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# Trial Transcript, Vol. 44

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4402

IN THE DISTRICT COURT FOR THE FIFTH JUDICIAL DISTRICT

WASHAKIE COUNTY, STATE OF WYOMING

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

FILED

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## APPEARANCES

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| FOR THE STATE OF WYOMING: | HALL & EVANS<br>2900 Energy Center One Building<br>717 17th Street<br>Denver, CO 80202<br>BY: MR. JAMES MERRILL and<br>MR. MICHAEL D. WHITE, Special Assistant Attorneys General<br>and<br>MR. STUART RIFKIN and<br>MR. SCOTT KROB |
| FOR THE UNITED STATES OF AMERICA: | MR. JAMES CLEAR and<br>MR. JOSEPH MEMBRINO<br>Attorneys at Law<br>Land and Natural Resources Division<br>Department of Justice<br>Washington, DC 20006 |
| FOR THE SHOSHONE TRIBE: | SONOSKY, CHAMBERS & SACHSE<br>200 M. Street, N.W.<br>Washington, DC 20006<br>BY: MR. HARRY SACHSE |

THE SPECIAL MASTER: Will you please come to order? Mr. Membrino?

MR. WHITE: Before Mr. Membrino starts, could I just inquire as to the schedule for today? Are we going to go straight through until 2:00? I'm just trying to arrange the cross-examination.

THE SPECIAL MASTER: We can if you want to. When we get to 12:00, if you want to go through lunch hour, we will.

If you want to take a short break for lunch and come back at 1:00, however it works out with the evidence and --

MR. WHITE: I'm sorry for the interruption, Your Honor.

DIRECT EXAMINATION (CONTINUED)

BY MR. MEMBRINO:

Q Mr. Toedter, yesterday you testified that you were responsible for preparing the land classification standards for the Wind River Reservation drainage. Did you have any further responsibility in the case?

A Yes, I did.

Q What was that responsibility?

A My first responsibility was to, first of all,

structure the standards and then, secondly, it was to see that these standards were met during the land classification for determination of arability.

Q And did you make a conclusion about whether or not the lands in the Wind River Indian Reservation did meet the standards for the drainage, the drainage standards?

A Yes. This was done as part of a team effort, and I observed each piece of land and insured that it met the standards.

Q Did you have any other responsibility?

A Yes, I did.

Q And would you describe that responsibility?

A Yes. That responsibility was to determine what the actual hydraulic conductivities were and also the actual depth to barriers as pointed out in these exhibits previously displayed, and these were provided for the use of the agricultural engineer, namely Stetson Engineers, for use in their drainage design analysis.

Q When you are referring to the exhibits, you are referring to the United States Exhibits WRIR C-231 through 240?

A Yes, that is correct.

Q Now, why is it necessary for a drainage engineer to have the actual depth to barrier rather than simply to know that the minimum standards for hydraulic conductivity and depth to barrier have been met?

A Okay. This is important in terms of the agricultural engineer structuring his drain spacing.

THE SPECIAL MASTER: Structuring his what?

THE WITNESS: His drain spacing. In other words, he uses the depth to barrier and the hydraulic conductivity in order to set the width, or they are two components.

THE SPECIAL MASTER: The 200-foot thing?

THE WITNESS: Yeah, the 200-foot thing, but it will be wider than that.

THE SPECIAL MASTER: If permissible?

THE WITNESS: Right.

Q (By Mr. Membrino) And what goes in to that decision to make the drain spacing wider or narrower?

A There are three items that go into that decision.

First of all, one must consider what the

deep percolation rate is under a given method of irrigation.

Secondly, one must consider what the hydraulic conductivity is.

And, thirdly, one must consider what the depth to barrier is.

* * * * *

Q (By Mr. Membrino) And is it that when the hydraulic conductivity is incrementally greater than a tenth of an inch an hour and the depth to barrier is incrementally greater than 6 feet that you may have wider drain spaces or narrower drain spacing?

THE SPECIAL MASTER: I don't understand that question. Do you understand that question?

THE WITNESS: Yes, I understand it.

THE SPECIAL MASTER: All right, then, you attempt to answer.

A. Okay, the exact answer or -- the conditions that you have given me create some trouble from the standpoint of you cannot obtain a 200-foot drain spacing with that set of conditions. However, given the greater hydraulic conductivity and greater depths to barrier, one will realize a drain spacing greater than the 200 feet.

Q. (By Mr. Membrino) And it is that information that's important to the drainage designer?

A. Very important.

Q. Now, what are the exhibits labeled C-231 through 244, what is their purpose?

A. Their purpose is to display the actual hydraulic conductivity and depth to barrier for each specific

area of analysis having uniform conditions.

Q. Has that information been transmitted to the drainage engineer?

A. Yes, it has been transmitted to Dr. Wooldezion Mesghinna with Stetson Engineers.

Q. These exhibits then contain the conclusions you have reached as to hydraulic conductivity and depth to barrier?

A. Yes, sir, the conclusions for the actual values.

Q. Yesterday you also testified that you did additional fieldwork after Mr. Kersich's testimony began, what did you do in that fieldwork and what was the purpose for it?

A. I made two trips to the field. The first trip was -- there were some lands in question whether or not they did, in fact, meet the 6 foot depth to barrier requirement in our standards.

Q. What do you mean they were in question?

A. Based on the data that we had from the Bureau of Reclamation, there was some question as to whether or not they were sufficiently deep to the shale and the sandstone to actually meet the 6-foot requirement. We went out in the field and hand augered holes in these areas. One area, the study area right in here

(witness indicating) in the North Crowheart area --

THE SPECIAL MASTER: Would you identify that to which you have just pointed?

A. Okay, that is identified as study area NC-34.

Q. (By Mr. Membrino) On U.S. Exhibit WRIR C-231?

A. Yes.

THE SPECIAL MASTER: Now, what did you do then?

A. We drilled several holes in the area and the depth to barrier was at least 6 foot of greater. It was shallow. However, it just met the 6-foot standard.

Q. (By Mr. Membrino) Had you originally made a conclusion about the depth to barrier in NC-34? When I say "originally", I mean prior to Mr. Kersich's testimony?

A. Yes, I had.

Q. And what was your conclusion at that time?

MR. WHITE: Objection to foundation, Your Honor.

THE SPECIAL MASTER: Overruled. You may answer.

A. My conclusion was that it was sufficiently deep based on our data that there was no problem with the area. Our reason for going to the field was just to ensure that this assessment was, in fact, accurate.

Q. (By Mr. Membrino) And the later field trip showed what?

A. Showed that it was accurate.
Q. That your original judgment was accurate?
A. Right.
Q. Did you do any other fieldwork?
A. Yes, I did.
Q. Would you describe that, please?
A. That fieldwork was done as a component of this analysis particularly structured for the agricultural engineer on the job, and it was an attempt in certain areas just to gain a little bit more information to accurately depict the depth to barrier and hydraulic -- the actual depth to barrier and hydraulic conductivity.
Q. What did you do to determine the actual depth to hydraulic -- depth to barrier and the hydraulic conductivity in this second field trip?
A. I went out to the field and observed cut sections in the area, for the most part along stream channels, road banks and that sort of thing, and drilled a couple of hand auger things.
Q. And what did that work reveal?
A. That was a thing that we were talking about yesterday afternoon; that, in fact, some of my results went up like for hydraulic conductivity and some of if came

down likewise with depth to barrier.

Q. In any case, did you lose lands as not being within the standards as a result of the second or the first field trip?

A. No, no lands were lost. The purpose of this trip really wasn't for that. The purpose was, in fact, to determine what the actual hydraulic conductivity and depth to barrier was.

Q. And when you had that information, what did you do with it?

A. I transmitted that information to Dr. Woldezion Mesghinna of Stetson Engineers.

Q. Now, Exhibits C-231 through 240 were prepared by you?

A. Yes.

Q. Are these exhibits the product of solely these two field trips that you have just described?

A. No, they were not. Most of the data was gathered, in fact, the substantial portion of the data was gathered prior to that time.

Q. Prior --

A. And --

Q. Prior to --

A. Prior to going to the field this last time. The only reason why we went to the field was just to

buttress a few minor areas.

Q. And that time in which this was done was prior to Mr. Kersich's taking the stand?

A. Yes. Most of the work had all taken place prior to Mr. Kersich's taking the stand.

MR. MEMBRINO: Thank you, Mr. Toedter.

Your Honor, at this time I would move into evidence United States Exhibits WRIR C-231 through 240, the exhibits -- the maps of the study units, and Exhibit C-241-A, which is the Wind River drainage analysis appendix regarding the future lands and their depth to barrier and hydraulic conductivity prepared by Mr. Toedter, and C-241-B, the Wind River drainage analysis appendix for the historic lands regarding hydraulic conductivity and depth to barrier, also prepared by Mr. Toedter.

THE SPECIAL MASTER: Will you assist me in identifying those exhibits beginning with 237 to 240?

MR. MEMBRINO: 237, Your Honor, is the Upper Wind Study Unit.

THE SPECIAL MASTER: Let me make sure of those again. Just a second, please.

That's all right. That's a helpful thing, but

I want to make sure I have identified them so I can trace them on my study work report.

You see, we have broken up some of them -- some of these exhibits you applied to various portions of the Wind River Federal Irrigation Project. For example, 237 dealt with the Wind River A Canal, is that right? What else -- Is that correct?

THE WITNESS: Okay, that's not completely accurate. It would deal with both the Wind River A Canal and --

THE SPECIAL MASTER: And --

THE WITNESS: And the Dinwoody Canal, Dry Canal, that Upper Bench Canal along there.

THE SPECIAL MASTER: Just a second. All right. So it actually -- Does 237 deal with anything else besides Dinwoody and Wind River A Canal and the Dinwoody Bench Canal?

THE WITNESS: Let's just say it is the Upper Wind Project.

THE SPECIAL MASTER: Okay.

THE WITNESS: Which includes all the areas up in that Upper Wind area.

THE SPECIAL MASTER: What does 238 include besides the Johnstown Unit?

THE WITNESS: It is just the Johnstown Unit.

THE SPECIAL MASTER: All right. Now, what does

239 deal with?

MR. MEMBRINO: That was the Ray and Coolidge study.

THE WITNESS: Okay. So that has just -- Well, it has Ray and Coolidge totally.

THE SPECIAL MASTER: But not Subagancy?

THE WITNESS: There's just a little bit of the edges of Subagency in there.

THE SPECIAL MASTER: All right. What does 240 deal with besides the Subagency?

THE WITNESS: Lefthand also.

THE SPECIAL MASTER: All right. Your motion for admission is through Exhibit 241-B, is that correct?

MR. MEMBRINO: And I wasn't complete, Your Honor. For illustrative purposes, we would introduce the Exhibit C-242, which is the sketch prepared by Mr. Toedter,and C-243, which is the work map used by Mr. Toedter.

THE SPECIAL MASTER: That he was referring to yesterday?

MR. MEMBRINO: That's correct.

THE SPECIAL MASTER: Mr. White, do you want to interrogate?

* * * * *

MR. WHITE: Could I inquire as to whether or not C-243 is also offered for illustrative purposes?

MR. MEMBRINO: It is offered for the truth of its contents.

MR. WHITE: Your Honor, with respect to C-242, which was offered for illustrative purposes, the State has no objection.

Your Honor, with respect to -- if I could deal with these objections sort of seriatum, perhaps I can save some of the Court's time.

With respect to Exhibits 231 through 240, there are several areas that I would like to voir dire, but especially with respect to Exhibits 233, 234, 235 and 237, I would like to object. That's the Riverton East, Owl Creek, Big Horn Flats, and Upper Wind maps.

I would object to their admission based on the violation of the ten-day rule. Those exhibits were delivered to us the evening after supper on April 16th.

If I could get a ruling on that, then I know whether or not to voir dire those.

THE SPECIAL MASTER: Well, it pains me to have to take a departure from what you had

requested on this, but I'm going to admit them into evidence despite the fact that they did literally fracture the ten-day rule down to seven- or six-day notice, but it just isn't a substantive damage to you. It isn't a substantive to the preparation of your case.

I think you probably knew the contents of them before you got them.

MR. WHITE: That's not true, Your Honor. They were delivered to us at the deposition of Mr. Toedter. The original representation by the previous counsel for the United States was that Mr. Toedter would not be called as part of the case in chief.

We were able to depose him through the cooperation of the present counsel late last week, and at the deposition on Thursday evening he provided the maps that I have just described, and it has significantly affected the ability of the State to prepare for cross-examination and to prepare for voir dire.

Providing them on Thursday night, which means really only the weekend is available to work on them, does fracture the ten-day rule, violates not only its letter but its spirit, and

has significantly affected the ability of the State to deal with them.

THE SPECIAL MASTER: Friday, Saturday, Sunday, Monday, Tuesday, Wednesday, that's six of ten. It's a fracture, but it's a minority fracture. I'm going to admit them into evidence. I just have to.

MR. WHITE: Will the State of Wyoming have the same opportunity to provide information six days prior to the time it's used, Your Honor, rather than the ten days?

THE SPECIAL MASTER: If an occasion comes up that it's six days that we did this on one occasion for the United States and that fair play would require that, I will try to do it.

MR. WHITE: I will try to flag it in the transcript.

THE SPECIAL MASTER: Flag it, and you have got one coming on the ten-day rule.

MR. WHITE: I think I have got four coming, Your Honor.

THE SPECIAL MASTER: All right. You keep track.

VOIR DIRE EXAMINATION

BY MR. WHITE:

Q With respect to Exhibits 231 through 242, Bob --

A Yes.

Q Are the lands indicated with hatches lands that were classified arable for sprinkler or for gravity or for both?

A For both.

THE SPECIAL MASTER: Mr. White, he said for both, but I had a question on your question because when you said identified with hatch marks, are they hatches running from northeast to southwest or hatches running from right to left or hatches running vertically or hatches running horizontally?

MR. WHITE: That was my next question.

THE SPECIAL MASTER: Well, I had to ask it.

Q (By Mr. White) On, let's take, for example, Exhibit 231, which involves Mr. Kersich's land -- is that correct -- future arable lands testified to by Mr. Kersich?

A Okay.

Q On the original exhibits, which I believe were C-44 and 45, the direction of the hatching had a

significance with respect to the classes of the lands involved.

Did those same directional hatches connotate the same classes as developed by Mr. Kersich?

A That isn't important in what we're trying to show here.

THE SPECIAL MASTER: Well, that's really up to the Court to tell. If you can answer his question, you really ought to answer, and we will decide whether it may really not be important.

THE WITNESS: All right.

A (By The Witness) What I attempted to do here was just to identify those lands that were classified as being irrigable, either from the standpoint of gravity or sprinkler upon this map, and they were shown by the cross-hatched lines in either direction.

One of the problems that we have at HKM, in order to meet the ten-day rule, was to try to get something together on a base map, and so we just took a base map that had the cross-hatched lines on it showing the arable lands and started our work effort with this foundation.

toedter-voir dire-white

Q (By Mr. White) Is it your testimony then that the cross-hatched lands on Exhibit C-231 through 234 simply indicate the lands classified as arable and that the cross-hatchings do not reflect any particular class?

A They are not meant to reflect any class.

Q On Exhibit 231, for example, I direct your attention to the area that is identified -- the study area that's identified as NC-11.

A Okay.

Q Isn't it true that within the study area are located both future arable lands and lands which have not been classified as arable?

A Within the total area of analysis, this would be accurate.

Q Okay. NC-11, with respect to NC-11; is that correct?

A That's correct. The outline around the area of analysis would show, if that's what we were trying to show, both lands that were arable and lands that are not arable.

However, all we were trying to show in this case is a circle around those arable lands having similar hydraulic conductivity and depth to toedter-voir dire-white

barrier within that area.

Q But within the area, for example, in NC-11, only roughly, say, 35 or 40 percent of the land contained within the area was actually classified as arable; isn't that correct?

