was this included in the water supply in the lower  
13 portion and other acres downstream?

14 A. I'm not sure I understand the question.

15 Q. Well, you have the upper and lower portion of the  
16 Wind, and you've got presumably, because I haven't  
17 had a chance to observe the map you were looking at,  
18 but presumably there were lands located below where  
19 return flow would possibly have been included in the  
20 water supply. Was the return flow included in your  
21 water supply availability study or were you using  
22 virgin flows?

23 A. The water supply availability study in the Big Wind,  
24 I supplied information to Mr. Bliesner and I understand  
25 higginson - cross - radosevich

1 he's going to be a subject witness in this case.  
2 I made no particular determination myself of deple-  
3 tions in the water supply availability study. That  
4 information was all supplied to him, and I consulted  
5 with him concerning my numbers, and I presume he will  
6 testify concerning return flows and so forth on the  
7 Big Wind.

8 Q. None of the land you testified to is located far  
9 enough upstream to where return flow from that land  
10 would be a source of water supply to a downstream  
11 user?

12 A. Oh, yes, definitely there were lands in the Upper  
13 Big Wind system where the return flows would be  
14 back in the system, but I didn't make any determination  
15 or study or calculation of that.

16 Q. I see. Okay. Did you in your observations of these  
17 lands, did you observe the drainage, the phreato-  
18 phytes, the method in which return flows return back  
19 to the stream if it's surface return flow?

20 A. Yes, I do.

21 Q. In determining these tracts of land that you have  
22 identified here, how did you go about identifying  
23 the tracts?

24 A. They were identified by the legal description provided  
25 higginson - cross - radosevich



1 to me by Elsie Kolstad.

2 Q. And were photographs used in terms of making the  
3 map, I believe which is a portion of appendix 8?

4 A. Yeah. The map that is a part of appendix b, the  
5 sketch maps that you are referring to, were taken  
6 as overlays from the aerial photos on which I had  
7 previously platted the legal descriptions that Mrs.  
8 Kolstad had provided me with, and those photos had  
9 a land net, section, township, range net already  
10 on them placed on them by HKM Associates as part  
11 of their hydrographic survey.

12 MR. RADOSEVICH: I see. Your Honor, I have  
13 no further questions.

14 THE SPECIAL MASTER: Thank you, Mr. Radosevich.  
15 Mr. Merrill.

16 While Mr. Merrill is going to the podium, Mr.  
17 Higginson, I'm going to ask a question or two.

18 Do you feel in your work there was a margin for  
19 error that should be recognized by the Court in doing  
20 the planimentering from the overlays to the actual  
21 acreage in an area of total of this size?

22 THE WITNESS: I think there's always some room  
23 for error when you're taking information, but I think  
24 within the realms of reasonable engineering practice,

25 higginson - cross - radosevich

1 the error that might be there is not going to be an  
2 unreasonable error.

3 THE SPECIAL MASTER: I was hoping there might  
4 be something in the record for some basis of taking  
5 a little four or five percent deduct, but I don't  
6 see it yet. There might be some basis for it.

7 The legal description didn't give acreage totals  
8 also, did it?

9 THE WITNESS: Yes, it did.

10 THE SPECIAL MASTER: Did the legal description  
11 acreage totals compare with your planimetered acreage  
12 totals?

13 THE WITNESS: Yes.

14 THE SPECIAL MASTER: Was there a difference?

15 THE WITNESS: No, we came out with basically the  
16 same. In areas where I had done planimetry and I  
17 came up with any kind of a measurable difference,  
18 I would go back and redo it and look at other infor-  
19 mation, other plans, the photo -- soil photo maps and  
20 so forth to determine where the problems were and make  
21 sure it was corrected.

22 THE SPECIAL MASTER: Okay, thank you very much.  
23 Go ahead, Mr. Merrill.

24 MR. MERRILL: Thank you, Your Honor.

25

CROSS-EXAMINATION

8-8

1 BY MR. MERRILL:

2 Q Mr. Higginson, in your study of the 120 Indian owned  
3 fee tracts of land, did you make any confirmation  
4 as part of your own work that these 120 tracts are  
5 actually Indian owned tracts in fee simple status?

6 A. No, I didn't.

7 Q. Did you examine the records of the Bureau of Indian  
8 Affairs title plan in Billings with respect to  
9 questions of ownership on any of these lands?

10 A. No.

11 Q. Did you investigate during your study whether at  
12 any time any of these 120 tracts were owned in fee  
13 simple by anyone other than the United States govern-  
14 ment or the Indian tribes or an individual Indian?

