1-28-1981

# Trial Transcript, Vol. VII, Morning Session

Frontier Reporting Service

File 114
4365
Box 10

case # 4993

File # 114

4365

IN THE DISTRICT COURT FOR THE FIFTH JUDICIAL DISTRICT

WASHAKIE COUNTY, STATE OF WYOMING

| | |
|---|---|
| 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
2/6 1981
Margaret V. Hampton CLERK
DEPUTY

VOLUME VII

Thursday, January 29, 1981

Morning Session

ORIGINAL

## APPEARANCES

| | |
|---|---|
| FOR THE STATE OF WYOMING: | MR. JAMES MERRILL, MR. MICHAEL D. WHITE and MR. SCOTT KROB<br>Special Assistants Attorney General<br>2900 Energy Center One Bldg.<br>Denver, CO 80202 |
| FOR THE UNITED STATES OF AMERICA: | MR. CHARLES GRAVES<br>U.S. Attorney for the District of Wyoming<br>Federal Building<br>Cheyenne, WY 82002 |
| | MS. REGINA SLEATER<br>Attorney at Law<br>Land and Natural Resources Division<br>Federal Building<br>Cheyenne, WY 82002 |
| | MR. TOM ECHOHAWK<br>Attorney at Law<br>Land and Natural Resources Division<br>1961 Stout Street<br>Denver, CO 80294 |
| | MR. JOSEPH MEMBRINO<br>U.S. Department of Justice<br>Washington, DC 20006 |
| FOR THE ARAPAHOE TRIBE: | WILKINSON, CRAGUN & BARKER<br>1735 New York Ave., N.W.<br>Washington, DC 20006<br>BY: MR. R. ANTHONY ROGERS |
| FOR THE SHOEHONE TRIBE: | SONOSKY, CHAMBERS & SACHSE<br>200 M. Street, N.W.<br>Washington, DC 20006<br>BY: MR. HARRY SACHSE |

APPEARANCES (Continued)

FOR THE PRIVATE WATER HOLDERS:

WESTERN LAW ASSOCIATES, P.C.
431 Main St.
Lander, WY 82520
BY: MR. GREGG A. PARISH

* * * * *

THE SPECIAL MASTER: Please come to order.

Regina.

MS. SLEATER: Your Honor, we had, I believe when we left last night an order of business about this setting for the future settings for the trial which we couldn't resolve because Mr. White wasn't here.

Have you gotten to see this, Sandy?

MR. WHITE: Why don't you let me take a look at it, Regina.

MR. MERRILL: While Mr. White is examining the order, I would like to introduce Mr. Gregg Parish to the Court, a gentlemen Mr. Radosevich spoke to you about when he left yesterday.

THE SPECIAL MASTER: Very good.

MR. PARISH: Glad to be here. I would like to emphasize, as Mr. Radosevich has probably already said, that I am not a memeber of the Wyoming Bar; I am a member in good standing of the Colorado Bar.

THE SPECIAL MASTER: You have been admitted for the purposes of this lawsuit.

MR. PARISH: Thank you.

THE SPECIAL MASTER: You're welcome.

MR. WHITE: Your Honor, as I understand it, the second setting on the order of January 16th extends beyond the week of February 9th into the following week.

THE SPECIAL MASTER: Yes. There were two matters I think Mr. Rogers raised. The first was if that goes beyond the week of February 9th, there might be an objection to us going into the next week.

MR. WHITE: That's the week in which -- the first week of a three-week trial set down in Alamosa, Colorado.

THE SPECIAL MASTER: Why don't we -- we can make this change without having to notify everybody.

MR. WHITE: If we could just strike the language through "not later than February 19th."

THE SPECIAL MASTER: It would be through not later than the 14th of that week.

MR. WHITE: That's right, Your Honor.

THE SPECIAL MASTER: So I don't think that requires another mailing.

Now, the second one was whether to start in March on the 19th or the 16th, and I put 16th.

MR. WHITE: I'm available to start on the 9th,

Your Honor, if --

THE SPECIAL MASTER: Is everybody else?

MS. SLEATER: Yes, sir, we are.

MR. ROGERS: Yes, Your Honor.

THE SPECIAL MASTER: And would you prefer to?

MS. SLEATER: Yes.

MR. ROGERS: Yes.

THE SPECIAL MASTER: That poses a problem, whether we should have to set -- is there another mailing in the offing anyway in the next two, three weeks?

MR. SALAZAR: Yes, sir, there is, the mailing on the lists of witnesses for the United States and the tribes.

THE SPECIAL MASTER: Is that going on right now?

MR. SALAZAR: It's being prepared right now.

THE SPECIAL MASTER: Why don't we just slip into there an addendum to the order on hearings, that the March hearings will begin on March the 9th and may proceed through the week of March 16th and March 23rd.

MR. WHITE: I should say for the record, Your

Honor, that I still have a conflict for the week of the 23rd, a pre-trial conference.

THE SPECIAL MASTER: All right. Then in the inclusion merely put the hearings in the month of March will begin the week of March 9th period.

MR. WHITE: I can advise the Court then during that set of hearings that it begins on March 9th whether my pre-trial conference during the week of March 23rd is still on.

THE SPECIAL MASTER: Yes. The order is if you -- if you, prior to March 18th, let us know whether you got a problem with March 23 we may have no hearings the week of the 23rd.

MR. WHITE: I still have a problem, I hope the case will settle; most of these, except these kind of cases settle, so I'm hopeful that they will.

THE SPECIAL MASTER: All right.

MR. MERRILL: Your Honor, before we resume with the redirect testimony of Mr. Merchant, if there is any, I would like to make several motions while all his direct testimony and his cross-examination is still fresh in your mind from yesterday

afternoon. I'm aware from your previous rulings that the Court is not particularly disposed to strike either testimony or exhibits from the record, and I understand and appreciate your preference to have a full record before you. However, I think that based on the Wyoming's Rules of Evidence that there are several motions to strike portions of Mr. Merchant's testimony which should be made. Each of these motions is based on Rule 705 of the Wyoming Rules of Evidence.

The substance of **that** rule is that when testifying on the direct examination an expert witness need not disclose all of the facts and data upon which he relies. However, the rule goes on to state that on cross-examination the witness shall, and the rule is manditory, that the witness shall disclose all the facts and data upon which he relied.

As Your Honor will recall, there were several instances during the direct examination, cross-examination and voir dire examination of Mr. Merchant over the past three days in which he was unable to disclose the facts and information on which he relied. That prejudices the State of

Wyoming and any other party cross-examining the exhibits or the testimony because there is no basis for cross-examination if the precise facts and data are not disclosed.

I would like to review for you very briefly each of the instances, and maybe go through the formalities, make what is in effect, a separate motion to strike with respect to each of those.

* * * * *

MR. MERRILL: The first instance of testimony is Mr. Merchant's testimony regarding the nutritional requirements of the various classes of livestock and the ability of various feed rations to fulfill those nutritional requirements. The the substance of the testimony that he was unable to provide is found on page 220 of the records of these proceedings; that's Volume II. The testimony was provided on Monday afternoon, January 26th.