A That would be correct.

Q And your opinion with respect to the average weighted hydraulic conductivity and the average depth to barrier for area NC-11 would apply to the entire area within the red line, the entire study area; is that correct?

A No, it would not.

Q It only applies to the arable lands within that area?

A Yes.

Q Okay. What is the relationship between Exhibits 231 through 240 and 241-A and 241-B, which are your calculation documents?

THE SPECIAL MASTER: What is the relationship between them? Was that the question?

MR. WHITE: Yes, sir.

A (By The Witness) What I attempted to do in 241-A, which I believe is the sketch -- is that correct?

Q (By Mr. White) No, those are the calculations.
A Oh, the calculations. Okay.
Q 241-A is the future lands and 241-B is the historic lands.
A The relationship between the exhibits and this was prior to final development of these study areas, I had to make a set of computations in order to determine an assignment for, first of all, hydraulic conductivity and, secondly, depth to barrier.

Another component that had to be strongly considered was to determine those areas having similar characteristics so that I could assign a constant depth to barrier and hydraulic conductivity for them.

Q Is it true then that the annotations which appear for each study area on Exhibits C-231 through 240 simply are duplications of the information which appears at the bottom of the page for each study area within Exhibits 241-A and B relating to average weighted hydraulic conductivity and average depth to barrier?
A Yes, that is correct. They should be equivalent.
Q Let's turn to 241-A and B then.

MR. WHITE: Before I ask the witness anymore questions about them on voir dire, I would pose an objection based on the ten-day rule to 241-A and -B.

THE SPECIAL MASTER: When did you receive those?

MR. WHITE: Tuesday evening.

THE SPECIAL MASTER: Okay. That's the same short end of the deal.

MR. WHITE: We got six days rather than ten, so I hope my ledger is up to six rather than four now, Your Honor.

Q (By Mr. White) Bob, would you get 241-A before you, please?

A Okay.

Q Turn to the fourth page, which I believe is a number that is headed, "Hydraulic Conductivity Values Used by HKM in Profile Weighting Analysis for Drain Spacing."

A This is Table 2?

Q Yes, it is. I'm sorry. My Table 2 was covered up by the binder.

A Okay.

Q Did you testify on direct examination that these toedter-voir dire-white

values were mostly derived from your own field work within the Wind River Indian Reservation?

A Quite a few of them were derived from field work, and the rest were based on my judgment and other texts.

Q Isn't it true that of the 23 values of hydraulic conductivity only four were based on your field work within the Wind River Indian Reservation?

A Well, that may be true in terms of actual assignment and the values that were presented in the report.

However, again based on the ten years of experience that I have in this drainage business, I have no reason to believe that the values do not accurately depict the values that one would find in these soils.

Q What previous experience did you have in the field for the Wind River Indian Reservation?

A I think one can conclude, or at least I can from my previous field work, that within areas textures generally have about the same rate of hydraulic conductivity.

Oftentimes plasticity and stickiness become very important in terms of this analysis.

toedter-voir dire-white

Now, this is not apparent on this sheet. Plasticity and stickiness is not a real problem in the Wind River Reservation and, consequently, for the most part, soils had good permeability.

* * * * *

THE SPECIAL MASTER: Let me ask a question, Mr. White.

MR. WHITE: Yes, sir.

THE SPECIAL MASTER: Your symbols under the column "Texture" on this Table 2, were those the symbols that you used as work aids in the field, or are these the same symbols that are used in the two charts by your colleagues in their Exhibit C-138 and C-43?

THE WITNESS: Okay, I don't believe they are used in those exhibits. Now, the exhibits that were presented by my colleagues that show the land classification logs and the deep logs that were drilled within the Wind River Reservation are represented on those sheets. What I'm trying to say is these textures are annotated on those logs.

THE SPECIAL MASTER: All right. Thank you.

Q (By Mr. White) On Table 2, isn't it true that the hydraulic conductivity values which you actually derived from fieldwork are those listed for sandy loam, loam, sandy clay loam and gravelly sandy clay loam, as well as silty clay loam?

A. Yes.

Q. Isn't it true that the professional experience upon

which you primarily relied in developing the other hydraulic conductivity values was obtained in the State of North Dakota?

A. Quite a bit of it. I have some experience in the State of Washington, I have experience in the State of New Mexico.

Q. Would you turn on a couple of pages in Exhibit 241-A to the Arapahoe Area 1?

A. Okay.

Q. Isn't it true that of the 18 total holes listed on Pages 1 and 2, you only used 3 holes to develop the average hydraulic conductivity?

A. Yes.

Q. And isn't it true that the way you determined the number of holes which you used is to count the number of values which appear in the numerator as a fraction on Page 2 and similar pages?

A. Okay. I think you're giving a misleading impression of the interpretation of this data. As I testified to yesterday, there was some question about the accuracy of texturing upon which Reclamation did in their work. Consequently, as much as possible, we heavily relied upon the data that was obtained by HKM in the field, and I think you will note that the

three values used for developing an average hydraulic conductivity for this area were based on HKM holes.

Q. Those would be matching up the values in the numerator with those listed on Pages 1 and 2 for individual holes, would indicate that you used Holes 59-A, 60-A and 61-A?

A. Yes, that's correct.

Q. Offhand, do you know the number of arable acres within Study Area A-1 for which you used the three holes?

A. That wasn't important to me, Sandy.

THE SPECIAL MASTER: Is the answer, no, you don't?

THE WITNESS: It would be "no".

THE SPECIAL MASTER: Okay.

Q. (By Mr. White) Is there any way to determine for Area A-1 or any other area simply from the face of Exhibit 241-A or 241-B whether or not the holes that are listed or the holes which you actually used in your formula are inside of or outside of the arable lands included within that study area?

A. This is not shown on my exhibits. However, my work-sheets had the location of every single hole that was used.

THE SPECIAL MASTER: Don't you have one such exhibit already in evidence being offered as proof?

THE WITNESS: Yes. Yes, I do.

THE SPECIAL MASTER: Okay.

Q. (By Mr. White) Is that one such worksheet, C-243, which applies to the North Crowheart area?

A. Yes, it is.

MR. WHITE: Your Honor, before asking further questions about C-243, I would wish to interpose an objection to its admission based on violation of the 10-day rule. Again, it was provided last Thursday, April 16th.

THE SPECIAL MASTER: Same ruling.

MR. WHITE: Is my score up to 7, Your Honor?

THE SPECIAL MASTER: I would guess.

MR. WHITE: Okay.

THE SPECIAL MASTER: I would like to measure it with substance as well as numerically though.

MR. WHITE: Okay.

Q. (By Mr. White) Isn't it true, Mr. Toedter, that there is no evidence in the record or no evidence that has been put on through you rather -- Let me start again.

Isn't it true that there is no evidence that's been put on through you which would allow one to determine, based on the record, whether the holes

which are listed on Pages 1 and 2 of C-241-A are either inside or outside arable lands?

A. Except for this Exhibit C243.

Q. But that doesn't apply to the Arapahoe area that we're talking about. It applies to the North Crow-heart, isn't that correct?

A. That's correct.

Q. So is the answer that there is no evidence put on through you which would allow one to determine whether or not the lands --

THE SPECIAL MASTER: Holes.

MR. WHITE: Excuse me.

Q. (By Mr. White) -- the holes for Study Area A-1 are inside or outside the arable lands contained within that study area?

A. That's correct.

THE SPECIAL MASTER: But in any event, they are inside your study boundaries, are they not?

THE WITNESS: Yes, they are.

THE SPECIAL MASTER: So they may be out of arable lands?

THE WITNESS: Right.

Q (By Mr. White) Let me ask you about that, Mr. Toedter, isn't it true that in order to calculate

the average weighted hydraulic conductivity within the arable lands, you often used values from holes that were outside of the arable lands?

A. Yes, and the rationale behind this --

THE SPECIAL MASTER: You gave it yesterday; you don't have to repeat it unless there is something unique.

MR. WHITE: Okay.

THE WITNESS: Okay.

Q. (By Mr. White) Turning to Page 6 of Exhibit 242 -- excuse me, 241-A, which lists the holes and the values you determined for Study Area 5, I notice that there is on several other areas, there is no formula shown, but simply the --

THE SPECIAL MASTER: Conclusion.

Q. (By Mr. White) -- the conclusion. In those instances where no formula is shown, how can one determine the number of holes which you used to develop that average weighted hydraulic conductivity as well as the identity of those holes?

A. Okay, there is no technique of identifying the identity of the holes. However, using the same rationalization that was presented earlier, there was one HKM hole within this area, namely, Hole 9/B that was

used for deriving my average rated hydraulic conductivity. Also, I noted the fact that the hydraulic conductivity for the Bureau holes for the most part were either equal to or greater than the value which I used.

* * * * *

Q (By Mr. White) On Page 6 for area A-5, how did you develop a depth to barrier for that area of 15 feet when the hole which you used, 9-B, approached barrier at 10 feet.

A Well, the rationale behind that, as I said earlier, for the most part there's no problem with Bureau data on their conclusions for depth to barrier.

Hole 6-C indicates a depth to barrier of something greater than 15 feet.

Hole 7-C indicates a depth greater than 20 feet.

Hole 9-C indicates a depth greater than 10 feet.

Hole 8-C again represents a depth greater than 15 feet, and Hole 9-B represents a depth approaching 10 feet.

Based on the compilation of all this data and averaging it out, trying to just use a little bit of reasonableness in my approach, I felt that 15 feet was a reasonable value.

Q Is it true that there was not a mathematical computation made to arrive at 15 feet, but that was a professional judgment by you?

A Yes.
Q Is it true then that you feel comfortable relying on the Bureau holes for depth to barrier although you may not feel comfortable relying on them for hydraulic conductivity?
A For the most part, that is correct.
Q Would you turn to Page 7, area A-6, and tell me, please, which hole you used to determine the average weighted hydraulic conductivity of 2.4 inches per hour?
A That was based on Hole 65-A. The reason for using 2.4 rather than 2.39 was just rounding.
Q So for areas A-5 and A-6, you used only one hole to determine the average hydraulic conductivity for the entire area; is that correct?
A Okay. You will note, however, in area 6 that' the Bureau hydraulic conductivities are substantially greater than this.
Q But you have chosen to ignore those Bureau hydraulic conductivities?

THE SPECIAL MASTER: I'd say that's argumentative. He didn't ignore it. He said that he took the most conservative figure, which happened to be his, in comparing to all toedter-voir dire-white

the others.

THE WITNESS: That's correct.

THE SPECIAL MASTER: And used it. It isn't a question of ignoring. This is 2.39. The others are 98, 10.5, 5.8, and 5. Now, he's already testified to that, and the reason I reluctantly made this observation is that we have 64 areas left in this exhibit, and I'm hoping we don't go through each one the way we've gone through the last three.

MR. WHITE: I'm just trying to find out how he derived that.

THE SPECIAL MASTER: But this is the second time you asked that question regarding weighted hydraulic conductivity when there was only one HKM hole and five or six Bureau holes.

MR. WHITE: Let me make one more inquiry because I believe I have misunderstood his testimony, and I would like to get it straight in my own mind if I might.

Q (By Mr. White) Mr. Toedter, with respect to hydraulic conductivity, do you feel that the Bureau values are reliable?

A I feel that if you used the Bureau textures,

for the most part, you will arrive at higher hydraulic conductivity results than what we did with HKM.

Q Turn to Page 8, please, area A-7.

Will you please just give me the hole identification number for the hole which you used to come up with the average weighted hydraulic conductivity of 1.5?

A This is based on Hole 68-A.

THE SPECIAL MASTER: Sixty what?

THE WITNESS: 8-A.

MR. WHITE: I'm sorry. I can't find 68-A. Can you tell me --

THE SPECIAL MASTER: Are you sure you don't mean --

THE WITNESS: You are on Page 8? I'm sorry. I was on Page 9.

Okay. Can you repeat that?

Q (By Mr. White) Which hole did you rely on to come up with the hydraulic conductivity of 1.5?

A Okay. It was actually based on a weighted average between Hole 66-A and 6-B. However, apparently the computations in this case were

toedter-voir dire -white

omitted.

Q The same question with respect to area A-8 on Page 9. Was that Hole 68-A?

A Yes.

Q The same question with respect to area A-10 on Page 11. Was that Hole 6-C?

A Yes, it was.

Q For Big Horn Flats, area 1, which begins on Page 1 again when you begin renumbering?

A Yes.

Q Does your 4.4 HC based on Hole 114-A?

A That is correct.

THE SPECIAL MASTER: Mr. White, I'm approaching that point where I think I have a duty to object to and forbid any further questioning along that line. We have been through about 10 of them.

MR. WHITE: Your Honor, I think I'm entitled to find out for the purposes of the record which holes he relied on when it's not shown in the document.

THE SPECIAL MASTER: I think you have done an excellent job of that.

MR. WHITE: Well, there are numerous other toedter-voir dire-white

omissions, Your Honor. I think I'm entitled to find out about them.

THE SPECIAL MASTER: You may inquire about any omissions you want to, but I will impose now an objection to any further questions on that which you have proven beyond a reasonable doubt as to what he relies on for finding the average weighted hydraulic conductivity in those exhibits and pages in 241-A where the formula is not given.

MR. WHITE: Well, Your Honor, that virtually hamstrings the State of Wyoming.

THE SPECIAL MASTER: Mr. White, that's nonsense. That's just pure nonsense.

You go back over your last ten minutes of questions, and you made a beautiful foundation for finding out exactly and precisely what he was relying on on his average weighted hydraulic conductivity when the formula isn't shown.

I'm not going to sit here and let you go through a day's testimony on 72 more pages of these to find exactly the answer you found on the last eight or nine.

Let me ask this one question: Is there any

example that was any different in all of your work from what you've recited in the answer in the last six or seven examples?

THE WITNESS: The same technique of approach was used throughout.

THE SPECIAL MASTER: Okay. Then how can I in good conscience do anything more than what I am doing?

MR. WHITE: Your Honor, I would state --

THE SPECIAL MASTER: Your face tells me that you agree.

MR. WHITE: No, my face doesn't say that I agree.

THE SPECIAL MASTER: I'm not saying your face agrees. Your face tells me that you have an understanding of the fact that this is quite proper.

MR. WHITE: No, I have an understanding that you wish to save time, but I also notice, based on my own work with myself and our experts working on this material, which was provided inside of the ten-day rule --

THE SPECIAL MASTER: I appreciate that.

MR. WHITE: -- that where there's no formula given, there often is a reasonable

doubt as to what value Mr. Toedter used in arriving at -- or what values he used in arriving at the hydraulic conductivities for each area.

The hydraulic conductivities for these areas undoubtedly will be used by Mr. Mesghinna as part of the foundation for his work, especially concerning drainage.

If we are unable to inquire as to the specifics for each of these areas, then we will be virtually prevented from effective cross-examination of Mr. Mesghinna.

THE SPECIAL MASTER: I'm interested in saving time, but not at the cost of any substantive shortchanging to anybody. This witness has stated time and time again that he took the least, the least -- in other words, the one most unfavorable to his position and used it.

If Mr. Mesghinna comes on with the same formula and applies it, I can't imagine where you find yourself jeopardized or limited in any way in your work. That just is totally unreasonable to me.

MR. WHITE: Let me ask one question. If you

are right, Your Honor, you're absolutely right if you are right on your basic assumption.

THE SPECIAL MASTER: I can't see how I missed.

MR. WHITE: Let me ask him the question.

Q (By Mr. White) Mr. Toedter, where there is no formula given for the calculation of hydraulic conductivity within Exhibits 241-A and 241-B, is it true that you always used the lowest value of weighted hydraulic conductivity given for any of the holes listed on the page or pages for that particular study area?

A Okay. That is not true in every case. However, let me qualify this.