15 A. No.

16 Q. As part of your study did you investigate whether any  
17 of the areas that you determined are currently irri-  
18 gated are being irrigated by the Indian fee owner as  
19 opposed to a lessee?

20 A. No, I didn't make that distinction.

21 Q. So you didn't investigate who was irrigating the  
22 land, just whether it was irrigated?

23 A. That's correct.

24 Q. Did you make any investigation as to whether any of  
25 higginson - cross - merrill

1 these 120 tracts are leased or under lease status?

2 A. No.

3 Q. On page 1 of your report, Exhibit 8, I notice that  
4 in the first paragraph the report says that it's  
5 purpose is to investigate irrigability and water  
6 requirements for lands owned in fee by individual  
7 members of the Shoshone and Arapahoe tribes or their  
8 direct descendants. Did you investigate the irriga-  
9 bility and water requirements of any lands owned by  
10 the Tribes as a whole?

11 THE SPECIAL MASTER: Can I hear that question  
12 again, please?

13 (Whereupon, the reporter read  
14 (back, "Q. On page 1 of your report,  
15 (Exhibit 8, I notice that in the  
16 (first paragraph the report says  
17 (that it's purpose is to investigate  
18 (irrigability and water requirements  
19 (for lands owned in fee by individual  
20 (members of the Shoshone and Arapahoe  
21 (tribes or their direct descendants.  
22 (Did you investigate the irrigability  
23 (and water requirements of any lands  
24 (owned by the Tribes as a whole?"

25 THE WITNESS: No, to my knowledge. The list  
of the fee owners was provided to me, and I assume  
that the list is an accurate list, and therefore,  
I relied upon it. If there are inaccuracies in that  
list and there are some lands that are owned by the  
higginson - cross - merrill

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Tribe, I'm not aware of that.

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1 Q (By Mr. Merrill) Okay. Mr. Higginson, when  
2 were the aerial photos supplied to you by Mr.  
3 Billstein actually taken, if you know?

4 A You can read the dates on most of the photos  
5 and generally they were taken in 1979 and 1980  
6 during, I think generally in July.

7 Q Would you please explain to the Court how using  
8 a black and white aerial photograph you can  
9 determine whether lands are currently irrigated  
10 at the time that the photograph was taken.

11 A Well, the coloration of that black and white  
12 photo is an indication of that, but I wouldn't  
13 rely entirely upon the interpretation of the  
14 photo, although I have used aerial photos for  
15 20 some years in land surveys and adjudications,  
16 water rights studies. You can get an indication  
17 from that, from the location of irrigation  
18 canals and ditches which are fairly apparent on  
19 the photos, and then with the photo in the field  
20 you can examine the land up close and confirm the  
21 determination that you may have made in the  
22 office.

23 Q Are there any of the 120 tracts which you studied  
24 which you do not have aerial photo coverage of?

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1 A Yes, there are.

2 Q What tracts are those?

3 A I'd have to refer to my notes and basically the  
4 worksheets that I used is the basis for the  
5 determination.

6 Q You're welcome to take a minute and find those  
7 if you like.

8 (Brief pause.)

9 A Tract No. 4, Tract No. 7, Tract No. 29, Tract  
10 No. 47, Tract No. 103, Tract No. 107.

11 THE SPECIAL MASTER: Is that a sufficient  
12 answer without continuing the search?

13 MR. MERRILL: I think he's about through  
14 the list, Your Honor. It would be helpful to  
15 have a complete list.

16 THE SPECIAL MASTER: All right.

17 THE WITNESS: That's it.

18 Q (By Mr. Merrill) Thank you very much, I appreciate  
19 your going through those.

20 THE SPECIAL MASTER: And I appreciate your  
21 not asking for copies. I guess that's my own --  
22 Off the record.

23 (Off-the-record discussion.)

24 THE SPECIAL MASTER: Okay, back on the record,  
25 higinson-cross-merrill

1 please.

2 Q (By Mr. Merrill) I just noticed, Mr. Higginson,  
3 I've been calling these tracts 120 and there  
4 are 125 of them.

5 A No, there are 120. You'll notice there are five  
6 numbers missing.

7 Q Oh. What happened to those five?

8 A They were deleted in the latter end of the study  
9 after I placed my final numbering, and I didn't  
10 go back and try and renumber and have three sets  
11 of numbers on the tracts; two is confusing enough.

12 Q I don't blame you.

13 Okay. I believe you mentioned during your  
14 direct testimony that there were several of  
15 these fields that you were not able to personally  
16 visit; is that correct?

17 A That's correct.

18 Q Would you please tell the Court which fields you  
19 were not able to visit?

20 A I did not visit Tracts No. 4, 85, 89 and 120.

21 Q Thank you. I notice with respect to Tract 4  
22 that you neither had aerial photograph coverage  
23 nor were you able to make a field visit.