That testimony is important because it goes ultimately to the amounts of feed, and therefore their costs that are required and, of course, the costs of the feed are an important element in the overall feasibility of the current livestock operations or expanding those operations.

The second motion to strike goes to Mr. Merchant's testimony regarding the fact that he thinks there is 50 percent underutilization of the summer grazing capacity on the Wind River Indian Reservation;of course, that testimony was based on his professional opinion that the grazing capacity could be increased by up to 50 percent.

He was unable to provide the exact facts and data on which he relied other than naming the land operations officer and the range operations

officer on the Reservation. That offered us no basis to cross-examine the basis for that opinion which is really an opinion within an opinion. That testimony is found on pages 380 and 381 of the record of these Proceedings; that's Volume IV. The testimony was presented Tuesday afternoon, January 27th.

The third motion to strike addresses Mr. Merchant't testimony concerning the average number of Indians per household on the Reservation. That goes, of course, to the number of Indians that would -- that municipal, domestic and commercial water would be necessary to serve.

He was unable to say, other than the fact he spoke with someone, I think the Indian health officer on the Reservation, but he was unable to disclose beyond that the facts and data upon which the health officer or he himself relied on in arriving at that particular number. That testimony appears on pages 408 and 409 of the record, Volume IV, January 27th, Tuesday afternoon.

The fourth motion to strike goes to Mr. Merchant's testimony concerning the enrollment lists. As you will recall, I pointed out to the Court during voir dire, I believe, of the previous exhibit that we had asked for during discovery, and as of the time

of trial, still had not received a copy of the enrollment lists of the Reservation on which the population projections were based. Not having that very essential data on which Mr. Merchant relied directly in front of us, we were unable to cross-examine him effectively about the data he selected out of that list, how he used it, the way he used the various numbers and information that can be found there. Pages 413 and 414 of the record, also Tuesday afternoon, reflect portions of testimony in which the witness stated that he was unable to provide that information at trial and, of course, it has not been made available to the State of Wyoming otherwise.

The fifth motion to strike addresses Mr. Merchant's testimony concerning the enrollment lists because he was unable to state the names of the people who gave him the information on which he relied in stating that there was no migration, either into or out of the Indian Reservation. As you recall, Mr. Merchant stated he assumed there was no migration either way, and he based this on conversations with people on the Reservation. Without the names of those people, we are simply unable to dig further into the fact and effectively cross-examine the basis of that opinion and the assumption on which it is based.

The admission he cannot provide us with that information appears on pages 416 and 417 of the record.

The last motion to strike, Your Honor --

MS. SLEATER: Do you have the volume number?

MR. MERRILL: Yes, that's Volume V -- excuse me -- Volume IV, I'm sorry.

The last motion to strike, Your Honor, addresses Mr. Merchant's testimony that he gave yesterday afternoon in which he said that the Wind River Indian Reservation region is a net importer of hay, which is a winter feed. Now, as Your Honor will recall, I was asking Mr. Merchant why, if the livestock operations were so highly profitable to expand, they were not so expanded. His answer was something along the lines that the winter feed, in fact, constituted the greatest restraint and the risk that winter feed would not be made available. Of course, as Your Honor is well aware, the financial or economic feasibility of expanding the livestock operations is sort of a central point in the theme of what water rights, if any, were reserved for livestock operations on the Reservation.

If it is, in fact, the winter feed that is constricting the expansion of the livestock, we are

entitled to know the facts and data on which he relied in giving that opinion. If we are unable to cross-examine on that point, it may well be the winter feed is not a constraint and, of course, raises the question that perhaps economic feasibility is the reason that the livestock operation has not expanded.

The testimony concerning that point appears on pages 720 and 721 of the record, which is Volume VI, testimony that was taken yesterday afternoon, January 28th.

I would submit each of these motions to strike to you and ask that you rule separately upon each one, and in so ruling consider Rule 705, which is mandatory that the witness shall disclose all of the facts and data on which he relies. Since the witness has not done so in each of these six cases that I have described to you, and since the failure to do so prevents Wyoming from effectively cross-examining the basis of some of his opinions and testimony, I think it is prejudicial to us to not be able to go to the guts of the information on which he relied; therefore, I think his testimony based on each of those areas should be stricken.

* * * * *

MS. SLEATER: Your Honor, if I could address some of these points.

THE SPECIAL MASTER: It won't be necessary. I'm ready to rule on all six points. We'll take the last first.

On Item 6, I also asked some questions on that subject matter, you may recall, Mr. Merrill, and we had an understanding of whether or not the net importing of hay was a crucial reason they had not expanded into the 12,000 head of cattle operation, and if it was all so profitable, why it wasn't attained. And at the time we didn't get any information as to whether or not -- when he said that the Wind River Indian Reservation is a net importer, I wonder if he included the Wind River Reclamation Project in there, too, but that's a matter for the parties to bring out if they wish to; and if they don't want to, so be it. But I don't think his reaction there would negate the value of what he said, and I don't believe it's necessary to strike from the record what he said on the basis of the rule you cite.

Number 5 dealt with whether there was a net migration out of or migration into the Indian Reservation by Indians over the decades. Neither do I feel that his ability there to cite with precision each and

every one of his authorities so impaired his testimony as to render them excludable from the record.

I think he used and referred to those people with whom he discussed, I believe -- the facts are certainly available for the State of Wyoming to not just impeach, but certainly to contradict his testimony or to negate his probative value for me in the event it was in error.

Number 4, the 5.2 figure -- was what it, 5.2 people per family?

MR. MERCHANT: Yes.

THE SPECIAL MASTER: I don't know that it is all that inaccurate, but if it is inaccurate, the State can show that it is. But I wouldn't think the basis for me to strike it from the record is sufficient on the rule you cited. There may be a more crucial basis for striking, but I don't believe that rule would warrant it.

Number 3 and Number 2 and Number 1 dealing with the feed, the figures do leave an area of ambiguity or certainly an area of doubt, reasonable doubt, as to whether or not that becomes a viable and profitable livestock operation with the additions to which he testified, but the fact that he may not have cited with precision and with accuracy each of the names of those he consulted to form the judgment, I don't believe is such to warrant striking that material from the

record. So all six motions to strike are denied.

MR. PARISH: Your Honor, I don't know if previous stipulations have made this unnecessary, but just for the record, I would like to note that the City of Lander concurs with Mr. Merrill's motion --

THE SPECIAL MASTER: You would like to state what?

MR. PARISH: The City of Lander concurs with Mr. Merrill's motion to dismiss.

THE SPECIAL MASTER: That's fine.

MS. SLEATER: Thank you, Your Honor. At this time the United States has no redirect and would ask that Mr. Merchant be excused from these proceedings and be allowed to return to his family and business.

THE SPECIAL MASTER: I don't know whether the State will want him further or not, but we should inquire as to that, and now is the time to say.

MS. SLEATER: I believe the State of Wyoming rested its cross yesterday.

THE SPECIAL MASTER: You believe what?