I used reasonably close to the lowest value that was indicated on the page.

Q Could you please tell the Court those specific areas, study areas, such as A-3, that sort of study -- please tell the Court those specific study areas for which you did not use the lowest value of hydraulic conductivity listed for any hole in that area?

A I don't know, Sandy, without taking some time.

THE SPECIAL MASTER: Mr. White, you have the documents. What you are trying to do, I think, is show me that you could have used four days to examine it and you might have found those cases for yourself without having to ask the witness, and you are going to get it out of this witness by asking him. Is that about what --

MR. WHITE: That's part of it, Your Honor. That's half of it.

The other half is that, as Mr. Toedter testified, he delivered this information to Dr. Mesghinna.

Dr. Mesghinna will probably get up on the stand and base his opinion on the information provided by Mr. Toedter.

THE SPECIAL MASTER: Base his conclusions, certainly the next step.

MR. WHITE: Yes, and in order to effectively deal with those opinions of Dr. Mesghinna, we need to know or be able to challenge the calculations of the weighted hydraulic conductivity for those areas which Dr. Mesghinna uses.

I do not know at this time those areas that Dr. Mesghinna will use. However, whatever areas

they are, I need to know the basis of the calculation which Dr. Mesghinna relied upon and which Mr. Toedter made in order to be able to effectively cross-examine Dr. Mesghinna.

THE SPECIAL MASTER: It is my ruling that you already have that.

MR. MEMBRINO: Your Honor, we might get some help with this if Mr. White, who in spite of not receiving the exhibits in a timely fashion, but has worked with his experts and come up with some questions, if he has them specifically in mind in different areas or different forms of technique, then why doesn't he just volunteer them and --

THE SPECIAL MASTER: I don't know that, and that's none of my business. Obviously, it's Mr. White's case and he's handling it.

If he had some examples like that, I would assume he would proceed with them, or he wants to take and ask a question about every one, and I have ruled on this, Mr. White, that you have an adequate basis for the average weighted hydraulic conductivity in every area in this exhibit without having to inquire of each and every one along thelines you have the

last four or five.

NOw, do you want to take a break for ten minutes and go through Pages 1 through 72 and the remainder is in Riverton East after that and in South Crowheart to see if you can find examples of where there is not the most conservative figure used on which you might have a question?

* * * * *

MR. WHITE: Well, I would like to be able to ask the questions to the witness of which ones he didn't use the most conservative figure. It seems to me he should know.

THE SPECIAL MASTER: He said that generally -- he's answered that as his guide was not true literally in every one that you asked --

MR. WHITE: That's right.

THE SPECIAL MASTER: -- but generally, he used it in virtually every one where he qualified it with an exception or two.

MR. WHITE: Well, Your Honor, the point is if this witness who did the work can't tell us the answer to the question as to those ones that he didn't use the most conservative figure, having worked probably weeks on this project, how can we develop that information having had six days to work with the material?

MR. CLEAR: Your Honor, maybe if we took a break, maybe Mr. Toedter can identify those. Maybe he can --

THE SPECIAL MASTER: Well, we are going to take a break in a few minutes, but let me say I don't have any objection to you taking every page and going through this, that's fine. That will

give us another couple of days with him.

MR. WHITE: I don't want another couple of days of him.

THE SPECIAL MASTER: We can sit here -- I can sit here getting paid $60 an hour while you do that and each of us gets paid our professional fee and each month the State will pay out several hundred thousand dollars to me and others for their work, and we add to the general criticism of this lawsuit by doing these kinds of things. Now, if you're out any substantive mechanism to help you with your case as a result of any actions by me, then my actions are erroneous and you can sure overrule them. And that's the last thing in the world we want to do, but, Mr. White, we began with the four pages before the numbered pages and got into this subject matter, and you've got the same answer in virtually every case, EVERY CASE. And he has stated that rule of his applied for every one of the remaining cases --

MR. WHITE: No, he didn't Your Honor.

THE SPECIAL MASTER: He did, except glaring exceptions, of course.

MR. WHITE: What I would like to do is ask him what are those glaring exceptions. That's the question that's outstanding. That's the question I would

like to ask him, and it is the question you won't let me ask him.

THE SPECIAL MASTER: No, I didn't say I wouldn't let you ask that question at all. We are in the process of deciding whether you will. You have not asked him what were those exceptions yet. He just barely stated that he had those exceptions.

MR. WHITE: I believe I did a couple of times. Let me do it again. We'll see what happens.

Q. (By Mr. White) Mr. Toedter, are you able to state those study areas for which no formula appears within Exhibits 241-A and -B, that with respect to those areas you-- excuse me. Let me start again, Your Honor.

Mr. Toedter, are you able to identify those areas contained in Exhibits 241 and 241-B (sic) which have no formula shown for the calculation of hydraulic conductivity and for which you did not use the lowest value of weighted hydraulic conductivity shown for any hole in that area?

A. No, I'm not.

THE SPECIAL MASTER: Yes.

MR. WHITE: Well, that's exactly the problem, Your Honor. If he could do that, we wouldn't have

to go through it page by page.

THE SPECIAL MASTER: I think your request poses both an unreasonable mental and physical burden on the witness and on a reasonable person -- a reasonable person who just finished his professional work here, has worked on various hundreds of items. The physical evidence in this case shows that he's had the land forms to deal with, the soils, the conductivity as well as the two factors that he's relied upon, which is his -- which is the -- the rate at which the water travels and the depth to barrier. And to come back to a man and say to him, you know, why can't you pick out those one or two our of 150 before you, I think it is a totally unreasonable request of him.

Let's take a ten-minute break.

(Recess, 10:21 a.m. to approximately 10:35 a.m.

THE SPECIAL MASTER: All right. Shall we resume, please?

Q (By Mr. White) Mr. Toedter --

THE SPECIAL MASTER: In the interum, I'm happy to observe that we think we are near a solution, Mr. White.

MR. WHITE: I didn't know we were near a solution, Your Honor. I would still like to ask him that same question:

Q (By Mr. White) Whether or not he is able to identify those areas for which no formula was given and for which he used less than the lowest value for any hole of weighted hydraulic conductivity?

A. Not without going through the exhibit.

MR. WHITE: Well, that leads me to the next question, Your Honor.

Q. (By Mr. White) On Area Big Horn Flats 3, Page 3, where the numbering starts again for Big Horn Flats, which of those holes are in Subarea 3-A?

A. 17-B.

Q. Is that the only one in 3-A?

A. Yes, it was.

Q. Okay.

A. The reason for breaking this particular area out into subareas was because of this dissimilarity in hydraulic conductivities.

Q. Let me ask you a question that contains a long series and you perhaps could follow along with it:

Is it true that you used the -- Strike that.

For Big Horns Flat Area 7 --

THE SPECIAL MASTER: Page what, Mr. White?

MR. WHITE: Page 9.

Q. (By Mr. White) You have an average weighted HC of 5 and yet the lowest value for any single hole is 3.06. Is that an example of where you did not use the lowest value?

A. Yes, that is. However, you should note that most of the values above this are significantly greater by about a factor of 3 than what I show for my average for the area.

Q. On Page 13 for Big Horn Flats, Area 9 -- Strike the question.

MR. SACHSE: Ha-ha.

Q. (By Mr. White) On Page 17, Big Horn Flats Area 13, you show no holes in that area?

A. That is correct.

THE SPECIAL MASTER: How do you conclude that the average weighted hydraulic conductivity for the area is 5 inches per hour?

THE WITNESS: Okay. What I used in that analysis was I flew out by the area and got on the ground and looked at the cut section, and the material was a gravelly, sandy loam. So I noted here this area is a glacial deposit having cobble, gravel and sandy

matrix greater than 6 feet deep, and then I noted that the depth was 50 feet deep along Sage Creek which is adjacent to that area, and I just concluded that that was a reasonable value for that formation.

Q. (By Mr. White) Mr. Toedter, would you turn back to Page 4 in Big Horn Flats for Big Horn Flats Area 4, as well as Page 5 for Area 5. Is it true that you had no holes in those areas?

A. That is correct. I've got some photographs, however, with me to show what the materials are like in those areas. They are very similar in nature, although a little bit coarser than those which were found in the previous example.

Q. For North Crowheart, which is Page 14 in the North Crowheart Area 13, is that another example of where you did not use the lowest weighted hydraulic conductivity for any of the holes shown on the page?

A. Okay. Yeah, that is one of the examples that I referred to as being an exception. This particular hole, I felt, was an outlyer from a statistical standpoint.

THE SPECIAL MASTER: Where are you talking about, 2/C?

THE WITNESS: Yes, Hole 2/C with .06.

Q. (By Mr. White) Is it true that with respect to those holes that you have described as outlyers, you ignored those?

A. Well, I didn't totally ignore them. It's just one hole in that area was like that. So, as a consequence, there is no reason to arrive at the conclusion that the area is either nonarable or nondrainable. Some consideration would have to be given to the placement of drains around that area, however.

* * * * *

Q (By Mr. White) For North Crowheart area, 17 on Page 18, is this another example of where you did not use the most conservative value for hydraulic conductivity?

A Yes, it is. What I attempted to do in this case was I looked at the hydraulic conductivity values derived for this area and compared them for the areas around having similar land forms and then, rather than using the 1.4, I concluded tht the 3.5 inches an hour was a reasonable approximation for that area since my analysis would have been based on the results of just one hole.

You will note again that the Bureau holes indicate hydraulic conductivities significantly greater that what I have used.

Q On Page 19 for North Crowheart area 18 there's no formula shown. There are five holes with lower hydraulic conductivity than your average.

Could you explain how you derived that average weighted hydraulic conductivity?

A Okay. You might first off look at the hydraulic conductivity values for the HKM holes.

THE SPECIAL MASTER: Which were --

toedter-voir dire-white

THE WITNESS: They are shown on Page 20 by 52-A, 7-B, and 50-A. All of these hydraulic conductivities are significantly greater than the three and a half inches per hour.

Okay. Upon scanning back through the Bureau information, there's a great deal of range found, so as a consequence, I end up concluding that the 3.5 was probably a reasonable estimate for the hydraulic conductivity for that area.

Q (By Mr. White) So that's an estimate rather than a calculation?

A That's right, in that particular instance.

Q With respect to the five holes having a weighted hydraulic conductivity less than your estimated average, were those holes done by the Bureau?

A Yes, they were.

Q The North Crowheart area 19 on Page 21 has three values less than the average which you calculated.

Would you please describe the computation or calculation which you used to determine the average hydraulic conductivity of 5.7 for that area?

A Okay. This was based -- the 5.7 was based

toedter-voir dire-white

on the HKM Hole 51-A.

Again, there is a lot of deviation in the Bureau results. This was probably one of my liberal -- in other words, I used a more liberal value in this case than most instances throughout the study. I wouldn't say this is typical of what I generally do.

Q Is this another instance where the Bureau values for hydraulic conductivity were less than your average?

A I would say an average of Bureau was greater or equal at that time to mine.

Q But the others were lower with Bureau; is that correct?

A Yes, the values were lower with Bureau.

Q North Crowheart 22 on Page 25, you have an average shown of 4.9, no calculation and again --

THE SPECIAL MASTER: Where do you get the average of 4.9, from what page, Mr. White?

MR. WHITE: Page 25, Your Honor.

THE SPECIAL MASTER: Oh, I beg your pardon.

Q (By Mr. White) And yet Hole 7-C is less than that average. How did you arrive at the average?

A Okay. The average was based on HKM Hole 76-A.

Again, the 4.2 in Hole 7-C was the only Bureau value lower.

You might note one value by the Bureau is two times or approximately two times greater than my values.

Q Let's see if I can ask a conclusionary question that might wrap it up.

Is it true that for those areas for which no formula is shown in Exhibit 241-A and B you always used the most conservative HKM value for hydraulic conductivity?

A For the most part, I tried to go with HKM data as much as what I could. Then I reviewed the Bureau data in order to determine what they had for the particular area.

In many cases we have already gone through, the Bureau values were higher and I used considerably lower values, relying upon HKM results.

Q Well, turn to Page 26 for North Crowheart area 25 -- excuse me -- area 23, Page 26, area 23.

Here you had a Bureau value that was roughly one-seventh your average value, and is it true that you ignored that value and went to

toedter-voir dire-white

one of the two other Bureau holes that had a 6.0 value?

A Okay. Well, I think one has to keep statistics in mind in this context. We are dealing with a number of holes here. We have got one hole that has a low value. Most of the rest of the data shows that it's considerably higher in that data -- or in that area, so, consequently, I concluded that the area in general had a higher value.

THE SPECIAL MASTER: A higher value than the lowest hole but a lower value or more conservative value than your own HKM hole; is that correct?

THE WITNESS: Yes, that's correct, in this instance.

THE SPECIAL MASTER: Well, Mr. White, you have gone through half of them, and I think you have done as exhaustive and thorough job of voir diring an exhibit as I have ever been exposed to observe.

MR. WHITE: Well, Your Honor, I would like to find out the facts with respect to each area, at least the methodology.

THE SPECIAL MASTER: You can sure cross-examine him in a few minutes.

MR. WHITE: If I can go on in cross-examination, Your Honor, I will then.

THE SPECIAL MASTER: It will be in evidence and you certainly can.

* * * * *

Q. (By Mr. White) Mr. Toedter, would you direct your attention, please, to that portion of Exhibit 241-A on Page 12 for the Arapahoe Area 11?

A. Okay.

Q. You have one hole there, Hole No. 9/B, upon which you relied to come up with your average, is that correct?

A. Yes.

Q. Isn't it true that that hole is about three quarters of a mile outside of the arable lands?

A. I would have to look at my worksheet in order to determine that.

THE SPECIAL MASTER: Were you in 241-B and, if so, what page?

MR. WHITE: A, Your Honor.

THE SPECIAL MASTER: What page?

MR. WHITE: Page 12.

THE SPECIAL MASTER: Page 12 under Arapahoe?

MR. WHITE: Yes, sir, for Area 11. It should be about 12 to 15 pages from the front.

Q. (By Mr. White) If Hole 9/B is three quarters of a mile outside of the arable lands, what process did you go through to determine that the average weighted hydraulic conductivity within the arable lands was



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the same as for that one hole that was outside the arable lands?

A. I think,in order to make this clear, we should get the exhibit on the Arapahoe area.

(Brief pause.

A. Okay. I reached my conclusion because the land form in this area was generally similar, the topography was about the same. You had the nice flat line slope lying above the Popo Agie River shown on the geology map. The derivative of the land form is uniform throughout this area.

HKM had one land classification hole in the middle of the area that was greater than 72 inches. So it was on these facts that enabled me to arrive at my conclusion that that, in fact, would be representative of the area.

Q. So you relied on a hole that was not shown in Exhibit 241-A?

A. Yes, there is no holes shown on this exhibit.

Q. Let me ask you --

A. However, let me make one point, Sandy, I think, is the location of all these holes are in evidence. They are not in an easy place to get at. They were located on the '69 air photos for the future lands,

as testified to by Mr. Kersich, and on Mr. -- or during Mr. Ross' -- Waples' testimony. They are shown on the 1980 air photos.

Q What's the greatest distance from the arable land which a hole could be and still be considered by you in Exhibits 241-A and -B as a basis for the determination of the weighted hydraulic conductivity within that arable land?

A. Okay, I guess I really never looked at it from that standpoint. I was more concerned about whether or not my holes were, in fact, representative of the land forms in the area and, if so, I used them.

Q. Isn't it true that you excluded from your analysis holes, many holes, which were less than or showed less than 6 feet to barrier and were included within the arable lands?

A. I don't know if that's the case.

Q Okay. Would you turn to the North Crowheart Unit Area 25, please?

THE SPECIAL MASTER: Is that Page 29?

MR. WHITE: Yes, sir, it is.