24 Would you please tell the Master how you made

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1 your determination that Tract 4 contains 41  
2 acres of practicably irrigable land?

3 A I had other information with regard to that  
4 tract that indicated that it was irrigable.

5 Q What information was that?

6 A There is a certificate issued by the State of  
7 Wyoming and an adjudicated right. Certificate  
8 No. 59/346.

9 Q What does the existence of that certificate tell  
10 you about the irrigability of Tract No. 4?

11 MR. CLEAR: Objection, Your Honor, we've  
12 been --

13 THE SPECIAL MASTER: I'm going to overrule  
14 that objection.

15 THE WITNESS: Tells me that at least at  
16 some point in time water was applied to the  
17 land, crops were grown and the State of Wyoming  
18 recognized that use and issued a Certificate of  
19 Water Right.

20 MR. CLEAR: I withdraw the objection.

21 MR. MERRILL: I don't blame him, Your Honor.

22 Q (By Mr. Merrill) According to your definition  
23 of practicably irrigable acreage, is it sufficient  
24 that land at one time had water applied to it and

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1 was used to grow crops?

2 THE SPECIAL MASTER: Now, can I hear that  
3 question again?

4 (Thereupon the following  
5 (question was read back as  
6 (follows: "Q According  
7 (to your definition of  
8 (practicably irrigable  
9 (acreage, is it sufficient  
10 (that land at one time had  
11 (water applied to it and  
12 (was used to grow crops?"

13 MR. MERRILL: I should say sufficient to  
14 qualify that land as irrigable acreage, Your  
15 Honor.

16 THE WITNESS: Are you asking that specifically  
17 with regard to Tract 4 or as a general matter?

18 Q (By Mr. Merrill) Let's start with Tract 4.

19 A I assumed the certificate was the best evidence  
20 I could get as to the irrigability of that land  
21 and its practicability to be irrigated.

22 Q Did you make any determination concerning whether  
23 Tract 4 is currently irrigated?

24 A No, I did not.

25 Q Isn't it true that according to Appendix C of  
your report there are no acres of irrigated --  
currently irrigated land in Tract 4?

A I could not report that the land was irrigated

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1 because it's a tract I did not visit and did not  
2 observe and therefore I observed the tract was  
3 practicably irrigable rather than irrigated.  
4 It may in fact be irrigated.

5 Q In general, do you regard the existence of a  
6 valid State Certificate of Appropriation covering  
7 a tract of land to be proof of its irrigability?

8 MR. CLEAR: Objection, Your Honor.

9 THE SPECIAL MASTER: I was going to object  
10 myself, but I was going to say that I think that  
11 carries the matter far beyond his explicit and  
12 accurate and limited definition of what he  
13 interprets the value of an existing adjudicated  
14 water right. And I think you're getting into an  
15 argumentative position with him because he didn't --  
16 he didn't bite the first time you waved that  
17 bait across, I don't think you ought to be waving  
18 that bait across him too many times, so I'm  
19 going to sustain it.

20 MR. MERRILL: Your Honor, I'm not trying to  
21 bait the witness. I'm interested in -- As you  
22 know, this is a major controversy concerning --

23 THE SPECIAL MASTER: And we've been on this --

24 MR. CLEAR: Your Honor, he's arguing after

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1 the ruling's been made.

2 MR. MERRILL: NO, I'm not, Your Honor. I'm  
3 wondering, this is another resource engineer  
4 whose been qualified as such who made an  
5 investigation of lands, and I'm wondering if it  
6 is his findings and his professional opinions  
7 as a result of his work, line up with the rulings  
8 that the Master has made. If not, I believe the  
9 Court would be interested in hearing it.

10 THE SPECIAL MASTER: The Master's ruling --  
11 Our ruling on it has simply been that the  
12 existence of it is a prima facie case; it can be  
13 rebuttable. And if you got some evidence that  
14 one of your good people got on that Tract 4 and  
15 it's a mess, hasn't been looked at for 30 years  
16 and ought not be considered practicably irrigable  
17 land, I'll listen to that. And the fact that its  
18 got an adjudicated water right doesn't bind me  
19 to say its got to be given some water, but until  
20 that kind of evidence has been presented, I think  
21 the prima facie fact that it was granted a permit  
22 at one time or another makes a fairly strong case  
23 that I have to listen to some type of water for  
24 that land even though it may have been removed from  
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that which is irrigated to that which is non-irrigated. So I don't think he's off track, I think professionally he was right on with what we've done with this matter, and I think that the facts regarding each tract is going to determine whether they get any reserved water or not.