MS. SLEATER: I believe the State of Wyoming rested its cross-examination of this witness yesterday.

THE SPECIAL MASTER: But I'm also asking does the State wish to be heard?

MR. MERRILL: We have no objection to the

witness being excused and allowed to return to his home. We would ask that you so rule that the witness is still subject to the jurisdiction of the Court and amenable to subpoena by the State of Wyoming should we ask that he return for further testimony.

THE SPECIAL MASTER: I believe he is as a matter of course.

MR. MERRILL: Thank you, Your Honor.

THE SPECIAL MASTER: All right, Mr. Merchant, we have had the pleasure of spending most of the week with you and we hope you have a good trip home.

MR. MERCHANT: I enjoyed it, Your Honor.

THE SPECIAL MASTER: Next witness.

MS. SLEATER: I would like to reintroduce Mr. Joseph Membrino, who is participating with the Department of Justice in this action.

MR. WHITE: I wonder if we could take just a few minutes and move everyone around?

THE SPECIAL MASTER: Do you need a recess?

MR. WHITE: That will be all right.

THE SPECIAL MASTER: We'll be in recess for five minutes.

(Whereupon a five-minute
(recess was had.

* * * * *

THE SPECIAL MASTER: Mr. Membrino.

MR. MEMBRINO: I call the government's next witness, Oliver Page.

THE SPECIAL MASTER: P-a-g-e?

MR. MEMBRINO: That's right, Your Honor.

Have you been sworn yet, Mr. Page?

MR. PAGE: No, I haven't.

THE SPECIAL MASTER: Would you stand, please, Mr. Page.

OLIVER PAGE

having been first duly sworn, was examined and testified as follows, to wit:

MR. MEMBRINO: It may be evident to you now, Your Honor, but Mr. Page has a very serious voice condition, and we'll go as long as we can with him, but we've agreed with the State we may have to take a break every now and then to give his voice a rest.

THE SPECIAL MASTER: Does ice water help you?

MR. PAGE: I've got some throat lozenges.

MR. WHITE: Your Honor, the State has been advised of Mr. Page's increasing laryngitis, and I have suggested that at any time Mr. Page would like to take a break, we would have absolutely

no objection even if it's three minutes since the last one. We sure appreciate his tenacity getting on the stand feeling like that.

THE SPECIAL MASTER: All right.

DIRECT EXAMINATION

BY MR. EMERSON:

Q Mr. Page, would you state for the Court your name and address.

A My name is Oliver Page. I live at 616 East Woodway, Mill Valley, California.

Q And where are you employed?

A I'm employed with Stetson Engineers Inc.

Q How long have you been with Stetson Engineers?

A Fifteen years.

Q And your profession is?

A I'm a hydrogeologist.

Q What are your responsibilities in the company?

A Well, in addition to being a hydrogeologist, I supervise the staff of our San Francisco office.

Q Do you have any financial interest in the company?

A I own five percent of the company.

Q Have you previously testified before this Court [illegible]

[illegible]

background.

A. I received my Bachelor's degree in geology from UCLA in 1963 and my Master's in hydrogeology from Colorado State in 1966.

MR. WHITE: Your Honor, for the sake of Mr. Page's voice, the State would stipulate that he may be accepted as an expert in hydrogeology by the Court.

MR. MEMBRINO: Your Honor, I was going to move his qualification as an expert in hydrogeology and groundwater development, and if the State would stipulate to that.

THE SPECIAL MASTER: Also groundwater.

MR. WHITE: Let me take a look at the resume.

THE SPECIAL MASTER: All right. Take a few minutes. Is there a copy of the resume that's going to be admitted into evidence?

MR. MEMBRINO: Yes.

THE SPECIAL MASTER: In that case, I'll take a look at it.

MR. WHITE: We'll stipulate to that, Your Honor.

THE SPECIAL MASTER: Mr. Page, I'll try to

ask you a question that you can answer yes or no -- strike that.

MR. MEMBRINO: Your Honor, for the record, I have presented to Mr. Page the United States Exhibit WRIR C-31 which is Mr. Page's resume, and I would like that moved into evidence at this time.

MR. WHITE: May I see a copy?

MR. MEMBRINO: Sure.

Q. (By Mr. Membrino) Mr. Page, while the State is examining your resume, would you -- can you state that this resume fairly describes your professional and educational background?

A. Yes, it does.

MR. WHITE: We have no objection, Your Honor.

THE SPECIAL MASTER: Thank you. The Exhibit C-31 is admitted.

(Thereupon US Exhibit WRIR C-31 was received in evidence.)

Q. (By Mr. Membrino) Mr. Page, have you been hired by the United States for work in connection with this case?

A. Yes, I have.

Q. Would you describe briefly what you've been

ask to do.

A. We were asked to evaluate the groundwater resources of the Reservation for use in resource development and for the use by the government in their claim.

Q. In your study of the Reservation, what sources did you refer to?

A. We referred to standard published sources by the US Geological Survey, State of Wyoming, and unpublished basic data collected from both federal and state agencies and private companies.

Q. Are these kinds of sources ordinarily relied upon by persons in your profession?

A. Yes.

MR. WHITE: Objection, Your Honor; foundation. How does he know what persons in his profession rely upon generally? He may know what he relies on, but he doesn't know what the professional standard is or at least foundation hasn't been laid for that yet.

Q. (By Mr. Membrino) Mr. Page, you have been qualified as an expert in this case in groundwater geology and groundwater development. In your

page - direct- membrino

underlie the

1 These are surface, unremovable surface
2 depositions on the Reservation.
3 Can this table be repositioned?
[illegible]
[illegible]
[illegible]

Q. This table was prepared by you or under your supervision?

A. Yes, it was.

Q. And the last item in this exhibit, would you describe that for the Court?

A. Table 4, this lists the sources and location for the water and mineral industry. And the first four columns, starting from the left are essentially from Dornbusch and Associates. The fifth column is merely converting the annual water use in a continuous pumping rate in gallons per minute as if it was pumped on a 24-hour day basis 325 days in the year. And the fourth column -- that is something I did. And the fourth column, water sources lists potential sources of water for each of the mineral developments, either existing or potential sources.

Q. Thank you, Mr. Page. In addition to the sources you described, some of which are compiled in Exhibit WRIR C-21A, did you do any other work in your evaluation of the groundwater resources?

A. Well, we made a reconnaissance study of the groundwater situation on the Reservation for purposes of resource development in addition to [illegible] - direct - [illegible].

Q (By Mr. Membrino) And that produces what kind of indication?

A That gives us an indication of the characteristics of the aquifer supplying that well.

Q Thank you. I now direct your attention to what has been marked for identification as U.S. Exhibit WRIR C-32 and U.S. Exhibit WRIR C-33. For the sake of convenience I will be calling them C-32 and C-33. If you would be more comfortable, you are free to come down and have a look at these close up.

(Witness complies.)

Q Turning first to C-32, would you describe what that is for the Court?

A This is a generalized columnar section showing the rocks and deposits present on the Reservation, including their stratigraphic sequence, their geologic range in thickness and in absolute age.