THE SPECIAL MASTER: Mr. White, you have accomplished three fourths of what I said I wasn't going to let you do.

toedter - voir dire - white

A. I've got that in front of me.

Q. (By Mr. White) Isn't it true that there is U.S. Bureau of Reclamation Drainage Hole No. 23 within those arable lands that shows 2 1/2 feet to shale? Or do you know?

A. I don't know. However, I have the materials to review this and reach a conclusion.

(Brief pause.

THE WITNESS: Which hole number was that again?

MR. WHITE: 23.

THE SPECIAL MASTER: 23. Which is not on his exhibit page for the area, is that right?

MR. WHITE: That's correct.

THE WITNESS: Okay. You might note the fact that within reasonably close proximity of that very hole there was an HKM hole which was a deep hole numbered 48 that was 10 feet deep. This hole was located to the southwest. You might also note that to the southeast there was an HKM land classification hole in which the land classifier was stopped by gravel. That was 54 inches deep. This was the reason why this hole was not included.

Q. (By Mr. White) But that hole did show 2 1/2 feet

to shale, did it not?

A. Yes, it did.

Q. And in the same section isn't there another Bureau of Reclamation Hole No. 22 that goes 5 feet to shale?

A. Okay, yes. However, you might note again that Hole 48 is 10 feet deep.

THE SPECIAL MASTER: How much distance between 48 and the hole to which Mr. White alludes?

THE WITNESS: Okay, there's a quarter of a mile or less; reasonably close to that. Then a quarter of a mile to the northwest of that in the same land form the depth on that hole was 7 feet.

THE SPECIAL MASTER: Are those holes in your study area or are they in the arable land conclusions?

THE WITNESS: Okay, I'm not sure.

THE SPECIAL MASTER: Those are the holes that we're talking about, are they in your study area?

THE WITNESS: Yes.

THE SPECIAL MASTER: Are they also in the arable --

THE WITNESS: They are in the arable lands.

THE SPECIAL MASTER: Okay.

* * * * *

Q (By Mr. White) In the same study area isn't it true that there's another Bureau Hole No. 2 that shows five feet to hard sandstone?

A Okay. That hole is on the edge of the arable land. There's a hole just to the south of that dug by an HKM land classifier and identified as Hole No. 8, which was 44 inches to ground.

Q Turning to North Crowheart area 31, which is on Page 35, isn't it true that there's another Bureau hole within the arable lands numbered 8, which does not appear in Exhibit 241-A and shows four and a half feet to shale?

A Whereabouts is that hole? What section?

Q It should lay on the common boundary of Section 18 in Township 4 North, 2 East, and Section 13 in Township 4 North, 3 East.

A Okay. You might note that there's a Bureau hole identified as Hole No. D-26. It was six feet. It's adjacent to this hole and to the east.

Another Bureau hole is in the same general area identified as D-17. This hole was greater than 16 feet deep.

There is another Bureau hole to the Northwest toedter-voir dire-white

identified as D-16, and this hole was greater than 12 feet.

THE SPECIAL MASTER: Why are none of those three holes you just mentioned listed in your North Crowheart area 31 listing on Page 35?

THE WITNESS: Probably because of the volume of data that was involved, getting them down on paper.

Q (By Mr. White) Directing your attention to area 39 within North Crowheart, Page 43, isn't it true that in Section 35 there's a Bureau Hole No. 16 which shows four feet to shale which is within the arable lands but not listed within the holes that you considered on Page 43?

A Okay. There are other holes again in the general proximity of this area, similar land forms. Note particularly Hole D-13, which is greater than 20 feet deep. This hole is located southwesterly of hole D-16.

There's another Hole 7, which is an HKM land classification hole. That hole was greater than 120 inches.

There is another Bureau Hole, D-11, to the southeast, which was 14 feet deep.

toedter-voir dire-white

THE SPECIAL MASTER: Mr. White, I have got to observe that I have been very, very generous in this subject matter and that his answers now on the questions of the last 30 minutes have more than answered, I think, and shown his pattern of what was done in each specific instance you have asked him about. His answers seem to be duplicative or repetitious.

MR. WHITE: Let me ask a general question, Your Honor, that may bring that out.

Q (By Mr. White) Mr. Toedter, could you explain why in instances such as we have described or discussed for the North Crowheart Units 25, 31, and 39 you did not conclude within Exhibit 241-A or 241-B or your calculations of averages logged holes showing depth to barrier of less than six feet?

A Okay. I think you will note if you go through the holes that met this case that were left off, previously in our testimony we have identified holes that were, in fact, included that had either low hydraulic conductivity results or depthto barrier results and we did not use these totally to come to our conclusions.

toedter-voir dire-white

In other words, it gets back to the point that I made about statistics earlier.

Also, there are techniques in drainage to accommodate these conditions and maintain the lands under sustained productivity in an irrigable condition.

Q Is it true to say then that you did not include within the analysis illustrated by Exhibits 241-A and B all the logged holes which could be found within the arable lands within each study unit?

A Yes, that is correct, and they work both ways.

In other words, there were some logged holes that weren't included in my analysis that met or that were higher, exceeded our depth to barrier and hydraulic conductivity standards.

Q Isn't it true that the depth to barrier which is shown on Exhibit 241-A and 241-B for each study area is an estimated average, depth to barrier, for the arable lands within that study area?

A Yes, it is.

Q And if it's an average, isn't it true that some lands have a greater and some lands have toedter-voir dire-white

a lesser depth to barrier than the average?

A That's true, but I think I was probably conservative in those cases.

In other words, rather than using the exact average, I used a lower value than the average.

Q Isn't it true that based on the information contained in Exhibits 241-A and 241-B as well as Exhibits C-231 through 240 you cannot determine those lands which have the lower or have a value less than the average depth to barrier for the entire area?

THE SPECIAL MASTER: Would you like that question read back to you?

THE WITNESS: Yes. I didn't understand it.

MR. WHITE; I will repeat it.

THE SPECIAL MASTER: Read it back.

(Whereupon, the following
(question was read back as
(follows; "Q Isn't it true
(that based on the information
(contained in Exhibits 241-A
(and 241-B as well as Exhibits
(C-231 through 240 you cannot
(determine those lands which
(have the lower or have a value
(less than the average depth to
(barrier for the entire area?"

A (By The Witness) You cannot determine it from

toedter-voir dire-white

my exhibits.

However, there is appropriate documentation in my field notes or worksheets to make this determination.

Q (By Mr. White) Was that documentation provided to Dr. Mesghinna?

A No.

Q Thank you.

MR. WHITE: Your Honor, the State would object to Exhibits C-231 through 240, in addition to the grounds previously stated with respect to the ten-day rule, on the basis of relevancy since the values contained therein for average weighted hydraulic conductivity and depth to barrier are misleading and irrelevant because the averages are based on values -- are based on, in part, values for holes, logged holes, outside of the arable lands.

It defies common sense to conclude that an average for lands -- or an average for arable lands can be calculated by using values for lands outside of the arable lands.

We would object to Exhibits 241-A and 241-B because they are, first, irrelevant.

toedter-voir dire-white

There's no connection of the logged holes listed with arable lands.

It's impossible to tell whether or not those particular holes listed in those two exhibits are within arable lands.

Not all the holes that were listed were actually used. Not all the calculations are listed and, therefore, in addition to being irrelevant, they are misleading and perhaps incompetent, in the legal sense of the word, not --

TNE SPECIAL MASTER: Should we file charges against somebody that prepared them?

MR. WHITE: No, Your Honor, I said in the evidentiary sense of the word.

I would also object to tne admission of Exhibits 231 through 240 on the basis of foundation. Only the exhibits in the North Crowheart area has been supported by Mr. Toedter's work map which he himself testifies allow one to make the kind of determinations upon which the other objections are based.

And since that information has not been provided as foundation, those exhibits are objected to for lack of foundation.

Those are my objections, Your Honor.

THE SPECIAL MASTER: All of your objections are overruled. The Exhibits WRIR C-231 through C-243 are hereby admitted into evidence.

While they may not be letter perfect, I find them no better or worse in professional expertise than the hundreds of exhibits of both the United States and the State which have preceded them in evidence in this litigation.

I do not find them irrelevant or misleading. Each one deals with its own specific area, and I do not believe that the objection is valid that states that every probe hole has to be in arable lands when it is now so clear in this case that land forms, geologic structure, alluvial and other characteristics can identify soils and be used as well as the specific information from a hole in the arable lands.

(Whereupon, Exhibits C-231 (through C-243 were received (in evidence.

THE SPECIAL MASTER: Was that funny?

MR. WHITE: No, sir, it wasn't funny.

THE SPECIAL MASTER: I just wondered about the laughing that took place.

MR. WHITE: I'm sorry.

THE SPECIAL MASTER: Let's proceed. Mr. Membrino?

* * * * *

MR. MEMBRINO: Your Honor, I believe it is -- now that the voir dire of the exhibits has been completed, Mr. White may proceed with his cross.

I'm completed with my direct examination.

THE SPECIAL MASTER: You are completed with your direct?

MR. MEMBRINO: Yes, sir.

THE SPECIAL MASTER: All right, Mr. White, you may proceed with cross-examination, if there's any left.

MR. WHITE: I didn't laugh, Your Honor.

CROSS-EXAMINATION

BY MR. WHITE:

Q. Mr. Toedter, you testified that you played a very important role in the development of the land classification standards, is that correct?

A. Yes.

Q. Mr. Toedter, there has been previous testimony in this action that those land classification standards were not based on any specific dollar value, is that correct?

Well, do you know if that's correct?

A. I only know as it relates to my work.

Q. Assuming that there was previous testimony that the

land classification standards were not based on specific value or specific dollar values, that testimony would not be correct, would it?

MR. CLEAR: Your Honor, I object. It is outside -- he didn't -- on direct he didn't testify as to what the previous testimony was.

THE SPECIAL MASTER: Can you reframe it? Can you also eliminate the ambiguity between values and dollar values -- are you speaking of only one value, is it the dollar value?

MR. WHITE: Let me try again, Your Honor.

Q. (By Mr. White) Mr. Toedter, with respect to those standards dealing with subsurface drainage with which you were involved --

A. Okay.

Q. -- isn't it true that those standards were based on specific dollar values?

A. You can't get away from some economic limitations --

Q. That's right.

A. -- within these standards. There's just -- these standards, there's just no way that you can divorce yourself completely.

Q. In deriving the subsurface drainage standards --

THE SPECIAL MASTER: Deriving what, Sandy?

MR. WHITE: The subsurface drainage standards, land classification standards.

Q. (By Mr. White) Specifically, the 6 foot to barrier and the tenth of an inch per hour HC, isn't it true that you assumed that drainage costs could not exceed $1600 per acre?

A. Okay.

THE SPECIAL MASTER: I heard no direct testimony of any kind from this witness dealing with the dollars per acre for drainage costs.

MR. WHITE: Well, Your Honor --

THE SPECIAL MASTER: I wonder if the question on cross is appropriate.

MR. WHITE: His direct testimony went into the development as well as the application of the standards. I am now inquiring into the development of the standards, and I'm asking him weren't they developed based on an assumption of drainage costs being $1600 per acre.

MR. MEMBRINO: Your Honor, the witness testified that economic considerations can't be entirely gotten away from.

THE SPECIAL MASTER: Well, that's just now --

MR. MEMBRINO: That's right.

THE SPECIAL MASTER: -- on his direct.

MR. MEMBRINO: On his direct examination he didn't -- he testified as to principally as to the physical constraints that require one to select the conductivity and barrier that he did. And I think the cross-examination should be limited to that.

THE SPECIAL MASTER: Well, I think so, too, but I'm going to let the question be answered. I think -- you can answer it, if you can, if you're able to, if it is in your province of competence.

THE WITNESS: Okay. I got an idea what the answer is.

First of all --

MR. WHITE: Ha-ha-ha-ha.

A. What we have to put in perspective here and what Sandy is alluding to is the 200-foot drain spacing that was set forth in our standards. Then, after one considers that, you have to consider the number of linear feet of drain that would be placed in the ground with a 200-foot drain spacing. Since an acre is approximately 200 feet by 200 feet, approximately 200 feet of drain would be required to be placed in the ground for a 200-foot drain spacing.

Therefore, if the assumption was made that the cost of placing drain in the ground was $8 per linear foot, which is actually out of my area of testimony in this case, but, if that assumption nevertheless was made, one could derive that the cost would be 1600 feet -- or $1600, excuse me, per acre.

Q. (By Mr. White) And those were the assumptions which you made in deriving the subsurface land classification standards, isn't that true?

A. No, that's not totally -- as I testified to earlier, really, that decision was based on some judgment and also recommendations from the engineering and research center in Denver, which is the technical portion of the Bureau of Reclamation. In other words, they have the last say in technical decisions that are made within Reclamation.

THE SPECIAL MASTER: I have a question that can't wait: At what point, gentlemen, do you inject into these formulas whether or not that acre then is to be used for an annual cash crop with the price-supporting legislation on it as distinguished from an annual crop with a violent fluctuation or for nothing but pasturage, where does that factor come into whether or not you proceed with

the work on this acre?

THE WITNESS: Since --

THE SPECIAL MASTER: Does anyone want to answer that for me?

MR. WHITE: I think the United States counsel can. I would be glad to answer it, but it is their case.

MR. MEMBRINO: Your Honor, I don't have the specific answer, but there is an economic consideration that will be dealt with in large part by our economist who will be testifying.

THE SPECIAL MASTER: All right. All right. I just wondered how -- at what point do we integrate all these factors, and I guess that's at the end of all of the -- all of the cases -- at the end of the case, I suppose.

MR. MEMBRINO: That's right, Your Honor. These standards go largely to the physical constraints in land classification and establishing drainage criteria just like the testimony of Mr. Kersich and Mr. Waples distributed to economic consideration except for the fact that there are some inherent considerations that go into that concerning economics.

THE SPECIAL MASTER: All right. Thank you.

Thank you, Mr. White.

Q. (By Mr. White) Isn't it true that the $1600 per acre drainage costs was one of those inherent considerations just described by Mr. Membrino which you took into account in developing the subsurface drainage standards?

A. It really isn't one. I mean, it relates to it, but yet it doesn't. This whole process is a narrative type process and drainage becomes a portion of the project development costs, and the 200 foot is just a lower limit established by Reclamation which can't be supported economically on lands producing lower value crops.

Q. You indicated in your last answer that the drainage standards assumed that drainage costs are a project cost, is that correct?

A. That is correct.

Q. Isn't it true that by making drainage a project cost instead of an on-farm cost, the result is to perhaps increase the land classification of some lands by one or two classes?

MR. MEMBRINO: Your Honor, I object. That's not at all the subject of Mr. Toedter's testimony, and we have other experts to talk about project cost

development.

MR. WHITE: It is quite a part of his testimony. He also testified not only to the development of the land classification standards, but the application, and I think the Court is entitled to know, as this witness will testify, that by using the drainage as a project cost as opposed to an on-farm cost has the effect of elevating the number of acres in a particular class.

THE SPECIAL MASTER: I think this witness was qualified as an agricultural engineer. He's not a Bureau economist, not had expertise or experience in establishing the benefit-cost ratios to warrant the project or unwarrant appropriations or funding for the project. Therefore, I'm going to sustain the objection, Mr. White.

MR. WHITE: Let me try to lay a foundation, Your Honor.

Q (By Mr. White) Mr. Toedter, isn't it true that your responsibilities included the application of the standard which you helped develop?

A Yes.

Q Isn't it true that the application of those standards resulted in lands being classified as Class

1, 2, 3, 4, or 6, as shown by Mr. Kersich's testimony?

MR. MEMBRINO: Your Honor, I object to that. The land classification standards speak for themselves and the hydraulic conductivity and depth to barrier criteria are the same for all three classes of lands. There's already been testimony given for classes, that is, 1 through 3; as to Class 4, there are no drainage requirements provided for. So the question as to whether land classification gets changed from 1 to 2 to 3 is not appropriate because in applying standards the same criteria are applied across the board.