MR. MERRILL: Your Honor, I'm not trying to argue the motion after the fact, and as you're aware I didn't know the answer that the witness was going to give since I was obviously surprised by the answer. But he has been qualified in this area and I wanted to see what his professional opinions were for the benefit of the Court more than anything else.

THE SPECIAL MASTER: I appreciate that.

\* \* \* \* \*

1 Q (By Mr. Merrill) Mr. Higginson, you testified  
2 in your direct examination that you were in the  
3 field a total of seven or eight days in 1981,  
4 is that correct?

5 A Yes.

6 Q And only a couple of days in early May?

7 A Three days.

8 Q Three days? How much actual irrigation was going  
9 on in early May when you visited these lands?

10 A Oh, there was a small amount of it. Some of the  
11 minor tributary ditches had water running in  
12 them. For the most part the main canals were not  
13 full.

14 Q You say now that the minor tributary ditches  
15 were charged with water? Was water actually being  
16 applied to the fields?

17 A Yes.

18 Q How many cases did you observe of actual irrigation  
19 in early May?

20 A Oh, I don't have an exact number, but half a dozen  
21 to ten, something of that nature.

22 Q And during this total of seven or eight days, you  
23 investigated between ten and 14 thousand acres  
24 of land, is that correct?

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1 A That's correct.

2 Q Approximately what percentage of that land would  
3 you say that you actually physically investigated  
4 and got a good look at?

5 A Got a good look at?

6 Q Yes.

7 A Say 90 to 100 percent of it.

8 Q Is that of the 10,000 acres that you classified  
9 as irrigated or irrigable or of the 14,000 that  
10 you studied?

11 A Of the 14,000.

12 Q How did you get around on the Reservation when  
13 you were doing your field work?

14 A By automobile.

15 Q Did you ever use a helicopter to investigate  
16 any of these lands?

17 A No.

18 Q You stated also in your direct examination that  
19 you relied on some interviews, is that correct?

20 A Yes.

21 Q How many interviews did you make?

22 A I believe I spoke with 15 to 20 individual fee  
23 owners.

24 THE SPECIAL MASTER: Just a half a minute,  
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1 I'm not going to recess unless somebody wants a  
2 recess.

3 (No response.)

4 THE SPECIAL MASTER: We will go on until  
5 lunch break. Go ahead.

6 Q (By Mr. Merrill) Approximately how much time did  
7 you spend conducting interviews?

8 A Total time wouldn't have exceeded three hours.

9 Q Were other people interviewed than the folks you  
10 personally had an opportunity to speak with?

11 A Yes.

12 MR. SACHSE: I have an objection to this  
13 question. I would like to ask the attorney to  
14 make clear of what he means by "interview" so that  
15 we can tell in the answers to the question whether  
16 the answers refer to formal interviews where notes  
17 were taken or to informal talks with the farmers  
18 in the fields because there may be different  
19 answers depending on what the questioner means  
20 by "interview." It's too unclear a question.

21 MR. MERRILL: Well, Your Honor, I will agree  
22 now that Mr. Sachse suggests there is an ambiguity,  
23 but I'll point out there is no direct testimony  
24 indicating what kinds of interviews, where they

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1 took place or anything else.

2 Q (By Mr. Merrill) Let's talk about the interviews  
3 to find out who you talked to, when and where.

4 THE SPECIAL MASTER: Maybe if there was no  
5 testimony on direct indicating what kind of  
6 interviews or where they took place, that I  
7 ought not permit any questions on cross.

8 MR. PERRY: There were questions about that.

9 MR. MERRILL: They were listed as a source  
10 of information, Your Honor, but there weren't  
11 many specifics provided.

12 Q (By Mr. Merrill) What different kinds of  
13 interviews did you conduct? I take it there  
14 were some you conducted personally and some you  
15 probably didn't?

16 A That's correct. A meeting was held at Fort  
17 Washakie on February 24th. I understand that  
18 invitations had been sent I assume by the Tribe  
19 to owners of fee land. At that meeting I was  
20 present, as well as the Tribal attorneys, and we  
21 individually met with fee landowners who provided  
22 us with information. Now, some of them I met  
23 with personally, and some of them the Tribal  
24 attorneys talked to and I did not visit with.

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1 Q And you met with 15 or 20 fee owners at that time?

2 A Not at that time. A total that I have talked  
3 with during the course of my study, including  
4 those at that meeting and others that I encountered  
5 as I would visit their places in the field, and  
6 some that I called on the phone to get some  
7 information, was 15 or 20 total.

8 Q I'm sorry, I misunderstood your earlier testimony.  
9 How many people did you have an opportunity to  
10 visit with during the meeting in Fort Washakie in  
11 February?