Q Do you mean to say these different formations appear everywhere on the Reservation?

A No. Many of them are absent at different parts of the Reservation. Some you will have one missing in one place and it will be present elsewhere. It is just taking all the rocks and

deposits and putting them in sort of a sequential order.

Q I notice in this first column to the left of the graphic there are figures there. Could you describe what they represent?

A Those are general ranges in thickness of the deposits as they are found on the Reservation.

Q Does that also describe their depth?

A No.

Q Simply their thickness?

A That's correct.

Q Looking at that exhibit, would the top of the exhibit, the area labeled "Surface deposits" represent the ground, ground surface?

A Yes, those are the unconsolidated deposits you will find at various locations at the surface.

Q There is depicted on there some areas of that column in blue. What do they represent?

A Those are the potential major water yielding formations or rocks or aquifers. You can get water essentially out of most of the rocks and deposits, but in a lot of them it's very few gallons per minute.

Q Now, would you describe what you would call the

page-direct-membrino

surface deposits?

A Well, the surface deposits on the Reservation consists of the alluvium, the sands and gravels and clays of the major streams and rivers. It includes terrace deposits, it includes glacial deposits, landslide deposits.

Q As to the Wind River Formation, can you describe the characteristics of that?

A The Wind River Formation is consolidated upon sandstones and shales predominately.

Q Now, you have that listed -- described in this graphic as being below the Wiggens Formation, the Tepee Trail Formation and one or two others.

Q Does that Wind River Formation occur as a surface feature?

A Yes, it does throughout most of the central portions of the Reservation.

Q So from time to time these other formations actually outcrop -- or from place to place they outcrop on the Reservation?

A Yes, they do.

Q Thank you. Would you briefly describe the other formations that are characterized in blue?

A Well, this formation is the Fort Union and then

page-direct-membrino

the Lance Formation. We treated it as one unit. In some places the Lance may be missing. The Mesaverda Formation, again sands and shales. The Cloverly-Morrison Formation we are getting down into some of the deeper formations. Down here is the Park City Phosphoria Formation and Tensleep Sandstone, and then this lower blue group, three formations, the Madison Limestone, the Darby Formation and the Bighorn Dolomite.

Q Was this exhibit prepared by you or under your supervision?

A It was prepared under my supervision and in part by me.

Q And the sources for that exhibit?

A Sources are listed down here. They're U.S. Geological Survey, and I believe four of them are essentially the same as table one.

Q Are those the kinds of sources that you in your professional occupation ordinarily rely on?

A That's correct.

Q I now turn your attention to U.S. Exhibit WRIR C-33. Would you describe what that is for the Court?

page-direct-membrino

A This is a geologic map of the Wind River Indian Reservation taken from U.S. Geological Water Supply Paper 1576-I, and it was the base geologic map that we referred to in our studies.

Q Now, on C-32 we discussed briefly surface deposits. Would you -- are they depicted on this C-33, the geologic map?

A Yes, they're depicted by several patterns or colors, but essentially this lighter yellow, for instance, is the alluvium of the Wind River, the alluvium of the Little Wind, the Popo Agie, and you will see the light yellow elsewhere on the map here depicting the alluvium. This (indicating) happens to be the glacial deposits. Your terrace deposits are by another pattern. Generally they are yellowish in this pattern.

Q So the terrace, glacial deposits and alluvium are what you characterize together as the surface deposits?

A Along with the landslide and a few other miscellaneous.

Q Now, we also discussed the Wind River Formation. Can you identify how the Wind River Formation, whether it's depicted on this geologic map?

A Yes. The Wind River Formation is indicated by this mustard yellow color, and as you can see it's present and at the surface throughout most of the central portion of the Reservation.

Q What thicknesses does that appear at?

A Well, it --

MR. WHITE: Objection, Your Honor, he is testifying from the exhibit before it is admitted. If he wants to explain what the exhibit shows, that's perfectly fine with the State, but to start testifying from it before we have a chance to voir dire and it is admitted, I do not think is appropriate, Your Honor.

MR. MEMBRINO: I will withdraw the question for the time being, Your Honor.

Q (By Mr. Membrino) We also discussed some deeper aquifers or formations on the columnar exhibit. Would you show how they are depicted on this geologic map?

A Well, they are shown by various colors here (indicating), and they are shown to be out-cropping along the foot of the Wind River Range. Also present in the northern part of the Reservation, they would be these (indicating)

darker colors indicated here.

Q Now, there is another drawing at the base of that map. Could you describe what that is?

A That is a cross-section of the Reservation that starts at about this point (indicating) and goes up here like this. That is showing a slice of the Reservation and looking at the subsurface directly from the side.

Q Did you arrive at the -- strike that.

What level -- what kind of analysis, rather, did you conduct of the alluvium?

A On the alluvial deposits of the principal Wind River, Little Wind, Popo Agie, Mill Creek, the major creeks we estimated the saturated thickness from well logs. I determined the -- from the saturated thickness and pump test information I determined the well yields. We also determined the groundwater and storage.

Q Now, you said that the alluvium is identified on the -- on Exhibit C-33 as lying along the principal streams, the Wind River, Little Wind River and Popo Agie. Would you describe how the alluvium is formed?

A The alluvium --

page-direct-membrion

MR. WHITE: Same objection, Your Honor..

THE SPECIAL MASTER: He may answer, if he can. He is a geologist, and if he can tell how the alluvium is formed, I would like to hear it.

MR. WHITE: If he is going to testify from the exhibit, I would like to register an objection. I have no objection to him answering the question, but if it's part of talking about this exhibit or he needs this exhibit to speak from, then I think it ought to be admitted before he does so.

THE SPECIAL MASTER: He may answer.

Q (By Mr. Membrino) Mr. Page, do you need to rely on the exhibit to describe the formation of the alluvium?

A No.

Q Your answer to that was --

A No.

Q Would you continue then, please, and describe now the conformation of alluvium?

A Well, alluvium is unconsolidated materials transported by the rivers, particular during high flow stages, and then when the low flows, they're deposited. Quite often the coarser material is

deposited in the upper reaches, the final material being lighter is carried further downstream.

Q You said the alluvium was saturated. What is the source of water for -- principally for the alluvium?

A Well, the principal source of water would be the surface stream flowing on top of the alluvium deposits.

Q Is it your opinion that the water in the alluvium then is hydrologically connected to the surface supply?

A Yes.

MR. WHITE: Objection, Your Honor, we need a definition of "Hydrologically connected" as opposed to "Hydrology connected." That makes a lot of difference in a particular area of expertise, and I think the term ought to be defined before used in a question.

MR. MEMBRINO: I will withdraw the question and ask a more specific one.

Q (By Mr. Membrino) Is there a relationship between the alluvium and surface water?

MR. WHITE: Objection, Your Honor. What

page-direct-membrino

kind of relationship?

THE SPECIAL MASTER: The objection is overruled.