THE SPECIAL MASTER: It is a hard argument to overcome, Mr. White.

MR. WHITE: Not at all, Your Honor. If you sustain the objection, I think I have a very good motion to strike all the testimony of this witness relating to the application of the standards and his verification of it that the lands were correctly classified as arable. That's what he testified about and that's what I'm inquiring into.

THE SPECIAL MASTER: You see, your question takes a departure from this and goes into whether

the project costs should include the costs of drainage or whether those costs should go to ongoing farming.

MR. WHITE: No, I'm not arguing that question, Your Honor. He said that they include on-project costs -- or, excuse me, that drainage is included within project costs. I'm going to ask him the same question I asked him in his deposition a year ago. He will give me the same answer he gave in his deposition a year ago, and that is that by --

THE SPECIAL MASTER: Are you going to make an offer -- Are you making an offer of proof now?

MR. WHITE: Well, that's essentially what I'm doing, Your Honor.

THE SPECIAL MASTER: All right, go ahead.

MR. WHITE: I think when you hear the answer, you will let me ask the question.

THE SPECIAL MASTER: Go ahead with your offer of proof on the last overruling that I made on your question.

MR. WHITE: He will testify that by placing drainage in the project costs as opposed to on-farm cost category, the effect is to increase the classification of lands --

THE SPECIAL MASTER: Increase the volume?

MR. WHITE: Increase the class number that is awarded to a particular acre.

THE SPECIAL MASTER: From 1 to a 2 to a 3?

MR. WHITE: No, perhaps the other way, 3 to a 2 to a 1.

THE SPECIAL MASTER: 3 to a 2 to a 1?

MR. WHITE: By one or two classes in some instances, and I think the Court ought to know that, and it ought to know that from the person who helped develop standards and who applied the standards and who was certain that the standards were met. Because --

THE SPECIAL MASTER: If the standards for the two matters to which he's testified, one, hydraulic conductivity and depth to barrier is identical in all three classes, what difference does it make if they are a 3, 2 or a 1?

THE WITNESS: I would like to make a point.

MR. WHITE: Just a minute --

THE SPECIAL MASTER: Mr. White, just a minute. I want to hear your point. Go ahead. We are trying to find the truth of the matter --

MR. WHITE: If I'm limited to an offer of proof, I don't think it is appropriate.

THE SPECIAL MASTER: I don't mind an interruption

when it serves the truth. Go ahead and say what you want to.

THE WITNESS: Mr. White's appraisal of this situation is not accurate.

MR. WHITE: Well, Your Honor --

THE SPECIAL MASTER: In what way? In what way?

THE WITNESS: Okay, it is not accurate from the standpoint that it would downgrade land, the land class, from, say, like a 3 to a 2 -- or from a 2 to a 3 if drainage considerations were made for on-farm development.

THE SPECIAL MASTER: No, he's saying it is the other way around. He said it would take it from a 3 to a 2.

THE WITNESS: That would increase it?

THE SPECIAL MASTER: (Nodding head affirmatively).

THE WITNESS: Because drainage costs were or were not considered?

THE SPECIAL MASTER: Because drainage costs are applied to project costs rather than to ongoing farm figures. We are in a bookkeeping discussion now.

THE WITNESS: Okay.

THE SPECIAL MASTER: And this is not a strange discussion to me to have been through it before on

appropriations regarding the Bureau of Reclamation projects and what is the benefit-cost ration and what isn't. This is very, very appropriate to this lawsuit and to what we are trying to determine on the Reservation.

* * * * *

MR. MEMBRINO: Your Honor, I think we are at a stage in the case where there have been conclusions testified to about the arability of lands including their drainage. Now, any cost considerations that go into that will come up in the next phase.

THE SPECIAL MASTER: We appreciate that. Another factor, just to throw this light on this, you said, "When I took his depositon one year ago."

That makes my ruling this morning look pretty good on the ten-day rule. If you were deposing this witness a year ago, you have been living with this --

MR. WHITE: I think you had better read the deposition --

THE SPECIAL MASTER: I don't want to look at any more depositions.

MR. WHITE: -- before you stick your neck out on that.

THE SPECIAL MASTER: Isn't it true that you did depose this witness a year ago?

MR. WHITE: That's true.

Wait a minute. You want to know the facts.

At that time he did not present any of the facts and data which are contained in Exhibits 231 through 242-B.

THE SPECIAL MASTER: He had not yet adduced some of them, in other words?

MR. WHITE: He hadn't collected them and he hadn't analyzed them.

THE SPECIAL MASTER: All right.

MR. WHITE: Your Honor, I think for the purposes of the record at this time I would like to offer, since Mr. Toedter was allowed to make his statement --

THE SPECIAL MASTER: All right.

MR. WHITE: I would like to offer into evidence the deposition taken of Mr. Toedter on May 19, 1980, and specifically --

THE SPECIAL MASTER: I will not permit -- I will overrule and not permit the introduction of the deposition into evidence, but I will welcome your offer of proof that if you would be permitted to put it in evidence, it would show, and then proceed to show what it would show.

MR. WHITE: If that's the case, I would move to strike Mr. Toedter's comments --

THE SPECIAL MASTER: Those comments were not damaging to you and were not damaging to the State. They are an observation. There's no need to have to remove them, Mr. White.

MR. WHITE: I would offer to prove as follows --

THE SPECIAL MASTER: Go ahead, please.

MR. WHITE: -- if allowed to testify in response to my question --

MR. CLEAR: This is an improper way to do this.

THE SPECIAL MASTER: Let him proceed. We're doing the best we can.

MR. WHITE: Well, it's hardly an improper way. I am the captain of my offer.

MR. CLEAR: He offered to move the deposition in evidence without having Mr. Toedter identify the deppsition as his deposition.

THE SPECIAL MASTER: I appreciate that, and we can have that done if you demand it.

MR. WHITE: I will be glad to do that. Can I have the sealed --

THE SPECIAL MASTER: He called it to his attention. Let's go ahead.

MR. WHITE: I would rather do it his way.

It's a better way.

Could I have the sealed copy of the deposition?

THE SPECIAL MASTER: Gentlemen, I'm trying to hold this thing down, and we understand that this was his deposition. If you want to demand the strict proof, we will do it, but I'm sure Mr. Clear appreciates that we can waive the strict compliance in this case with the witness sitting here.

MR. WHITE: If he will waive the objection, I will be glad to proceed, but if he will not waive the objection, I think we ought to go ahead.

MR. CLEAR: I will waive it.

THE SPECIAL MASTER: He waived the objection, so please proceed, probably with a little force from the Master, but he did anyway.

MR. WHITE: If I were allowed to question Mr. Toedter, he would respond in the same manner as he did during his deposition on May 19, 1980, specifically on Pages 25, 26 and 27, beginning with line 9 on Page 25 concerning the drainage standards supplied by Mr. Toedter, and I will pick up with the answer of Mr. Toedter concerning those standards on line 23 of Page 25.

After a prepatory phrase, he begins: The decision had to be made --

THE SPECIAL MASTER: Please read slowly.

MR. WHITE: The decision had to be made whether we were going to go on ahead and handle the drainage portion of the cost for the project as an on-farm cost or whether it was going to be handled as a project cost and assumed as a part of the overall construction ocsts.

Now, the decision that was made was that it would be developmental, a project developmental cost.

Who made that decision?

Answer: It was made by people above me, Billstein.

What was your recommendation with respect to that decision?

Answer: That we follow Bureau of Reclamation standards which use project development cost.

Question: What are the countervailing considerations in a decision like that, whether to use it as an on-farm cost or development cost?

THE SPECIAL MASTER: Not too fast.

MR. WHITE: What are the countervailing considerations in a decision like that, whether

to use it as an on-farm cost or development cost?

Answer: Well, if you use it as a development cost, it goes into your total project economics. If you rationalize it as an on-farm cost, it goes into your land classification and your lands will be downgraded a class or two depending on the decision accordingly.

Question: So by making it a development cost, you essentially increased the irrigable land base; is that correct?

No, that is not correct.

What is correct? Did it make any difference at all in your arable land base?

It doesn't.

Question: But it does have the effect of upgrading the land a class or two; is that correct?

Answer: It may fall into a higher classification.

That's the end of the offer of proof.

THE SPECIAL MASTER: Very good. Thank you, Mr. White.

Is it the wish of most of you that we have a sandwich of some kind between now and 2:00?

MR. WHITE: I would just as soon keep going,

Your Honor. With any luck, I might finish today.

THE SPECIAL MASTER: 12:30 or 1:00, you mean, before the 2:00 break?

MR. WHITE: If I could talk the Court into it, I would just as soon steam right through from now until 2:00. Maybe we could take a break or two in there.

THE SPECIAL MASTER: Let's go ahead. Then if you finish up sooner, that will be fine.

MR. MEMBRINO: The witness has been testifying for awhile, and I wonder if we could give him a short break to give him a rest if we are going to go through?

THE SPECIAL MASTER: Do you want to take a ten- or fifteen-minute break?

MR. MEMBRINO: Five or ten.

MR. WHITE: I have no objection.

THE SPECIAL MASTER: A five to ten-minute break.

(Whereupon, a ten-minute recess was taken.

* * * * *

(Beginning at 11:55 a.m.

MR. WHITE: Bob, are you ready?

THE WITNESS: Yes.

THE SPECIAL MASTER: All right, Mr. White, let's proceed.

Q (By Mr. White) Mr. Toedter, you established a depth to barrier of a tenth of an inch per hour, is that correct -- or, excuse me, a hydraulic conductivity of a tenth of an inch per hour, is that correct?

A. Yes.

Q. Isn't it true that that is one half the standard set forth in the Bureau of Reclamation's Drainage Manual?

A. Yes, it may be.

Q. You previously testified -- well, it is true that your standard is one half of that set forth in the Bureau of Reclamation's Drainage Manual, isn't it?

THE SPECIAL MASTER: Yeah, he said it may be. I think that's pretty much -- I'm going to accept it as an affirmative answer: Yes, it is true.

MR. WHITE: I'll get rid of one exhibit then, Your Honor.

Q (By Mr. White) You previously testified about the

drainage investigation by the Bureau of Reclamation in 1963 for the North Crowheart area, is that correct?

A. Yes, I mentioned it in my testimony.

Q. Isn't it true that the hydraulic conductivity values developed by the Bureau were substantially lower than those developed by HKM?

MR. MEMBRINO: Just for the sake of clarity, are we referring to the Wind Division report?

THE SPECIAL MASTER: I'm still confused as to where -- what specific case is this? Where are you referring to those?

MR. WHITE: I'll refer to the Wind Division report.

THE SPECIAL MASTER: Wind Division report?

MR. WHITE: Yes, sir.

Q. (By Mr. White) Now, isn't that true with respect to the Wind Division report?

A. Yes, the results obtained by the Bureau were lower than the results obtained by HKM.

Q. Mr. Toedter, in Table 2 which appears in Exhibit 241-A and 241-B, is it true that your hydraulic conductivity for various textures, aside from the four that we described on voir dire, were estimates

made in your professional judgment?

A. Yes, they were.

Q. Did you try to be conservative in making those estimates?

A. I would say for the course of textures I was very conservative. I have ran into situations with sand and gravel and loamy sand and gravel, as I've identified it here, that have hydraulic conductivities in the range of 200 inches an hour.

Q. Isn't it true by being conservative in making your estimations, you may have increased the depth to barrier which you determined?

A. I don't believe that it cuts that way in this analysis. And from a practical standpoint in terms of drain spacing, I don't think it is really that important.

Q. But isn't it true that where you have a coarser texture over a finer texture, such as sand and gravel over loam, the effect of having a lower hydraulic conductivity for sand and gravel increases the depth to barrier?

A. Sure. By the same token, if I could use a higher hydraulic conductivity, I might be able to get a wider drain spacing.

toedter - cross - white

Q But the answer is yes, by making those estimates, conservative estimates, could have the effect of increasing depth to barrier, isn't that true?

THE SPECIAL MASTER: He answered the question.

A. Yes. I think you just have to put this whole thing in perspective in terms of where you're going with this stuff. Drain spacing is the end result that you're looking at. If you start playing with depth to barrier and you decrease that and you increase hydraulic conductivity, you're going to end up with a similar end result or something that's approximately the same thing. You have to put this thing in perspective and look at it on an individual basis here.

Q (By Mr. White) Sure. And isn't the real perspective that the land classification standards weren't really 6 feet to barrier and a tenth of an inch per hour hydraulic conductivity, but instead, were really 200-feet drain spacing?

A. No, I wouldn't say that's the case.

Q Okay. Now, you couldn't meet the 200-foot drain spacing by using 6 feet to barrier and a tenth of an inch per hour hydraulic conductivity, could you?

A. No.

Q. But 200-feet drain spacing was essentially the standard which you used, wasn't it?

A. It was one of the three.

Q. Okay.

A. They all interact.

Q. Well, when your classifiers went to the field, how were they able to determine for a particular piece of land, if you know, that drain spacing would be 200 feet or greater?

A. They were not able to determine that.

Q. Okay.

A. That was determined in a subsequent office analysis.

MR. WHITE: Excuse me for taking some time, Your Honor. I'm trying to jump over stuff and make sure that --

THE SPECIAL MASTER: No problem.

MR. WHITE: -- that I haven't left something out.

Q. (By Mr. White) Bob, the general methodology which is depicted on Exhibits 231 through 240 is not specifically described in the Bureau of Reclamation Drainage Manual, is it?

A. No, that particular methodology isn't.

Q. Is not?

A. Is not. However, it's used within the Bureau of Reclamation.

Q. Do you have your Drainage Manual with you?

A. Yes, I do.

Q. Isn't it true that the methodology for subsurface investigation set forth in the Bureau of Reclamation Drainage Manual is contained on Pages 115, beginning with Paragraph 4-5 through 118, or ending on 118?

A. Okay. Yes, this is a recommended technique.

Q. I hand you what has been marked for identification as Plaintiff's Exhibit WRIR BT-2, and ask you if that exhibit accurately sets forth pages -- or is an accurate copy of Pages 115 through 118 of the Bureau Manual?

A. Okay. Yes, it does. However, I would like to point out that this is just one of the techniques that is commonly used within Reclamation and all drainage work done within the Bureau is not necessarily approached precisely according to this technique.

* * * * *

Q (By Mr. White) Well, on Page 115, a quarter of the way from the bottom, do you find (A) that says log and drainage holes?

A Yes.

Q Is it the Bureau's practice to use other than completely logged holes that are called for by that paragraph?

THE SPECIAL MASTER: Are you competent to testify what the Bureau practice is?

Mr. White, do you think he is competent to testify on what the Bureau practice is?

MR. WHITE: Let me ask him a couple questions, Your Honor.

THE SPECIAL MASTER: All right.

Q (By Mr. White) Have you been involved, Mr. Toedter, with any Bureau field work done in the area of the Wind River Indian Reservation?

A No, I have not. However, I did Bureau field work in the State of North Dakota and two locations within the State of Washington.

Q Isn't it true on the bottom of Page 115 where it says: When the average hydraulic, and then continues on Page 118, so that the complete sentence says: When the average hydraulic

conductivities have been obtained for all the different texture-structure combinations in the project, the data can be used to estimate the weighted hydraulic conductivity at every site that a hole has been logged?

A Okay. That's correct, and that's what we attempted to do in the Wind River Reservation.

Q Isn't it true, however, that Table 2 in Exhibit 241-A and 241-B sets forth values of hydraulic conductivity only for textures and not for texture-structural combinations?

THE SPECIAL MASTER: My, my.

Q (By The Witness) I think we are getting pretty precise. Now, in this business I think commonly structure particularly four foot or below four feet of depth in most soils is either single grained or massive in nature. Subsequently, it can be concluded, for the most part, that structure isn't as much a component.