12 A I think there were about 12.

13 Q Do you know how many fee landowners in all  
14 participated in these meetings and were interviewed  
15 by someone else?

16 A I would just estimate there were 40. Now, there  
17 were more individuals present, but they were in  
18 perhaps family groups and there were 40 kinds of  
19 interviews conducted there.

20 Q Okay. Who conducted the interviews that you were  
21 not able to conduct?

22 A The Tribal attorneys.

23 Q As a result of your interviews with the 12 or so  
24 people that you have interviewed, did you make

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1 notes or fill out some sort of an interview form?

2 A Yes, I did.

3 Q Do you have those forms with you?

4 A NO.

5 MR. MERRILL: Your Honor, I would move for  
6 an order compelling the Witness to produce the  
7 interview forms that he filled out as a result  
8 of those meetings in order we can see the facts  
9 and data upon which he relied to determine the  
10 lands that are currently irrigated.

11 THE SPECIAL MASTER: Was the request made  
12 during the deposition?

13 MR. MERRILL: Yes, it was, Your Honor, and  
14 it was denied on the grounds there was attorney-  
15 client privilege involved.

16 THE SPECIAL MASTER: I better be apprised  
17 of that, too, before I rule. Go ahead.

18 MR. MERRILL: Your Honor, are the Tribes  
19 still making any objection? If they have, I'm  
20 not sure where we are procedurally with my  
21 motion.

22 MR. PERRY: Your Honor, with respect to  
23 those interview forms, there were a variety of  
24 purposes in conducting these interviews. One of

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1 the purposes was for the attorneys to discuss  
2 with some of these members potential for being  
3 witnesses in the case, and other matters that  
4 we consider to be privileged between the attorney --  
5 between us and them.

6 THE SPECIAL MASTER: Were the forms prepared  
7 by the attorneys or by the engineers?

8 MR. PERRY: In some cases one, and in some  
9 cases the other. With respect to Mr. Higginson's  
10 work, he has individual worksheets on each tract  
11 where he has listed the relevant information that  
12 he relied on, and that has been provided to Mr.  
13 Merrill.

14 THE SPECIAL MASTER: That should be  
15 provided.

16 MR. PERRY: That has been provided.

17 THE SPECIAL MASTER: These are the forms you  
18 gentlemen prepared, the attorneys have prepared?

19 MR. SACHSE: Let me address that, I may have  
20 had more to do with it.

21 Mr. Higginson and the attorneys together  
22 prepared a blank form to get information about  
23 the tracts of land. We then at this public meeting  
24 interviewed people, and we interviewed them for

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1 several purposes, as Mr. Perry has stated, to  
2 see who would be a good witness, to see what  
3 kinds of problems people had had that ought to  
4 be raised in this lawsuit and to get data from  
5 them about their irrigation practices. Where-  
6 ever there was a question of data about irrigation  
7 practices, that information was turned over to  
8 Mr. Higginson, who recorded it on his worksheets  
9 which have already been turned over to the  
10 State.

11 So it's our opinion that the State is trying  
12 to go three levels back on this. They have Mr.  
13 Higginson's report, they have his worksheets that  
14 have the information pertaining to his report,  
15 and they are now trying to get a third level  
16 back to the handwritten filled out forms, some of  
17 which the lawyers did and some of which Mr.  
18 Higginson did where we were all looking for other  
19 matters, too. We think that is excessive for  
20 the State to ask for those forms since they have  
21 gotten all data that has been relied upon in Mr.  
22 Higginson's expert testimony.

23 THE SPECIAL MASTER: What perceivable  
24 information could that form have that you haven't  
25 had access to, Mr. Merrill? Was your particular

1 tract not irrigated for a number of years, this  
2 sort of thing?

3 MR. MERRILL: Yes, Your Honor.

4 THE SPECIAL MASTER: Just flood it in the  
5 spring and not use it anymore, something of that  
6 kind?

7 MR. MERRILL: Yes.

8 THE SPECIAL MASTER: The Witness admitted  
9 there was that sort of thing, some non-use, and  
10 he put that in the non-use category, some with  
11 a limited irrigation and he observed it accordingly.

12 MR. MERRILL: We would like to get the  
13 information from the interview sheets that would  
14 show, for example, whether the Indian owned  
15 tracts of land are those that are actually  
16 irrigated.

17 THE SPECIAL MASTER: Well, now, let me ask  
18 about that. I almost did when you touched on  
19 that in your question about leasee. Is it the  
20 position of the State of Wyoming, that as an  
21 Indian who owned land in fee has leased it out for  
22 a season or even long-term to someone else, Indian  
23 or non-Indian, that that terminates  
24 his rights to a reserved water right?