THE WITNESS: The surface water is supplying your source of water for the alluvium, and when you pump from a well that is just perforated or receives its water from the alluvium, you'll be taking, depending on your pumping conditions, you will be taking some water from the surface or you could diminish the surface flow by that pumping if your pumping was of a volume in a **prolonged** amount. You would be taking it both from storage in the alluvium and from the surface source.

* * * * *

Q (By Mr. Membrino) Now, you said that on your field work on the reservation you conducted pump tests. Did you conduct a pump test in any of the alluvium on the Wind River Indian Reservation?

A Yes, we pump tested a well at the Pilot Butte oil field. It was a water well they used for their secondary recovery of oil, and it was about a thirty-foot deep well, as I recall, and the alluvium at that point -- or pardon me, it was a twenty-two-foot deep well, and the alluvium was about twenty feet thick -- excuse me -- the saturated alluvium was about twenty feet thick.

Q What did you conclude from that pump test?

A Well, we concluded that after a while the cone of depression of the well had expanded such that it was getting water from the river.

Q Did you make any calculations as a result of your research into the volume of water in the alluvium, saturated alluvium?

A Yes, we estimated that the groundwater, total groundwater and storage under what you would call full conditions -- water levels and

alluvium are at their fullest level -- that about 362,000 acre-feet of groundwater are in storage in the alluvial deposits of the major rivers that would be included.

I will just check my notes to make sure, but that would include the Wind River, the Little Wind River, Spring Creek, Crow Creek, Mill Creek, Popo Agie.

Q So in the alluvium of those streams you said there was approximately 360,000 acre-feet of water?

A That's correct.

Q Do you have a technical term to describe the relationship or the connection between water in the alluvium and surface water?

A Well, the term I've used is just hydrologically connected. In other words, there's a direct -- the groundwater is in direct contact with the surface water.

Q Now, with regard to the alluvium and your calculation of 360,000 acre-feet of water, have you concluded what the sources of that water are?

A You mean the source of the water in the alluvium?

Q Yes.

page-direct-membrino

A The major principal source would be percolation of the surface flow. You could have some side flow from, say, the Wind River into that formation. You could have irrigation returns, possibly a small amount from precipitation falling directly on the alluvium.

Q What conclusions did you make about other surface deposits? We have just described the alluvium, and that was about 360,000 acre-feet of water in storage.

THE WITNESS: Pardon me just a second.

(Pause.

A. We briefly looked at the terrace deposits and estimated the quantity of groundwater that could be in storage in the major terrace deposits.

Q Before you continue, would you mind again approaching the exhibit to describe where such things as terrace deposits are depicted on that map?

MR. WHITE: Your Honor, I would have the same objection to testifying from the exhibit before it's introduced.

THE SPECIAL MASTER: Overruled.

What are terrace deposits?

THE WITNESS: These were deposits that

were laid down by the streams when they were at a higher level before they had cut down into their present channels.

THE SPECIAL MASTER: Does this exhibit purport to illustrate them?

THE WITNESS: Yes, it does.

A There's terrace deposits that's shown as Qt on the map. It's with little blue greenish dots. There are little scattered terraces all over. We just made estimates of the potential groundwater in storage of some of the major deposits up in the Muddy Ridge area, in this Crowheart area, and in the Riverton area.

Q (By Mr. Membrino) How would they compare with one another, the amount of water available from the terrace deposits, as opposed to alluvium?

A Well, the thing about terrace deposits, when I say we estimated the potential groundwater storage, they, for the most part, are drained during the nonirrigation season, so they depend on irrigation return flows -- they would get some recharge from precipitation falling directly on them, but quite often they are elevated above the streams and the creeks, so they would not get

significant quantities of infiltration of surface flow, so all you could do is estimate, okay, if you have five saturated feet, maybe during the low season or you could have twenty saturated feet, you will have this. You have that potential quantity of water, but you must keep in mind that during the nonirrigation season they are not a major well yielding source of water, so all we did was we said that with five saturated feet, you would have this potential quantity of water and with twenty saturated feet, you would have this potential.

Q Turning your attention -- well, before we do that, there were other deposits you described as landslide glacial deposits.

A We did not estimate storage in those just from the standpoint that their occurrence is not that significant to the groundwater supply of the reservation.

Q Thank you. Now, let's turn to the Wind River Formation, and I would like to ask you what your conclusions were about the Wind River Formation.

A The Wind River Formation essentially in the upper

thousand feet -- and that is about the only portion -- it ranges from thicknesses 5,000 or more feet in parts of the reservation, but essentially the available well data penetrates the upper 700 or 800,000 feet.

In that there are three facies, a lower fine grain facies, a middle course grain facies, and an upper fine grain facies.

The well data we looked at and the work by the U.S. Geological Survey indicates that the higher yielding wells penetrating the Wind River formation receives its water from the coarse grain facies. Well yields in the fine grain facies you may be talking a few gallons a minute to ten or fifteen, in other words. The coarse grain facies -- I probably should go back to the map again.

Q Please.

A The coarse grain facies is present along the northeast portion of the Big Horn Ridge and is present under the City of Riverton area.

MR. WHITE: Your Honor, I would object to the question and ask that the answer so far be stricken because this is testimony that's page-direct-membrino

being made from this exhibit before it's admitted, and I don't believe the location and the nature of the various -- the material within the Wind River Formation is illustrated by that exhibit.

THE SPECIAL MASTER: I'll overrule the objection, but I don't have 31, 32, and 33 -- none have been admitted yet.

MR. MEMBRINO: I have not moved their admission, but they do illustrate at this point in pictorial form what --

THE SPECIAL MASTER: Do you propose to offer them for admission?

MR. MEMBRINO: I do.

THE SPECIAL MASTER: Is there some reason why you are not offering them now?

MR. MEMBRINO: I was going to do it at the end of Mr. Page's testimony.

THE SPECIAL MASTER: Well, it raises a basis for these objections is the reason I was asking.

I have further question about the geologic values and structures under that area which is no longer a part of the reservation, and we alluded now a half a dozen times to matters

around Riverton and areas long since sold and actually not a part of the reservation.

We are treating this as an original reservation before any selling, and that raises a question I think we ought to address now.

* * * * *





20th MIDWEST BUILDING
CASPER, WY 82601
(307) 237-1493

MS. SLEATER: Your Honor, part of the --

MR. MEMBRINO: Part of our concern here is to identify the aerial extent, that is where groundwater is located to the extent that it may, that certain groundwater formations may extend off the Reservation or under other parts of the Reservation including the reclamation area. The issue we are going to get at is the right, if any, of the tribes or the United States in their behalf of the water and the amount of that water. Though it's important to know --

THE SPECIAL MASTER: Yes, but you certainly aren't going to raise a claim on water that is not under the surface of the present Wind River Indian Reservation, are you?

MR. MEMBRINO: If I could use an analogy, the Wind River, the surface of the Wind River, I think you would observe originates in part off the Reservation. The rights of the Indians to water use on the Reservation may require control of off-Reservation use of the surface flow and by the same token, we have to make a similar analysis of the aerial extent and the conformation of the groundwater on the Reservation.