Q (By Mr. White) Isn't it true that the soil profile logs developed by HKM actually called for a determination of soils structure?

A Yes, they did.

Q I hand you what's been marked for identification

toedter-voir dire-white

as Plaintiff's Exhibit WRIR BT -- that's Bravo Tango -- 3 and ask you whether or not that is the collection of soil profile logs that was used by you in Exhibit 241-B for the Ray Unit No. 4?

A Yes, it was.

Q Isn't it true that those forms make provision for a determination of soils structure?

A Yes, they do.

Q And isn't it true that no such determination of structure was made?

A Yes, it was, and the reason why, as I pointed out earlier, is for the most part below four feet in depth, which is the area of principal interest for me and the area that most of the hydraulic conductivity testing was performed in, the structure is massive in nature.

I think one of the key considerations in my field work that I have found as a drainage engineer that is not pointed out in the Bureau of Reclamation drainage map is stickiness and plasticity of a given soil upon which you are testing.

I think this is a very, very important

consideration.

Q Isn't it true that soils structure as opposed to texture is a characteristic that is very useful in evaluating and correlating the hydraulic conductivities of soils with similar textures?

A As I related to earlier, when you got a massive type structure that's uniform throughout, I just can't appreciate the importance which you place on it.

Q Isn't it true that the importance suggested by that question is an importance placed on it by the Bureau drainage manual?

THE SPECIAL MASTER: You are arguing with the witness now, Mr. White. I asked you not to do that. The document speaks for itself, and the testimony speaks for itself.

Q (By Mr. White) I hand you what's been marked for identification as Plaintiff's Exhibit BT-4 and ask you to turn to Page 20 and verify that that is a true and accurate copy of Page 20 out of the drainage manual?

A Yes, it is.

MR. WHITE: Off the record.

toedter-voir dire-white

(Off-the-record discussion.

Q (By Mr. White) I direct your attention to Page 20 as set forth in Plaintiff's Exhibit WRIR BT-4 and ask you if you would read the first sentence after the heading (D), Structure, that appears about a third of the way down the page.

You needn't read it aloud. Just read it to yourself.

THE SPECIAL MASTER: Read it aloud if it's all right with you, Mr. White.

THE WITNESS: All right. Soils structure is a characteristic that is very useful in evaluating and correlating the hydraulic conductivities of soils with similar textures. Structure refers to the aggregation of primarily -- of primary soil particles and to compound particles which are separated from adjoining aggregates by surface of weakness. See the figure below.

THE SPECIAL MASTER: He only wanted one sentence so --

Q (By Mr. White) Referring to figure 2-4 at the bottom of Page 20, which is entitled, "Types of toedter-voir dire-white

soils structure," did you make or cause to be made any determination of the soils structures that are set out in that figure 2-4?

A Okay. I observed the soil structure during my drilling efforts, particularly those situations where plating structure is apparent, common in lacustrine type materials. Granular structure is apparent in many of the coarse sandy-type materials.

You will observe subangular blocking type structure in some of the medium textured soils.

Q Isn't it true that on BT-3 on the soil log set forth in BT-3 as well as the other soil logs. prepared by HKM personnel in the field those typing conclusions are not reflected?

A Okay. Those typing conclusions are not reflected.

One thing that we shold point out for the record here is that actually there 's two types of structures commonly found in soils.

One type is referred to as a macrostructure, which is the common structure found in place in soil.

Another type of structure is your microstructure, toedter-voir dire-white

which is apparent when you dig up some soil and break it apart.

Now, the area that we are looking at here is the area that deals with your microstructure which actually means that you have to further break that massive soil apart in order to make this determination.

Q And isn't it true that that determination was not made on the soil profile logs such as those that are included in BT-3?

A Okay. I think the point that I'm trying to arrive at here is your macrostructure in a lot of that area is granular, relating to single grain type particles or massive type structure, and this structure is what is the important part of your hydraulic conductivity analysis.

Now, as set forth in the structure as identified by HKM in the logs, that just deals with the microstructure rather than dealing with macrostructure.

Q Mr. Toedter, when you made your threshold determination of structure that you just described, macro versus micro, did you do so based on the holes which you drilled personally,

the deep holes, or based on the land classification holes?

A The macrostructure?

Q Yes.

A I actually -- you can't deal with macrostructure based on holes that are dug. You have to look at pits and things of this nature in order to make that determination.

Q You had approximately nine or ten pits --

A Yes.

Q -- is that correct?

A In the Big Horn Flats area, and they were dug for land classification purposes.

Q And based on the nine or ten pits in the Big Horn Flats area, you would reach conclusions concerning soils structures for the other areas; is that correct?

A No.

THE SPECIAL MASTER: I have given a lot of latitude in asking those, but I don't want you to try and trick him, but you are close to that.

MR. WHITE: I don't think this witness can be tricked, Your Honor.

toedter-voir dire-white

THE SPECIAL MASTER: You have been deposing him for a year.

MR. MEMBRINO: You can't blame him for trying.

Q (By Mr. White) Did you tell me that the structure was determined by pits or not?

A I'm saying it can be determined by pits.

Q How did you determine it for the various arable land areas shown on Exhibits C-231 through 240?

A Well, as I pointed out earlier, I wasn't involved in the test pitting process. That was done as a portion of the land classification procedures.

The areas in which the pits were dug were gravelly and the guys couldn't get down with their hand augers so, as a consequence, we had to have some means of determining, in fact, that those lands were arable and so, yeah, the stuff is granular in nature out there and, you know, one could just conclude that from handling sandy soil, any sandy, gravelly, cobbley type soil that you've got, that they are going to fall in certain structural conditions.

Q Is it true that you made the determination of toedter-voir dire-white

soils structure based on the pits or not?

A No, the pits had nothing --

Q What field investigation did you make to determine the soils structure for each of the arable areas outlined on Exhibits C-231 through 240?

A As I pointed out earlier, I don't think in this case, since the soils structure on a micro or macro basis is massive in nature, that it does not have the importance which you place upon it. There's other things that have greater considerations and so subsequently I didn't place that importance upon it.

Q So to make sure the record is clear, is it true you made no field investigation of the soil structures contained within the arable lands shown on Exhibits 231 through 240?

A Okay. I conclude that the soils structures are generally about the same on a macro basis.

MR. WHITE: Could you read the question back?

THE SPECIAL MASTER: He answered that. He concluded they were the same on a macro basis, and I think his answer is no, he didn't.

toedter-voir dire-white

Is you answer no because you concluded what you did?

THE WITNESS: Yes, yeah.

THE SPECIAL MASTER: All right. This is an observation, while you are thinking, Mr. White. When someone answers a question okay, that's the result of television the last 25 years.

I have two sons that can't begin a sentence without saying okay.

Does that mean yes or not?

MR. WHITE: Well, I was just trying to make sure the record was correct, and I believe everyone understands the record to be that he answered no to the question.

Q (By Mr. White) Is that correct, Mr. Toedter?

THE SPECIAL MASTER: And he gave his reason for it, and he followed on with it, and that's fine.

THE WITNESS: Put it this way: I would like to just clarify to the point that it was only considered on a limited basis. It was given limited consideration because of the fact that it's massive and that was as far as I took it,

and this goes back to geomorphology and the general development of soils and your horizons if your elements are such that your soil development is in the top portion of your profile generally.

MR. WHITE: I'm not sure we have a record of the answer to that question, Your Honor. I would like to make sure that the answer to the question about the field work is no.

Q (By Mr. White) Was that your answer, plus the reason why you didn't do the field work?

A No, my answer is not no.

THE SPECIAL MASTER: I object to that. Let's let the record speak for itself. The question was put on whether it was made on the basis of structure and then you said you did rely on these studies through the exhibits of any of the structure and he said that is correct and he told his reasons for it. It simply isn't that much of a necessary element.

We are getting into a parody of words. He went through the texture and what is texture. He defined structure and what he thinks is the measurement. You have an exhibit criteria from

toedter-voir dire-whtie

manuals of BLM. That's where we are so far on this examination.

MR. WHITE: Let me ask the question I thought I did and clearly didn't from your observation, Your Honor.

Q (By Mr. White) Is it true, Mr. Toedter, that you conducted no field work to determine the structure of the soils contained within the arable lands shown within Exhibits 231 through 240 and by "You," I mean you personally?

A Okay. That is not correct.

Q Please describe the field work which you conducted to determine the soils structure of those lands classified as arable on those exhibits.

A Okay. Limited importance, as I pointed out earlier, was given to structure. It was considered massive because of the soil geomorphology in the area. It was considered where appropriate. I think you will find that probably on some of my other logs I did for the future work -- in fact, let's just check that out -- that some designation was given to --

MR. WHITE: Can I step away from the podium

to confer with my consultant, Your Honor?

THE SPECIAL MASTER: Yes.

A (By The Witness) Okay. It was not denoted on the logs on either the future program or the historic.

* * * * * *

Q. (By Mr. White) Would you please describe then that fieldwork which you did do to determine soils structure within the arable land on Exhibits 231 through 240?

A. Well, again, it's obvious when you're drilling when you get into certain areas that have, say, platy structure which is very -- a very important consideration on the permeability of the materials that are present --

Q. So you personally did some drilling then, is that correct?

A. Yes.

THE SPECIAL MASTER: Mr. White, I thought he answered that question once for you when the sentence contained the word "morphology" --

THE WITNESS: Yeah, soil morphology.

THE SPECIAL MASTER: And you asked him that same question again. So I think it's been asked and answered.

Q. (By Mr. White) Where did you do the drilling that you referred to?

A. I drilled in all the areas -- or logged behind the driller in all the areas except the Big Horn Flats area.

Q. How many holes did you drill?

A. Okay, there were 117 holes drilled in the future lands. These are the lands that were testified to by Mr. Kersich during his testimony.

And 26 holes in the historic project lands.

One thing I might point out in this discussion is even though the Bureau of Reclamation in their Drainage Manual here shows structure, that work that was done for the Wind Division, there were approximately 100 sheets or whatever, there is no -- there is some identification of structure in the area, but every textural zone does not have an identification of structure, and that is a Bureau study.

Q. When was that Bureau study done?

A. 1962.

Q. Isn't the Drainage Manual to which you've been referring the First Edition dated 1978?

A. Yes.

Q. When you drilled the holes which you described, what sort of drill bit did you use?

A. We used what they call a rock bit.

Q. Isn't it true that when you drill through a soil texture with a rock bit, that soils strata or texture is disturbed?

A. Okay. Yes, it is. In fact, I'm very pleased that you brought this point up because this is a common technique of drilling on drainage programs by the U.S. Bureau of Reclamation throughout the western United States. This was commonly used throughout the Columbia Basin Project.

Q. How do you determine soils structure from disturbed soils samples that are brought up by a rock bit?

THE SPECIAL MASTER: I thought your first question said that the rock bit disturbed the texture. Do you say it destroys the structure also?

MR. WHITE: I was asking him how he determined it, Your Honor.

THE WITNESS: Okay. Actually, the rock bit destroys the structure and doesn't influence the texture at all.

THE SPECIAL MASTER: If it is sandy, it is still sandy?

THE WITNESS: Right.

THE SPECIAL MASTER: But if it is granular, it isn't granular any more?

Q. (By Mr. White) If the rock bit destroys the structure, how were you able to determine structure from your drilling program?

A. Okay, that's the point I made earlier, and the Drainage Manual here says, you know, that you have to identify the soils structure, and yet, how can you identify the soils structure when you use a technique of drilling that destroys it?

THE SPECIAL MASTER: Can you answer that, Mr. White?

MR. WHITE: I think I would, but I think the counsel for the United States might object, and I'll have my own expert address that issue.

THE SPECIAL MASTER: I think he mentioned that when he mentioned pits and the reason for the pits.

MR. WHITE: We'll come back to it later on in the case.

THE WITNESS: There is a technique to use to go on ahead and identify the structures, there's no question about that. However, you know, the point I want to make is the fact that the Bureau of Reclamation does, in fact, set forth this stuff in their standards, they don't follow it.

THE SPECIAL MASTER: Well, we are soon --

MR. WHITE: We'll get back to it, Your Honor.

THE SPECIAL MASTER: We are entering a new era of Federal Government regulations and standards.

There will be less and less of them, I'm sure, in the next few years.

Q. (By Mr. White) Mr. Toedter, I hand you my copy of Exhibit C-226, which has already been admitted which is Mr. Waples' historic lands study. I refer you to Table 8 on Page 39 and ask you if you could indicate orally those lands on Table 8 that were included within your study of depth to barrier and hydraulic conductivity and those lands which were not?

A. Okay, those lands that were included within the context of my study are shown and labeled as major irrigation project.

Q. Thank you.

That would be for 7221 acres --

A. Yes.

Q. -- of the Waples' land?

A. Yes.

Q. Mr. Toedter, when you indicated on direct examination that not all of your hydraulic conductivities for the various soils textures were based on fieldwork, you indicated that your estimates or your professional judgment was based on various texts as well as your experience. Could you please describe and identify those texts upon which your estimated hydraulic

conductivities were based?

A. Okay, that was based on some SCS literature.

Q. Could you specifically describe that literature, please?

A. Well, one of the texts that I considered was Soil Survey Analysis that was done in Montana out in Rosebud County.

Q. Any others that you can specifically identify?

A. Okay, there is some guidelines given in soil mechanics texts. I can't cite the exact text right now. It deals with soils as they relate to soils engineering.

Q. During your work on drainage in this litigation, isn't it true that you had occasion to prepare some drain spacing charts?

A. Yes, I did.

Q. I hand you what has been marked for identification as Plaintiff's Exhibit WRIR BT-11 and BT-12. How were those graphs derived and how were they used in establishing the land classification standards?

A. Okay, I believe that you obtained these as part of my deposition, is that not correct?

Q. That's correct, in May of 1980 when you were just working on the standards.

A. Okay. What I did here was I made some assumptions

that would be common to the business in order to determine deep percolation quantities both on the basis of time and the amount. Upon doing that, HKM has a computer program which was developed by myself. It's based on the transient flow equation used commonly by the Bureau of Reclamation. Then the program --

Q. Excuse me, Bob. Was that the irrigation scheduling program that you discussed in your direct testimony?

A. No, it doesn't have anything to do with the irrigation scheduling programming.

Q. Okay, go ahead, I'm sorry.

A. Okay, after I determined quantities of deep percolation with respect to time, we generated a set of drain spacing analyses, first of all, holding the depth to barrier constant and then going through a number of different iterations, as can be seen by the numbers shown on this paper, for hydraulic conductivity. Then the depth to barrier was varied and the same series of iterations for hydraulic conductivity were run through again. This was done until the number of different combinations that are shown on these sheets were determined. After obtaining this information, it was plotted graphically on these sheets,

which have been reduced, and then --

Q. Reduced in size, right?

A. What's that?

Q. Reduced in size from larger paper to letter size paper?

A. Yeah, to letter sized paper.

Then similar lines that would have drain -- or similar drain spacings were interpolated in based on the results of these different combinations of hydraulic conductivity and depth to barrier.

Q. Using Exhibit BT-12, assuming that you wanted 1000-feet drain spacing and assuming that your hydro-- your hydraulic conductivity was 1 inch per hour, would that mean that you would have to be located in an area having a depth to barrier of approximately 15 feet?

A. If you had 1000-foot drain spaces?

Q. Yes, sir.

A. Yes.

* * * * *

THE SPECIAL MASTER: Can I hear that again, please, Mr. White or the witness? Do you have one hydraulic conductivity inch per hour? That would be about -- that would be up five-tenths. Does that read up on the left five-tenths?

MR. WHITE: The five is five inches, Your Honor.

THE WITNESS: That's correct.

THE SPECIAL MASTER: Then the one you would read over to 15 and you get about 750 foot spacing; is that correct?