25 MR. MERRILL: Yes, Your Honor. It is our

1 position that if Congress intended to reserve  
2 water only for the use of the Indians themselves --

3 THE SPECIAL MASTER: That is, that an  
4 Indian can't lease something he owns like a non-  
5 Indian can lease something he owns?

6 MR. MERRILL: Your Honor, as I'm sure you  
7 are aware, there is a lot of controversy on  
8 whether reserved rights are leasable property  
9 rights, and the question always boils back to  
10 what Congress intended if and when they reserved  
11 that water on behalf of the Indians. It's the  
12 State's position in this case that Congress  
13 didn't intend to reserve water at all, but if they  
14 did, they intended to reserve water for the use  
15 of the Indians themselves to develop the arts of  
16 agriculture and not to lease out for other  
17 purposes, that the primary purpose that Congress  
18 had in mind was the Indians becoming farmers on  
19 their own land and not inviting other people to  
20 come in and develop the resources and develop the  
21 resources using reserved water rights to do it.

22

23

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1 THE SPECIAL MASTER: Well, if the Indian --  
2 If the evidence shows that Atlantic Oil Company  
3 or Standard of Indiana came on that Reservation  
4 62 years ago and 55 years ago respectively and  
5 drilled some water and drilled some oil wells,  
6 and beginning 30, 35 years ago needed water for  
7 secondary recovery and was taking water from deep  
8 aquifers and we find that there's a reserved right  
9 to that deep water for the Indians, do you maintain  
10 that they do not have a right to let their lessee  
11 and co-venturer use it to bring oil to the surface?

12 MR. MERRILL: That's correct, Your Honor.

13 THE SPECIAL MASTER: Even though it's been  
14 going on for 40 years? Are you serious?

15 MR. MERRILL: Yes, I am, Your Honor. It's  
16 our position that the state permit would be re-  
17 quired for any diversion by non-Indians even  
18 though diversions might be on the Reservation.  
19 And I'm sure you're aware it's a point of con-  
20 siderable controversy. The Coalville opinion  
21 issued by the Ninth Circuit in June directly  
22 addresses it. However, we don't believe the  
23 matter is resolved --

24 THE SPECIAL MASTER: In that either.

25 All right. Well, I've got a problem with



1 these work papers because, you know, you had a  
2 deposition chance to get them. And if some of  
3 them were attorney-client work papers, then I  
4 will sustain the objection to them, but you've  
5 already been supplied with the ones that were not  
6 attorney-client work forms. I really don't  
7 believe they're going to contain a lot of informa-  
8 tion that you can't elucidate from questions from  
9 this witness.

10 I'll ask the attorneys -- I suppose that you  
11 have a right, I believe Wyoming has a right to know  
12 if some of these tracts are being leased out or  
13 whether they're not being. That's a part of the  
14 factual evidence that should be in the record, and  
15 I won't hide and allow that to be rat holed if  
16 that information is available.

17 MR. SACHSE: I can address this this way. I  
18 know from general information that very little of  
19 the, of the fee land claimed by non-Indians is  
20 under lease to anyone else. These are generally  
21 the group of people who own their land themselves.  
22 To the best of my recollection, that was not even  
23 a question that we asked on these forms, but I  
24 can't recall in the interviews I've had anyone  
25 saying that he was leasing out his land; that the

1 people were talking about what they were doing  
2 themselves with that land.

3 THE SPECIAL MASTER: All right. But --

4 MR. SACHSE: Now, the State, if it wanted to  
5 raise leasing out land as an issue -- Let me just  
6 say this, and I think it's an absolutely red herring  
7 false issue because Indians have leased land as long  
8 as there's been reserved water rights and no court  
9 has ever held, as far as I know, that that inter-  
10 feres with reserved water. But if the State had  
11 wanted to pose to us, in an interrogatory, how  
12 much of your land claimed is under lease to non-  
13 Indians, we, I suppose, could have made some ef-  
14 forts to determine that, but it's a bit late to do  
15 that now.

16 THE SPECIAL MASTER: It is, indeed, but it  
17 hasn't been foreclosed because it's late, and that's  
18 the point I want to make. If it's under lease,  
19 the State has a right to know how much of it. I  
20 think, gentlemen, you ought to be able to get  
21 together, too, and answer a matter that might be  
22 again an issue, and that is that if some of these  
23 tracts were at one time owned by -- first, they  
24 were in trust to the Tribes, then they went to an  
25 Indian by deed and then to a non-Indian by warranty

1 deed, and then back in the hands of the Indian by  
2 deed, we'd like to know how much of those acres,  
3 just in the event that we're going to rule that  
4 a reserved right got cut off when it was conveyed  
5 to a non-Indian. There may be a state water right  
6 on it that didn't get cut off and it can survive,  
7 but I think you gentlemen ought to have that mater-  
8 ial in evidence for me, too, on this ruling. And  
9 there may only be 5 or 10 acres or 20 acres, but  
10 it ought to be in evidence anyway.