MR. ROGERS: Your Honor, if I may say, I'm not quite clear what Your Honor may be referring to when he talks about off the Reservation, but I believe you just made reference to the fact that the city of Riverton as being off the Reservation. The State of Wyoming, the tribes and the United States have all stipulated that the parameters of the Reservation -- are the parameters of the Reservation as shown on Exhibit C-33. The State has not stipulated to that small portion, northernmost portion, I believe, dealing with the northern part of Arapahoe ranch. But certainly that entire picture has been stipulated to --

THE SPECIAL MASTER: That may be true.

MR. ROGERS: As the exterior boundaries of the Reservation.

THE SPECIAL MASTER: That is true, but we also have, in the case of many exhibits with overlays and undisputed evidence as now, that the withdrawals following the 1905 ceding of tha portion east of Popo Agie and north of the Wind River has included hundreds of thousands of acres that have gone to other people with patents of United States of America. I am not of the

opinion that it's a fact, an uncontroverted one in this litigation that that area is not a part of the Wind River Indian Reservation.

MR. ROGERS: That is not correct; that is a very controverted fact then. The State has stipulated to the exterior boundaries of the Reservation.

THE SPECIAL MASTER: That's true.

MR. ROGERS: It has not been ruled upon by the Master as to the priority dates and perhaps reestablishment date within the portion affected by the 1905 act. The tribes, of course, as you know, contend, and the United States contends that that entire area is part of the Reservation. The tribes contend that the entire portion within those boundaries has a priority date of 1868, but at this time the Master has not yet ruled upon --

THE SPECIAL MASTER: The evidence --

MR. ROGERS: -- that area.

THE SPECIAL MASTER: The evidence from the present witness, Mr. Page, that prompted this dialogue stemmed from his description of subterranean formations that proceed under the next level above terrace, being that which proceeds under the town of

Riverton.

MR. ROGERS: Which is within the Reservation as the State has stipulated to.

THE SPECIAL MASTER: And do I understand from you, that your claim runs to groundwater under those areas that are no longer part of the Reservation just because they were at one time a part of it?

MR. ROGERS: That is part of the Reservation as the tribes' case goes, and as the State has stipulated to.

MR. MEMBRINO: One thing that ought to be added is that the government still holds in trust for the Indians of the Reservation the mineral deposits under the Riverton area.

MR. WHITE: Your Honor.

THE SPECIAL MASTER: Yes, Mr. White.

MR. WHITE: I'd like to make just three quick points. First, the State has stipulated with respect to the exterior boundaries of the Reservation, but has entered into no stipulation with respect to the status of lands within those boundaries, as to whether or not they are in fact part of the Reservation. That's a significant difference.

Second, the private parties are not part of

that stipulation; the private parties are involved in this case. And the third point is I think the Master will realize now why the State has been so adamant in its position that reserve rights do not extend to groundwater because of tremendous off-Reservation affects of just what Mr. Membrino has suggested, that the use of groundwater by the Indians is protected by all non-Indian uses off -- against all non-Indian uses off the Reservation, so I would like to again restate our objection based on the reserve right doctrine.

THE SPECIAL MASTER: Ladies and gentlemen, if there's one thing that is certain in the uncertainty of geology and formations of the earth, it's the patterns that water travels in the various structures in which it's found. Where masses of reservoirs take place and massive aquifers and where they originate and how they are fed can sometimes traverse thousands of miles. And I don't purport to want to hear evidence that seeks to have me conclude that the Indians in this area or a given state, a hundred or thousand miles from Wyoming can't have a right to inject a proprietary interest in the water as they may be a thousand miles or hundreds of miles from where they are going

to surface.

MR. MEMBRINO: Your Honor, to be sure that that is not what we are talking about. Mr. White has suggested that there are, there may be conflicts over rights to groundwater between Indians and non-Indians, and for that reason, suggests that there should be no -- declared to be no reserve right in groundwater. The conflict is much more emphatic, and has long since been litigated over water rights between Indians and non-Indians and reserve rights extending thereto. I -- it certainly no apology for -- for denying that the reserve right extends to groundwater simply because of potential conflicts.

THE SPECIAL MASTER: Earlier you mentioned that you have an interest in the formations totally without the boundaries of the Reservation because they constitute one of the sources that might very well contribute water toward some of the structures under the surface of the Reservation. I'm not inclined to want to agree with that.

MR. MEMBRINO: I think what Mr. Page was testifying to is the location of the Wind River formation under the Riverton area. The United States is making claims for use of water, whether

it be surface or groundwater only for development of lands held in trust or resources held in trust for the Indians. We're not talking about a claim for lands held by non-Indians. I think that point has to be maintained.

THE SPECIAL MASTER: We will maintain --

MR. MEMBRINO: But --

THE SPECIAL MASTER: Yeah, but what you're maintaining is that the United States has a proprietary right and ownership to groundwaters under, under non-Indian surface if those groundwaters are necessary for the well being of the Indians who live in a different area from that, where that water is found. Isn't that what you're maintaining?

MR. MEMBRINO: I'm maintaining -- in a word, yes, but it should be made clear that we have to look at this just as we look at surface water. The fact that surface water occurs off the Reservation, perhaps a hundred miles away and is sufficient only to serve the needs of the first priority, be it Indian or non-Indian, then a remote water user cannot interfere with that -- with that water supply to the detriment of the prior right holder. So it's --

THE SPECIAL MASTER: You think that concept

applies to groundwater as well as the surface water?

MR. MEMBRINO: I think emphatically the reserve right extends to groundwater and the --

THE SPECIAL MASTER: This concept of no interference until a prior owner has a right to use it does apply to groundwater as well as surface water? And if so, what's your authority of that, if you believe that?

MR. MEMBRINO: I would refer Your Honor to the United States Supreme Court decision in the Caeppert case, which was decided in 1976, and recognized that the need for water, groundwater to maintain a national monument would be held paramount, the right for that -- to that water would be held paramount to an off-monument groundwater user. And we have gone, we have briefed this issue --

THE SPECIAL MASTER: You've answered my question.

MR. WHITE: May I say one thing?

THE SPECIAL MASTER: Mr. White.

MR. WHITE: First off, the characterization of the Caeppert case extending the reserve right doctrine to groundwater is one that the State must violently disagree with, because the Supreme Court

said it doesn't involved groundwater. The second point I'd like to make is that the position Mr. Membrino seems to be taking is a far reaching one because I notice the Madison formations is one of the formations beneath the formation, and carrying his argument to its logical end, is that the Wind River Indian Reservation would be able to control the development of Madison formation because Madison formation happens to be underneath the Reservation. That is the reason, not the legal basis, but the reason that the State is so anxious about this water issue.

THE SPECIAL MASTER: Very good. I want you to to know, Mr. Page, that the reason we've engaged in this colloquy is to give your throat a rest. So now, we can return to the exhibits.

DIRECT EXAMINATION (CONTINUED)

BY MR. MEMBRINO:

Q. Did you conduct any pump tests on the Wind River formation?

A. We -- I should have kept talking, I think.

MR. WHITE: Your Honor, why don't we take a little break?