THE WITNESS: You would read over until you intersect the line that's 1,000.

MR. WHITE: So really that would be around sixteen and a half or seventeen feet.

THE WITNESS: Correct.

MR. WHITE: I was trying to deal with approximations.

THE SPECIAL MASTER: I've got it. That's fine.

THE WITNESS: One thing I think that should be made clear is that Dr. Mesghinna was responsible for the determination of drain spacing in this litigation, and the only

consideration that HKM made was the 200-foot drain spacing.

THE SPECIAL MASTER: Minimum?

THE WITNESS: Minimum concept.

Q (By Mr. White) But these graphs, were, in fact, part of the general work you did to develop your standards, were they not?

A Not really. Two hundred feet was all that was important.

Q Show me how you come up with 200 feet on these graphs. You can come up with more. That's what counts, I guess.

Show us any example of less than 200 feet on any graph.

THE WITNESS: No, they don't have less than 200 feet. Now --

THE SPECIAL MASTER: I have a question or two on these if it's not inappropriate to interrupt now.

MR. WNITE: That's all right. I was galloping towards 1:00.

THE SPECIAL MASTER: I'm troubled with this observation. A plot of land cannot serve both as sprinkler or gravity. It must be one

toedter-voir dire-white

or the other at any given season?

THE WITNESS: That's correct.

THE SPECIAL MASTER: Or maybe even a given year and maybe it elapses for some other reason?

THE WITNESS: Correct.

THE SPECIAL MASTER: Is that factor cranked into your work in some way in these evaluations, or is it not?

THE WITNESS: All right. I'll tell you the consideration that was given to it.

As we classified lands as sprinkler lands and classified lands as gravity lands, it became necessary and appropriate to identify, you know, with that land classification.

THE SPECIAL MASTER: And the rest of it is up to management then, I suppose?

THE WITNESS: Well, it's carried on through the context of the study in other witnesses.

THE SPECIAL MASTER: If it's 2 gravity and 5 sprinkler and a manager is foolish enough to put 5 sprinkler on, that will result in less sustained yield or less crop values?

toedter-voir dire-white

THE WITNESS: No, I think the only point that we were trying to make here is that, in fact, there was a 200-foot drain spacing.

THE SPECIAL MASTER: Out there on a given parcel of land.

I think I understand.

THE WITNESS: Given the deep percolation conditions for sprinkler and then given the deep percolation conditions for gravity.

TNE SPECIAL MASTER: This is strictly a case of drainage and nothing else as far as you are concerned,, right?

THE WITNESS: Right.

THE SPECIAL MASTER: Go ahead, Mr. White.

Q (By Mr. White) In your direct examination you referred to the use of an HKM computer program involving irrigation scheduling analysis.

Would you please describe how that fit in to either the development of the land classification standards, the application of those standards, or the analyses which is represented by Exhibits 231 through 241-B?

A Okay. They don't have anything to do with this analysis here that has been presented.

toedter-voir dire-white

What they relate to or what it relates to is the determination of whether or not lands -- well, it does indirectly but not directly.

It relates to the determination of arable lands.

Okay. Getting back to the question that you asked me about an irrigation scheduling program, actually HKM does not have an irrigation scheduling program as such, a package.

What it is is it's a component of the drainage program. What we attempt to do is using consumptive use analysis, which for this particular study we chose to use Jensen-Haise, we developed soil moisture budget analyses.

Essentially this whole thing is an interplay of soil, moisture budgeting, the amount of moisture that you have in your soil profile, so you have to start with an initializing condition.

Then you have to consider the quantity of consumptive use and the quantity of effective precipitation.

Once all the moisture based on your consumptive use and effective precipitation analysis, which I will just call irrigation requirement for simplicity, uses up all the moisture in the soil profile, and irrigation event would be required.

Then we identify the amount of application that would be placed on the land, which is just a typical situation, subtract the amount of moisture that will be held by the soil, which again is just the typical case situation, deriving a difference.

Now, a portion of that difference will be deep percolation and a portion will be evaporation.

That portion that's evaporation will not pass on down through the root zone in the form of deep percolation, so that's no longer important to us in our consideration.

THE SPECIAL MASTER: I wish I could say that evaporation was no longer important to me, but that's not the case.

Go ahead.

THE WITNESS: Okay. Then continuing in toedter-voir dire-white

this analysis, the call for an irrigation, so we bring our soils profile up to its maximum capacity.

Then we start the irrigation requirement or comsumptive use process, if you will, until all the moisture is utilized within the soil profile, and this is the process throughout the irrigation season.

THE SPECIAL MASTER: If you see an area in your arable studies that is fraught with massive water consuming growth like free autophytes, does it affect your conclusions, or does it have nothing to do with that?

THE WITNESS: No, we really didn't take that into consideration. That's in another subject area.

THE SPECIAL MASTER: Go ahead, Mr. White.

Q (By Mr. White) In all this that you have described as a part of what you call your drainage program --

A Yes.

Q -- that's a computer program?

A Yes.

Q And was that used in this study even indirectly

toedter-voir dire-white

and I think it's just inappropriate for Mr. White to be requesting it.

THE SPECIAL MASTER: Well, will you ask your employers and, if so, you can have it ready for Mr. White, if it's an appropriate document.

MR. WHITE: Even if it's proprietary, if it's part of the work he did leading up to these conclusions, we are entitled to it.

THE SPECIAL MASTER: I would think so, and he said it's no problem to obtain it.

MR. ECHOHAWK: May I address that?

In various depositions that we have had since last spring we've been through this interchange time and time again of each side asking the other side for their computer program listings and so forth, and on each occasion it was understood that those were proprietary and would not be turned over.

We have asked Wyoming's experts for their's, and they have refused to give them to us, and likewise, we have refused to give them our computer listings.

I think it's tangentially related to what Mr. Toedter has talked about, and I think

for the development of the opinions which are illustrated by Exhibits 231 through 241-B?

A Only as applies to the arable land base, as identified by HKM.

Q So it was used in your analysis as applied to the arable land base; is that correct?

A Right.

Q Do you have a program listing for that computer program?

A Okay. I don't think I do with me.

MR. WHITE: Your Honor, I would ask that the witness be instructed to provide a program listing so we can determine whether or not the program does what the witness hopes it does and whether or not we wish to attack the programming.

THE SPECIAL MASTER: How much of a problem is that, Mr. Toedter? Can you do it --

THE WITNESS: It's no problem

THE SPECIAL MASTER: No problem?

MR. MEMBRINO: Your Honor, this drainage program was only incidentally related to his conclusions on drainage. It's also proprietary information that neither side has exchanged,

he can explain for the most part, as he has done right now.

MR. WHITE: I will state for the record, Your Honor, that when the State of Wyoming completes the programs which it's using, I think it's bound by the rules to provide them either at the time prior to their use as part of direct examination or their reliance on it during direct examination or when requested to deliver them during cross-examination.

THE SPECIAL MASTER: Let me hear one more time what it is you have asked for.

MR. WHITE: I have asked for the program listings or the description of the program for the drainage program which Mr. Toedter has testified were involved in his drainage analyses with respect to the arable lands within the study areas shown on Exhibits C-231 through 241-B.

THE SPECIAL MASTER: Do you need them all, for all areas?

MR. WHITE: No, just one thing. It's one program, and they plug in data, and we just want to see the program how they mesh the program.

THE SPECIAL MASTER: It's going to be hard

for me to say that that is not relevant to this lawsuit. If you want -- do you object to that? Does the United States object?

MR. ECHOHAWK: Yes, Your Honor.

THE SPECIAL MASTER: You are going to have to give me some pretty good reasons for sustaining your objection.

Why don't you think about that and come back at me later, and in the meantime we will let sit the fact that I'm going to ask the witness to produce them.

MR. ECHOHAWK: I will discuss that with the heads of each of the companies that deal with that information.

THE SPECIAL MASTER: Go ahead, Mr. White.

MR. WHITE: Your Honor, --

THE SPECIAL MASTER: Let's go eat.

MR. WHITE: If you rule eventually that we may not have the program listings, then I would ask two things:

First, that this witness be required to return to be cross-examined; orally cross-examined, with respect to that program --

THE SPECIAL MASTER: Which I denied you by the rule.

MR. WHITE: And, second, that the same rule with respect to the proprietary nature of the programs be extended to the State as well as the United States.

Those are the two things I ask if you eventually deny it.

I think you nodded your head yes.

THE SPECIAL MASTER: Well, I understand your two requests, and I just don't believe that there is much of a case to deny the fact that you ought to provide the materials. There's no big deal, as he said.

I will reserve the final ruling on it until I hear from the United States.

MR. MEMBRINO: Thank you, Your Honor.

Q (By Mr. White) Mr. Toedter, do you have with you the soil logs which you developed or other field notes which you prepared based on your 1981 field investigation?

MR. CLEAR: If we are going to go into another area, shall we take a ten-minute break?

THE SPECIAL MASTER: No, let's go and see if we can finish up in ten or fifteen minutes.

MR. WHITE: I think I have about 15 minutes more cross.

THE SPECIAL MASTER: I think you can condense it to seven and a half minutes.

MR. WHITE: I would have no objection to a short break.

THE SPECIAL MASTER: I think it's up to you. Do you want to go on or do you want to take a break?

THE WITNESS: I'm not sure I can put my finger right on these materials that Mr. White has requested, so it would probably be a good idea to take a break.

THE SPECIAL MASTER: All right. Let's take a ten-minute break.

(Whereupon, a ten-minute recess was taken.

* * * * *

(Beginning at 1:12 p.m.

THE SPECIAL MASTER: Come to order, please.

Q (By Mr. White) Mr. Toedter, is it --

MR. MEMBRINO: Your Honor,before we continue, I just want to make something clear about the information that has been requested by Mr. White. The information that was used was used only indirectly and it was used to prepare the footnote to the standards. There is a 200-foot drain spacing. The calculations that go into the actual drain spacing that the United States is going to present will be through another witness using perhaps a completely different program. And I think the whole issue regarding this witness' knowledge of his company's program is all out of proportion to its relevancy in this hearing.

MR. WHITE: Whether or not that's true, Your Honor, if it is relevant to one footnote or twenty footnotes, it is still discoverable and we maintain our order --

THE SPECIAL MASTER: Go ahead.

Q (By Mr. White) Mr. Toedter, --

A. Yes.

MR. WHITE: -- excuse me, or maintain our request for an order. I'm sorry.



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Q. (By Mr. White) Mr. Toedter, were you able during the break to find your 1981 soil logs or field notes, or have they disappeared in one of the many, many boxes of materials that you brought with you?

A. Okay, I have misplaced them.

Q. Will you be able to provide the State of Wyoming with copies of those?

A. Yes, I will.

Q. Will you be able to provide us with copies prior to week's end, prior to Friday, this being Wednesday?

A. Yes.

MR. WHITE: Thank you.

Q. Is it true that you provided the information contained in Exhibits 231 through 241-B to Dr. Mesghinna?

A. Yes, I did.

Q. Did you provide the information contained in your work maps -- or, excuse me, let's strike that.

Did you provide your work maps of the type that's been admitted as Exhibit 243-C, 243, to Dr. Mesghinna?

A. No, I did not.

Q. Okay. Thank you.

Isn't it true, Mr. Toedter, that over 90 percent of your study areas shown on Exhibits 231 through 240 lie within one or more of the following land forms: alluvium, terrace and Wind River Formation?

A. I would say that's probably an accurate appraisal.

Q. I hand you what's been marked for identification as Plaintiff's Exhibit BT-10, which is entitled, "Report to the Regional Director of Region VI, Bureau of Reclamation", by the Board of Consultants, Riverton Project, Wyoming, regarding drainage in land classification problems on the Third Division of Riverton Project, dated December 15, 1961, and ask you to turn to the fourth page, which is a map showing the North Portal and the North Pavillion areas of the Third Division, and further ask you, using Exhibit C-33, to tell me or tell the Court, state for the record, the land forms which are included within the North Pavillion and North Portal areas, as depicted on that map.

MR. MEMBRINO: Your Honor, before he begins, I should point out that Mr. Toedter's description of land forms earlier testified to were based only in part on the United States Exhibit WRIR C-33. He was also in the field and was on these lands.

MR. WHITE: I think the record speaks for itself, Your Honor.

THE SPECIAL MASTER: Have you got any indication, Mr. White, of what the township is of the North Portal area?

MR. WHITE: Well, they lie along 2 East and 3 East on either side of Muddy Creek.

THE SPECIAL MASTER: 2 and 3, Township 2 and 3 North?

MR. WHITE: I'm sorry, 2 and 3 East, Your Honor. The Bureau map omits the township. I gave him the ranges.

THE SPECIAL MASTER: Oh, I see. All right.

MR. WHITE: I think it is easily figured out from the other features shown on here.

THE WITNESS: Okay. Similar geologic materials are shown in these areas.

Q (By Mr. White) That's the Wind River Formation, alluvium and terraces?

A That's correct.

Q In other words, over 90 percent of your study areas contained the same land forms as contained in the Third Division?

A That's correct.

toedter - cross - white

THE SPECIAL MASTER: Well, the first time he asked you, you said that's generally correct, so I assume you still want to keep it somewhat consistent.

THE WITNESS: All right, I'll keep it generally.

I don't know whether the 90 percent figure is exact or not.

MR. WHITE: Well, do you want to go through them one by one?

THE WITNESS: No.

(Laughter.

MR. WHITE: Okay. If it's any help, I came up with 94 percent.

Q (By Mr. White) Would you turn to Page -- Pages 2 and 3, please, beginning at the bottom of Page 2 where it says, "Soil Logs", would you read to yourself or aloud, if you like? You might as well read it aloud, the last paragraph on Page 2, which begins, "The purpose of soil logging," and the first paragraph on Page 3, which begins, "The 400-foot grid holes"?

A. Okay.

Q. Isn't it true that the 400-foot grid described in the last paragraph on Page 2 converts to a hole density of one hole for approximately 4 acres?

A. Okay, that would be correct.

Q. And isn't it true that in the first paragraph of Page 3 those 400-foot grid holes are indicated as being logged for a variety of items, including structure?

A. Yes, they were.

* * * * *

THE SPECIAL MASTER: Is it among other things?

MR. WHITE: Yes, sir, I meant to say among a variety of items.

Q (By Mr. White) Isn't it true that the hole density utilized in your analysis depicted on Exhibits C231 through 241-B is based on a hole density of several hundred feet -- excuse me -- several hundred acres per hole?

A That's reasonable to assume.

MR. MEMBRINO: Your Honor, I think we should point out what this document was prepared for and what we're involved with in this case.

This is prepared about an existing irrigation project with very severe drainage problems, and it's a report on what might be done about it, and the level of intensity is far greater than what we have to be concerned with in proposed project development and, in fact, taking preventive measures and good design in the first place to avoid going into what has gone on here.

I think we are involved in what may not be

a fair comparison.

THE SPECIAL MASTER: I appreciate your observation. Go ahead with your questions.

MR. WHITE: I'm glad Mr. Membrino mentioned that, Your Honor, because it gives me a chance to indicate that that's the kind of spacing and the kind of work that was done for a project that failed.

THE SPECIAL MASTER: I'm interested in any evidence that will give us some record of the projects in Wyoming that failed. That we want to try to avoid if we can in cranking in the conclusions of water in this area, and that's understandable.

MR. WHITE: Can I have just one moment, Your Honor, and I'm about to offer these exhibits?

THE SPECIAL MASTER: If the project succeeds, Mr. Toedter, we thank providence, the nature of the soil, the abundance of water, and the great dedication and excellence of the farmers.

If it fails, we blame the professionals, the experts, the planners, and the politicians.

THE WITNESS: There you go.

THE SPECIAL MASTER: Tne old saying is that when adversity came to a man, he blamed his wife and his staff. In this business it's the same thing.