11 Now, if these work papers would bring that  
12 out, I'd order them into court, but the witness  
13 has already said that's kind of the exact legal  
14 material that was not his concern.

15 MR. MERRILL: I don't think the work papers  
16 would show that, Your Honor, and I'm not trying  
17 to use the argument to drag them into court. My  
18 concerns are twofold. First, we've seen time and  
19 time again and the Tribes have pointed this out  
20 to me, getting things pushed in the Federal  
21 Register, that the original core information  
22 made from field notes, interview forms and so  
23 forth gets a little scrambled up in its trans-  
24 fusion into the next series, which will be Mr.  
25 Higginson's worksheets, which we have, and we're

1 entitled to go back and look at the original informa-  
2 tion on which he relied in developing his worksheets  
3 and his reports to check the basis for the conclu-  
4 sions that he made.

5 A second thing that I want to bring out is  
6 not with respect to leases, but with respect to  
7 the types of irrigation service on the irrigated  
8 lands, and I'm going to get into this later on in  
9 my cross-examination.

10 THE SPECIAL MASTER: What if many of these  
11 are part of the FIPs or part of the Midvale Pro-  
12 ject? It really doesn't make much difference, does  
13 it?

14 MR. MERRILL: No. What I'm speaking of,  
15 Your Honor, is whether all of these lands are  
16 used to grow crops and receive full irrigation  
17 service throughout the entire irrigation season  
18 or is there irrigated hay pasture that maybe  
19 should get a little smaller duty of water, or  
20 some variant like that; more information concern-  
21 ing the actual use of the land and the history of  
22 the use of the land. In other words, is the fact  
23 that it was irrigated the one year that it was  
24 looked at enough to call it irrigable land or  
25 do we want to take a little longer time span to

1 look at these pieces of land, find out if they  
2 were irrigated two years ago.

3 THE SPECIAL MASTER: I appreciate what you  
4 are saying, but something keeps turning back in  
5 my mind saying that we must keep in mind that if  
6 every water right granted in Water Division No. 3  
7 is subjected to the same test you're subjecting  
8 every acre of this Reservation, I'll bet you that  
9 50 percent of the water rights would be limited  
10 in some way or another.

11 MR. MERRILL: That may very well be.

12 THE SPECIAL MASTER: And this has got to be  
13 a general mainstream adjudication which deals with  
14 some degree of equitable evenhandedness with the  
15 inquiry into the rights of a rancher in the Hanover  
16 Project and Worland and an Indian on the Reserva-  
17 tion. And when you get that minute an inquiry,  
18 I'm beginning to believe you're top-heavying this  
19 thing in a way that would not stand judicial review  
20 and evenhandedness.

21 MR. MERRILL: Your Honor, we're not trying  
22 to suggest to the Court that you subject the  
23 reserved rights to a more searching factual  
24 scrutiny than will be subjected to the state-  
25 awarded water rights. They will come under the

1 microscope in their own time in this adjudication.

2 THE SPECIAL MASTER: They may not in this  
3 adjudication. They ought to, if justice is going  
4 to prevail, they ought to sooner or later. They  
5 may not in this adjudication, but we're going to  
6 try to do it only because there's stipulations  
7 that set it to one side and said it's not necessary.

8 All right, we got off on a little legal dis-  
9 cussion, but it was necessary.

10 Okay. We've concluded that you don't really  
11 care to look at those other papers that have an  
12 attorney-client relationship as they did in the  
13 deposition.

14 MR. MERRILL: Your Honor, I do care to look  
15 at those papers, and I believe that a privilege  
16 has been asserted. I would ask the Court to order  
17 that they be produced with any materials that the  
18 tribal attorneys consider to be cloaked with the  
19 privilege excised from those terms.

20 THE SPECIAL MASTER: Okay. Gentlemen, I'm  
21 directing that you take out of the work papers  
22 anything that was of an attorney-client relation-  
23 ship regarding what you were searching for, but  
24 if there is evidence of a lease relationship or  
25 material regarding a chain of title as to this

1 establishment having taken place of a conveyance  
2 to non-Indian, that should be provided to Mr.  
3 Merrill; and if you will do that, I'll be grateful  
4 that you see that it's complied with.