THE SPECIAL MASTER: You want to take a break,

take some medicine?

THE WITNESS: Yes.

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

(Thereupon a ten-minute
(recess was taken.

* * * * *

THE SPECIAL MASTER: Are we ready to proceed?

MR. MEMBRINO: We are, Your Honor.

Q (By Mr. Membrino) Just as we broke, Mr. Page, you were describing the characteristics of the Wind River Formation. Would you care to continue to do that for the Court, please?

A Okay. Well, to just recap a little bit, the Wind River Formation, you can picture it as a series of beds, lenses, sort of facies of gravels, sands, sandstones, shales. We have, as I mentioned, a lower -- and this is in the upper 1,000 feet or so -- a lower fine-grain sequence; we have a middle coarse-grain sequence and an upper fine-grain sequence.

Now, the higher yielding wells that at this point have only been developed, to my knowledge, in the Riverton area from the Wind River Formation, taps the coarse-grain sequence in that area. This coarse-grain sequence does not extend clear across the central portion of the Reservation where you show -- where it is shown that the Wind River Formation outcrops, it just thins and lenses out into the fine-grain

sequence. The coarse-grain sequence has been identified northeast of the Bighorn Ridge, the Crowheart area and in the Alkali Butte area which is the southeast corner of the Reservation there.

In the Pavillion-Ocean Lake area you have your fine upper-grain sequence present, and actually most of the wells on the Reservation, the domestic wells, the stock wells, the smaller yielding wells, penetrate the fine-grain sequence. These sequences are -- you look at the existing pump well information and pump test information and it indicates that you have -- might have a 400 foot well in one place only capable of yielding a few gallons per minute, and you can have a 400 foot well in the Riverton area and you can be getting several hundred gallons per minute.

Q You described the fine-grain facies and the coarse-grain facies. Their conformation in the Wind River Formation is what I would like to ask you about. Do they have any effect on the relationship of water within the formation?

A Well, being coarser, you have got -- they're going

page-direct-membrino

to be the higher yielding wells, and the fine-grain facies where you have the two, say, setting together interspersing. The movement of water from the coarser into the finer is going to be restricted just from a lower permeability, from a total formation.

Q For example, then, by tapping one part of the Wind River Formation, would you automatically be withdrawing water from some other portion of the Wind River Formation?

MR. WHITE: Objection, Your Honor, until he indicates where this tapping is going to take place or whether it's in the coarse grain or fine grain. The question is ambiguous and the answer would be misleading on the record.

THE SPECIAL MASTER: I will overrule the objection. I just don't think it will be ambiguous, it's too much of a generalization question, to begin with.

MR. MEMBRINO: I will ask him more specifically, Your Honor.

THE SPECIAL MASTER: All right.

Q (By Mr. Membrino) If there is a series of coarse-grain facies in the Wind River Formation

interspersed with a finer-grain facies, what affect -- what is -- how would you describe the connection of the water to yet another coarse-grain facies beyond the fine-grain facies?

MR. WHITE: Your Honor, could I ask the question be read back? I don't want to object to that, I'm just not sure I understood it.

(Whereupon, the Reporter read back, "Q If there is a series of coarse-grain facies in the Wind River Formation interspersed with a finer-grain facies, what affect -- what is -- how would you describe the connection of the water to yet another coarse-grain facies beyond the fine-grain facies?")

THE WITNESS: In general terms, if they were not your -- you're saying they are not connected, I mean, is that correct? They are separated by finer material?

MR. MEMBRINO: That's right.

THE WITNESS: One factor would be their distance, but you would not have a direct effect by pumping from one on the other. But there are other factors such as the period of pumping, quantity of pumping. It is possible to draw some small quantities of water from the

fine-grain facies and have movement between the two, but very, very restricted. You may not have that movement either.

Q (By Mr. Membrino) I see. Would you continue, then? I interrupted. Would you continue then with your discussion of your description of the Wind River Formation?

A Well, essentially what you are looking at as far as well yields in the Wind River Formation, you are looking to penetrate the significant section of these coarser materials if you want what I would call a higher yielding well, a few hundred gallons a minute, something like that. Or the data I observed indicated that the Riverton area you might be looking at 200 to 400 gallons per minute from wells in that area. And that is the only area on the Reservation at this point, to my knowledge, that has wells producing that yield. It doesn't mean you can't get them in these other areas, they just have not been drilled to sufficient depth. You just don't know for sure until you drill it. So essentially what you are looking at is if you want that, you have to search out the coarse-grain

facies, penetrate a significant sequence of coarse-grain facies.

Q Because the coarse-grain facies are generally the most productive?

A That's right. You can get water, without a blanket statement, everywhere in there, but you can get water from the Wind River Formation from the finer grains because you do have some sandstones in there, even from fracture. You can get some water from lower yielding wells throughout. Much of it is outcrop area, if not all.

Q Did you reach any conclusions on the other formations?

A Yes. Our study was essentially we studied the surface deposits individually. We studied the Wind River Formation individually, and then as a group we studied what I refer to as the late tertiary or older formations, those formations shown on the columnar section, the third blue area down, all the way down. That would be from the Fort Union Formation and older. Formations get older as they go downward on the Reservation, and there are very few wells penetrating those

page-direct-membrino

formations at depth. I will clarify this by stating you have some stock and domestic wells scattered where these formations occur at the surface or slightly buried, maybe under the alluvium or Wind River Formation within two or three hundred feet. Those yields are very low because these formations are sequentially what we refer to as tight or low permeability, low transmissivity of water. So to get large quantities of water, you have to have an artesian head to work against.

Q Would you describe what an artesian head is?

A An artesian head is when you penetrate a formation of depth, the water level in the well rises above the top of the aquifer; whereas, if you tap an unconfined aquifer, except under special conditions, is essentially where you hit the water is where it's going to stand in the well. So you need that head because in order to get a yield out of a well, it's a function of what you would call the specific capacity of the well, which is a function of the permeability or transmissivity of the formation, which is the transmitting ability of the well --

page-direct-membrino

or of the aquifer to transmit water, that and the heads you pump against.

In other words, you can draw the well down several hundred feet of drawdown. You don't get that if you're tapping the formation under unconfined conditions. So getting back to where those formations are significant aquifers beneath the Reservation, they are where they are at depth. And to my knowledge there are -- on the Reservation I found two major wells that penetrate, they penetrated the Madison-Bighorn Limestone where you had this where available for testing and just to get information on these depths. Both of these are used in the recovery of oil, one at the Lander oil field. It penetrated the Madison at about 2,000 feet, and the others at Winkleman Dome also penetrated the Madison and, I believe, the Bighorn Dolomite. That's why we grouped them there, because if you drill into the Madison and if the Bighorn was present, you would just go the few other feet and at that point the whole thing --

MR. WHITE: Your Honor, excuse me, but I

page-direct-membrino

would like to move to strike the testimony about any of the formations other than the alluvium and Wind River Formation because the Statement of Claims does not extend to claims of the United States to any but those two sources of groundwater, the alluvium and Wind River Formation. The Madison and other Formations the witness has discussed do not appear in the Statement of Claims and are not at issue in this case, and consequently, any testimony in respect to formations not involved in the Statement of Claims are irrelevant.