MR. WHITE: Did you say something to me, Your Honor? I was spaced out a hundred miles away.

THE SPECIAL MASTER: Just making an aside while you were working.

MR. WHITE: Your Honor, at this time we would offer the following exhibits: BT-2, which is an excerpt from the drainage manual; BT-3, which is a collection of soil profile logs.

THE SPECIAL MASTER: You are not going to offer 10 itself?

MR. WHITE: I will, Your Honor. BT---

THE SPECIAL MASTER: All right.

MR. WHITE: BT-4, another excerpt from the drainage manual; BT-9 -- excuse me -- BT-10, the Third Division Report; BT-11 and BT-12, drain spacing charts.

They are offered for the purpose --

MR. SACHSE: Your Honor --

MR. WHITE: -- as follows: BT-2 for the

truth of its contents; BT-3 to show facts and data upon which the expert, the witness, based his opinion; BT-4, for the truth of its contents; BT-10 for the truth of its contents; BT-11 and 12 to illustrate a portion of an analysis accomplished by Mr. Toedter.

THE SPECIAL MASTER: Any voir diring by anybody?

Mr: Sachse?

MR. SACHSE: I wish to object to the introduction of BT-10 for the very reason that no foundation has been laid for it and there is no way to voir dire as to it.

Now, as to what Mr. White is trying to do is introduce documents that he could very well introduce if he wishes to by one of his own witnesses in his case in chief, in which event we would have the opportunity to cross-examine -- to voir dire that witness as to his knowledge about the document and its relevance to this case, but to take a 1961 study of a portion of the Riverton Reclamation Project, make the assumption that that portion, A, is relevant, though my assumption was it was a gravity project rather than a sprinkler project; two,

make the assumption that nothing has been done to improve and make productive those areas where the fact may be that much that was considered bad is actually in production today.

With no way to cross-examine a witness as to what is actually happened out there, this evidence is inadmissible for lack of foundation and incompetent to show anything of relevance to this suit.

Now, at a later time it may very well turn out to be relevant and we would get the document with a witness, I suppose presented by Mr. White, who could be cross-examined as to what's really happened and as to how that document is relevant to this case.

THE SPECIAL MASTER: If this document had been used for any purpose other than what it was, very briefly a moment ago, applied only to generalizations dealing with land forms and if 90 percent of the area similar to that in that it is an alluvium or parts of the Wind River valley floor or it's a terrace -- I believe those were the questions -- that's what this document serves as a function.

MR. SACHSE: But Mr. White has introduced

it for the turth of its contents.

THE SPECIAL MASTER: Right.

MR. SACHSE: He's done that quite deliberately.

THE SPECIAL MASTER: And its contents deal with a different project back in 1961 with many, many matters that don't have a relationship except they find themselves in similar soil forms.

MR. SACHSE: There's no way this document can prove its contents unless someone has testified that these things are true. In other words, it's a --

THE SPECAIL MASTER: Mr. White, would you put Plaintiff's Exhibit BT-10 introduced for the same purposes as 11 and 12? You remove the objection if you do.

MR. WHITE: I would introduce -- I would amend my offer as follows: I offer it as a copy of what it purports to be and, second, for the purpose of impeachment.

THE SPECIAL MASTER: Doesn't that remove your objection, Mr. Sachse?

MR. MEMBRINO: No, the Government also objects, Your Honor.

THE SPECIAL MASTER: All right. Let's hear your objection, Mr. Membrino.

MR. MEMBRINO: The relevancy of this to the testimony that we are speaking about I just briefly discussed a few moments ago. It's about a different project with different problems that accrued over time.

It's historical in its approach and we are looking to propose projects that will be designed to obviate these problems in the future.

We haven't had a chance to review this at all. We've got items in it that we haven't had a chance to examine.

Much of this is taken out of context. The very presentation of the information involved is out of context in the fact that it was an historical long-standing problem.

* * * * *

THE SPECIAL MASTER: Let me ask a question, Mr. Membrino, at the risk of having to interrupt you.

The material is in the record regarding what you adduced from the record by use of BT-10--

MR. SACHSE: Just --

THE SPECIAL MASTER: Just a minute, Mr. Sachse.

Would you, Mr. White, agree to withdraw Exhibit 10 and reserving the right to introduce it as your own exhibit with your own witnesses at that time?

MR. WHITE: I will make a further compromise, and I will offer it only for the purposes of impeachment,and I can offer a bowl of spaghetti for impeachment if that's what I elect to do.

THE SPECIAL MASTER: You offer to do that pretty soon and the Special Master will offer to eat it.

MR. WHITE: It's offered for the purpose of impeachment.

MR. SACHSE: There's no rule that just anything can be offered for the purpose of impeachment. There is no showing that this has any relevance to what Mr. Toedter has testified to, and as far as -- it really is just purely hearsay. It's inadmissible.

THE SPECIAL MASTER: This document was introduced for a look at a map in it which showed the position of two of the areas of Water Division No. 3.

MR. CLEAR: No, Your Honor. He asked him to read from it. He read from it.

MR. WHITE: He didn't read from it, Your Honor.

MR. SACHSE: Let Mr. White just introduce the map if that's what is there, but what he's trying to do is very clever and so forth --

THE SPECIAL MASTER: He read only from two paragraphs which added nothing new, and the fact that, among other things, the word "structure" appeared along with "texture", "depth to water tables", "color", "visual salts" and other reasons that holes are drilled --

MR. SACHSE: If Mr. White wants to introduce those two paragraphs, perhaps we would have no objection; but if he wants to put in what really is a bulk of material where we have had no chance to test his witnesses as to the relevancy of that material -- and our witnesses certainly have seen no relevance in it -- then I think this is improper.

THE SPECIAL MASTER: All right. Let me ask Mr. White one more question.

MR. WHITE: I can solve the problem, Your Honor. I'll limit the offer to the map and the two paragraphs referred to.

THE SPECIAL MASTER: All right. That's going

to be -- the offer now is the map and two pages from the total document.

MR. WHITE: I offer the whole thing, Your Honor -- or the whole thing comes in, but the only thing I'm offering, the only thing the Court should consider, is the map and the two paragraphs.

MR. SACHSE: Then the whole thing doesn't come in.

THE SPECIAL MASTER: The whole thing doesn't come in. The whole thing stays out except the map and the two pages which are important to your cross-examination.

MR. MEMBRINO: Your Honor --

MR. WHITE: Well, it makes no difference to me.

THE SPECIAL MASTER: You are going to get it in later on anyway.

MR. WHITE: It's a violation of the Rules of Evidence, but I will waive the objection.

THE SPECIAL MASTER: I appreciate that. Exhibit 10 will be -- the description will be corrected as it contains one page, the Riverton Project drawing, and Page 2 and Page 3 of the document that had been offered.

MR. MEMBRINO: Your Honor, I nevertheless object to even that offer.

THE SPECIAL MASTER: That objection is overruled.

MR. WHITE: Your Honor, for the purpose of keeping things straight, could I please have those pages back. I will put them back in order in the parent document. The parent document was offered and, therefore, has to accompany the reporter, and I will prepare another exhibit called 10-A, and that would contain just those three items.

THE SPECIAL MASTER: All right, but 10 is not a part of it, is not admitted into evidence. It's not a part of the record.

MR. WHITE: I understand, Your Honor. It is rejected.

May I have just a moment to do that?

THE SPECIAL MASTER: All right. When we adjourn in a few minutes, we will adjourn until 9:15 tomorrow morning in this same room, and we'll put on a good strong day tomorrow and a good strong day Friday, if necessary.

MR. MERRILL: While Mr. White is getting his exhibits in order --

THE SPECIAL MASTER: Yes, Mr. Merrill?

MR. MERRILL: I would like to ask that, as the Court is aware, Wyoming filed a request for production

to the United States several days ago requesting essentially a copy of any land classification standards that were developed with respect to the Crow Reservation.

Mr. Echohawk and I have discussed the matter informally off the record, and as you will recall, during Mr. Kersich's testimony, the United States resisted production of those documents on the grounds that they were privileged.

I believe Mr. Echohawk will state now that they would respond similarly to the formal request for production, and I would like to ask that the request be now treated as a motion to compel production under the Rules of Procedure and that the matter be set for hearing at the commencement of our proceedings on May 5, if that's agreeable with counsel for the United States.

THE SPECIAL MASTER: I would like to hear some good argument from you gentlemen as to what should compel me to order the procedure that something can be produced from another tribe of Indians on another reservation in another state, none of which is in the jurisdiction of the Special Master.

MR. ECHOHAWK: Especially in another lawsuit, Your Honor. That's the key point the United States

is concerned about.

THE SPECIAL MASTER: Well, get your cases ready and your argument, and I'll hear you on May 5 with some motions, and this will be one of them. I have it marked for May 5 or 6.

MR. MERRILL: All right, Your Honor. I assume we need not make a formal motion to compel, but is that agreeable with you, Tom?

MR. ECHOHAWK: It's agreeable, and let the record stand as it is.

THE SPECIAL MASTER: It's in the record, and remind me to get to it if we don't do it first thing on May 5. Tuesday, May 5.

Also, Mr. White wants those two days that week. You still have a reservation here to pull them if you want them.

MR. WHITE: If I really need them, I will have somebody else cover the bases for me, Your Honor. I just don't want to hold things up on that account.

Your Honor, I have got 10-A, which is paperclipped --

THE SPECIAL MASTER: Stapled together?

MR. WHITE: It's not stapled, Your Honor. I don't have a stapler.

THE SPECIAL MASTER: I will staple it.

END

MR. MEMBRINO: Your Honor, may I make an inquiry, what is the status of the exhibits that were offered? The United States --

THE SPECIAL MASTER: I'm about to admit them all into evidence; all those offered by Mr. White and all of those, meaning that -- let me find my notes. I'm getting a little bit -- meaning BT-2, -3, -4, -10-A, -11, and -12.

MR. MEMBRINO: Your Honor, we note the government objection to the admission of any of them. B-2 and B-4 are excerpts from --

THE SPECIAL MASTER: From a manual.

MR. MEMBRINO: -- from a manual.

THE SPECIAL MASTER: Sure.

MR. MEMBRINO: Again, the context of which is not complete.

THE SPECIAL MASTER: Well, now, you can't have it both ways. You can't argue that the manual was not complete there, having just thrown out 180 pages of the manual.

MR. WHITE: I might ask you to reconsider on 10, Your Honor.

THE SPECIAL MASTER: That can hardly be a basis for your objection to BT-2.

MR. MEMBRINO: Well, Your Honor, we also object

to the introduction of 11 and 12, even for the purpose of illustrating Mr. Toedter's work. Mr. Toedter's work in this had to do with the establishing the footnote in his standards related to 200-foot drain spacings. These have nothing to do with that.

THE SPECIAL MASTER: The objections are respected, but respectfully overruled.

MR. MEMBRINO: Thank you, Your Honor.

(Whereupon Exhibits BT-2, BT-3, (BT-4, BT-10-A, BT-11 and BT-12 (were received into evidence.

MR. WHITE: We have no further questions on cross, Your Honor.

THE SPECIAL MASTER: Thank you all very, very much, ladies and gentlemen -- or we don't have -- one lady in court.

Yes, Mr. Echohawk.

MR. ECHOHAWK: Your Honor, in discussing the matter on the motion to compel the Crow information, I have had further discussions with Mr. Merrill, and this is a point of great importance to the United States, and what we would like to do is we would like to also file briefs and have a chance to respond to Wyoming's brief. If we could file briefs by, say, next Friday and then set the motion to be argued possibly either the following Thursday of

the week that we resume or Friday, that gives us a chance to consider Wyoming's briefs and possibly respond to some of the points --

THE SPECIAL MASTER: Mr. Echohawk, if it is found that this becomes so much of a gravamen to the United States, that's as to the law of the Indian Reservations, we can reserve it another month or two and will set it for a hearing for one week in Mammoth Falls or Yellowstone Park or someplace for one week along about August. We can do this, too. That's not joking. If it is a serious enough matter, let's set it down the road sometime where we can a few days away from the tribulations of this lawsuit. Because it has nothing to do with Water Division 3.

MR. ECHOHAWK: That may be more appropriate because it is a matter that affects or could have a potential effect on all of the United States' lawsuits on behalf of Indian Tribes or lawsuits in general.

THE SPECIAL MASTER: I would believe so.

MR. ECHOHAWK: Perhaps that would be a good idea to set it two or three weeks down the road.

THE SPECIAL MASTER: Wyoming is going to argue in the matter you have used the same people

in the same areas to find conclusions regarding certain lands that can have a similarity. Therefore, it has a direct relation to the work being done in Water Division 3.

MR. MERRILL: That's part of the argument, Your Honor.

MR. ECHOHAWK: And part of our argument is --

THE SPECIAL MASTER: If we're going to take this on the morning of May 5th and it takes up all of the 5th, 6th, 7th and 8th, then I don't want to set it on May 5th. Do you understand what I mean?

MR. ECHOHAWK: Perhaps we can set it towards the end of May.

THE SPECIAL MASTER: It isn't all that urgent.

MR. MERRILL: Your Honor, I would like to have it heard late next week or the next week of hearings, but the matter is very important to Wyoming's preparation of its case in chief as well as preparation of the continuation of cross-examination in the Federal Government's case.

THE SPECIAL MASTER: All right. Now, let's go back --

MR. MERRILL: If Mr. Echohawk wants --

THE SPECIAL MASTER: Let me go back to the beginning on May 5th. Mr. Echohawk, if you've got the

last week in April to prepare a little bit of this and you've got the help -- you should have some help with some of the excellent counsel --

MR. ECHOHAWK: The problem is if we get Wyoming's brief on Friday and it's to be argued on Monday, we don't really have a whole lot of time to respond to their points. If we've got nothing else, just set it later on in that week, say, Thursday --

MR. MERRILL: That's fine with us, Your Honor.

THE SPECIAL MASTER: All right, it will be set for Thursday of that week.

We are in recess until tomorrow at 9:15.

MR. WHITE: Your Honor, is this witness excused? If he was --

MR. MEMBRINO: We've got redirect, Your Honor.

THE SPECIAL MASTER: Some redirect tomorrow?

MR. MEMBRINO: Tomorrow morning.

THE SPECIAL MASTER: All right, we'll see you tomorrow morning.

MR. SACHSE: Before we all scatter and off the record --

THE SPECIAL MASTER: The record is closed.

(Proceedings recessed at
(approximately 1:40 p.m.

END

## INDEX TO EXAMINATION



## INDEX TO EXHIBITS

| | IDENTIFIED | RECEIVED |
|---|---|---|
| C-231 through C-243 | | 3990 |
| WRIR BT-2 | 3917 | 3973 |
| WRIR BT-3 | 3920 | 3973 |
| WRIR BT-4 | 3921 | 3973 |
| WRIR BT-10-A | 3969 | |
| WRIR BT-10 | 3955 | 3969 Rejected |
| WRIR BT-11 | 3937 | 3973 |
| WRIR BT-12 | 3937 | 3973 |

## REPORTERS' CERTIFICATE

State of Wyoming )
: SS
County of Laramie )

We, Lamont Miller and Viola J. Lundberg, Registered Professional Reporters and Notaries Public, hereby certify that we did at the time, date and place, as set forth, report the proceedings had before the Honorable Teno Roncalio, Special Master Presiding, in stenotype; that the foregoing pages, numbered 3820- inclusive, constitute a true, correct and complete transcript of our stenographic notes as reduced to typewritten form under our direction.

We further certify that we are not agents, attorneys or counsel to any of the parties hereto, nor are we interested in the outcome thereof.

Dated this 22nd day of April, 1981.

LAMONT MILLER
Registered Professional Reporter

VIOLA J. LUNDBERG
Registered Professional Reporter

Lamont Miller - Notary Public
COUNTY OF LARAMIE STATE OF WYOMING
My Commission Expires March 29, 1983