5 Go ahead, Mr. Merrill.

6 MR. MERRILL: Thank you, Your Honor.

7 Q. (By Mr. Merrill) Mr. Higginson, I take it these  
8 interviews are part of the information on which  
9 you relied in determining whether land is currently  
10 irrigated; is that correct?

11 A. That's correct.

12 Q. As a water resources engineer, is a statement by  
13 an individual concerning what he does with his  
14 land the type of information that you would reason-  
15 ably rely on in determining whether that land is  
16 irrigated?

17 A. I would use it as part of the input. I wouldn't  
18 rely upon it with -- without having other sources  
19 of information from which he could check it and  
20 cross-check it.

21 Q. With respect to each tract of land which was  
22 indicated to be irrigated as a result of the  
23 interviews, were you able to confirm, either by  
24 reference to the aerial photographs or by fieldwork,

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1 that the tract was, indeed, irrigated?

2 A. I can't recall specifically what is on each one  
3 of those interview forms, but I think the answer  
4 to the question is a general yes.

5 Q. Can you recall any instance in which the statement  
6 of an Indian who was interviewed was not substan-  
7 tiated by the photographs?

8 A. No, I cannot.

9 Q. Do you know if the information taken as a result  
10 of these interviews was in the form of an affi-  
11 davit or other sworn testimony?

12 A. It was not.

13 Q. It was not. Did you rely on any aerial photographs  
14 taken before 1979?

15 A. Yes, to the extent that some of the soils survey  
16 and land classification reports of the federal  
17 agencies are photomaps, and the information is on  
18 photographs that were taken prior to 1979.

19 Q. Would that be photomaps within the BIA or Bureau  
20 of Reclamation or SCS studies?

21 A. That's correct.

22 Q. Okay. I'm curious about the standards or guide-  
23 lines that you used in making your determination,  
24 whether a tract of land is currently irrigated.

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1 Were there any specific criteria that you had in  
2 mind in looking at a tract before you would call it  
3 currently irrigated? In other words was being irrigated  
4 in 1980 alone enough proof to you that you would call  
5 that tract irrigated or did you look for a longer term  
6 history of successful irrigated agriculture on that  
7 tract?

8 A. Well, if I found a tract of land, and I don't recall  
9 that there was any single tract of land that showed  
10 evidence that it had only been irrigated in 1980, a  
11 one year irrigation, that would be fairly apparent  
12 in observing the land, I would still consider that to  
13 be irrigable or irrigated land. But for the most  
14 part, the lands that I recall looking at had evidence  
15 of a longer period of irrigation than that.

16 THE SPECIAL MASTER: Let me ask a question, Mr.  
17 Merrill, it follows directly on what you're doing.

18 Did you find evidence of sodium absorption de-  
19 ficiency, alkali, what we used to call it when I  
20 was a kid around the Rock Springs area, Enid or Farson?

21 THE WITNESS: There's many alkali areas throughout  
22 the Wind River drainage, and a few spots that I could  
23 observe on some of the fee lands.

24 THE SPECIAL MASTER: What did you do about those  
25 higginson - cross - merrill

1 spots you observed on the fee land?

2 THE WITNESS: Generally if there were some  
3 very apparent large spots, they were excluded.  
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1 Q. (By Mr. Merrill) Mr. Higginson, would you take out  
2 the areal photographs that have been marked as Exhibits  
3 10-1 through 10-40?

4 A. Yes. They are here.

5 THE SPECIAL MASTER: They are over there in the  
6 corner.

7 Q. (By Mr. Merrill) May we pull out one of those and  
8 take a look at it?

9 A. Any particular one?

10 (Brief pause.)

11 Q. (By Mr. Merrill) Are those photographs that were  
12 supplied to you by Mr. Billstein and what are known  
13 as the hydrographic set of photos?

14 A. It's my understanding they are.

15 MR. MERRILL: Your Honor, I would like to ask  
16 we break for lunch at this time. I have some cross-  
17 examination concerning specific tracts of land, and  
18 I had intended to use photographs of another series,  
19 but now that we have the Exhibit 11 that correlates  
20 his photographs with his markings with specific tracts,  
21 I would like some time to correlate that information  
22 and use his own work.

23 THE SPECIAL MASTER: Would you also want to hold  
24 in reserve your voir dire of remaining exhibits until  
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1 we come back from lunch?

2 MR. MERRILL: If we could, Your Honor, I would  
3 appreciate it.

4 THE SPECIAL MASTER: We will stand in recess  
5 until 1:30. That gives you 30 minutes to work with  
6 after lunch.

7 MR. MERRILL: Thank you, Your Honor, I appreciate  
8 it.

9 (Noon recess.)  
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