I am very interested in what the witness has to say, it's a mark of his talent, but they just don't apply to this lawsuit.

THE SPECIAL MASTER: I would be constrained to overrule that, Mr. White, on this basis: That the law I believe is clear that if there is a reserved right on this Reservation, it will run through groundwater, and I'm not sure I have the right to distinguish the groundwater in the Madison Limestone from that -- and the Fort Union from that in the alluvium.

MR. WHITE: I was just going to say, Your page-direct-membrino

Honor, it is not identified in the claim.

The claim makes identification of the Wind River Formation, talks about the alluvium, but it doesn't talk about these other formations.

Whether or not they have reserved rights to them, if they didn't claim them, they can't put the evidence on about them, Your Honor.

MR. ROGERS: Your Honor, may I say at this point that --

THE SPECIAL MASTER: Well, I think you better.

MR. ROGERS: -- this is not the Tribes' witness, but I would like to point out that the Tribes' Statement is in no way restricted to the two formations that were mentioned by Mr. White. Our claim for groundwater is not restricted to those two formations --

MR. WHITE: Your Honor --

THE SPECIAL MASTER: One at a time, please.

MR. MEMBRINO: I should also point out that our witnesses began their work at a time -- or were in the stage of their work at the time the claims statement was filed when we did not know precisely the extent of our claims. As we have developed our expert testimony and as

evidence is presented, and it turns out that water is going to be needed from these other sources, we will amend our pleadings to conform to the evidence.

THE SPECIAL MASTER: Well, I have already ruled on the matter, but go ahead, Mr. White.

MR. WHITE: I just wanted to state for the record, Your Honor, that Wyoming is now objecting to testimony concerning any issues outside those framed by the pleadings, and we preserve that objection, and when it comes time to move to amend the pleadings to conform to the evidence, I hope Your Honor will remember we made a timely objection.

THE SPECIAL MASTER: I appreciate that, but I stated my reason for ruling as I did.

Go ahead.

MR. MEMBRINO: Thank you, Your Honor.

* * * * *

Q (By Mr. Membrino) Would you continue, Mr. Page?

A As I indicated, the two wells I was aware of that penetrated the deep aquifers were these two in the Madison. We obtained some data on the one at Winkleman Dome which was the type of information -- pardon me --

THE SPECIAL MASTER: Go ahead.

A The type of information was static pump and water levels and well yield, and we determined the specific capacity and made a general conclusion that potentially that well and the formation at that point could yield in the order of 500 gallons a minute. On the Madison well at the Lander oil field they allowed us -- they shut it down for their purposes and allowed us to -- this is Amoco, the owner of the well -- allowed us to run a pump test of sorts.

The well is a flowing well. We shut it down. We measured the -- we shut it down all night, and then we opened it and we measured the artesian flow at the surface. I believe it was 160 gallons a minute.

We measured the pressure. We could not measure the pressure with time because the

instruments were not calibrated such that you could take time or any measurements.

We let it flow until it appeared the measure had essentially stabilized in the accuracy of our reading and that was about eight hours later, and from that information and the existing head above the top of the formation concluded that in that area you would be looking at 500 to 800 gallons a minute from one well. This does not include a field with interferences, but from one well, from the Madison.

This confirms information I had read regionally on the Madison which can be in places they get no water. Other places they get yields like this -- pardon me --

Q That is they get no water or yields like this out of the Madison Formation?

A That's right. I understand that some of the testing that the USGS has done, some of the holes, they were just pretty dense material they penetrated. The only other formations that were penetrated at depth were the older formations -- I believe the Frontier, and it's one not even marked there as an aquifer.

page-direct-membrino

I think it's at the Raft Lake field, but they were talking ten or fifteen gallons a minute production from it, and that's the extent of the subsurface data that was available within the reservation boundaries on these formations.

Q Did you inquire whether there were other wells into the Madison Formation than the two you discussed?

A My initial investigations I inquired wherever I went, plus I contacted all known oil producers because they were essentially the ones that would be drilling wells that deep. You wouldn't get that for domestic, even municipal within the reservation, I knew that, so to my knowledge, as far as the deeper Madison wells, that is -- I was aware of the two.

Q I would like to turn now from this discussion of the aquifers, the different formations, to a discussion of the concept of safe yield. Could you describe the concept of safe yield in the context of groundwater management?

THE SPECIAL MASTER: Did you say safe yield?

MR. MEMBRINO: Yes, Your Honor.

MR. WHITE: I would like to object to the question. I'm not sure what it has to do with the claim.

THE SPECIAL MASTER: Tell me what it is, and I can rule on whether we should go into it or not.

THE WITNESS: Well, safe yield is a term that -- it's been questioned by some using that term. Currently, perennial yield is used, and there are many definitions for it, but a simple one is it represents the quantity of water that can be withdrawn from a groundwater source over a long period of time without causing some adverse effect which could include depletion from storage, water level declines, intrusion of poor quality water. It's really -- it's as much of a management tool and decided by management as hydrologists. I mean it's --

THE SPECIAL MASTER: Go ahead.

Q (By Mr. Membrino) Is safe yield a limitation on groundwater development?

A Not necessarily.

Q Could you explain why? Give me an example of --

A Okay. For instance, a job we did for the

Peabody Coal Company in Black Mesa, Arizona -- they needed a water supply for their mine and pipeline slurry, and in that area they had a thirty-year life to their mining project. The wells were artesian, lying at about -- or the aquifer was. It was lying at about 3500 feet, and we drilled a test hole and determined we could get drill production.

As we drilled our first production well and from extensive pump tests, we determined that with the proper spacing and the proper restrictions on the pumping rate and period of pumping, they could obtain their annual water supply, which was on the order of 3,000 acre-feet for that thirty-year period, but at that point you would be looking at the water levels in the wells near the top of the formation so, in other words, they were pumping -- they were mining the potentiometric surface is essentially what they were -- they were not depleting the aquifer, but they were mining the potentiometric surface, and so that's a case where you are mining -- mining is done in large alluvial basins, particularly in California where you have a

page-direct-membrino

conjunctive source of water, a surface water state. During drought periods you can draw on the basin. It's recharged by artificial means, or during wet periods, natural means.

So there's a flexibility, and it's a management tool, and it provides a general guide of what you might expect would occur if you have been able to put a number to it.

Q Have you reached any conclusion about the safe yield of groundwater sources on the Wind River Indian Reservation?

A We did not determine the safe yield of groundwater on these formations because essentially to put a handle on a value that's realistic, the particular groundwater body should be under some development and some stress so you can see how it has responded to various quantities of pumping, and essentially, except for the Riverton area, that little portion of the Wind River Formation, groundwater use on the reservation is scattered and not concentrated and not of a significant quantity to come up with a value you could say was realistically representative of what you are talking about,

page-direct-membrino

so, no, we did not.

Q You said that at Riverton there is some development. Could you describe or compare, rather, what's going on in that area, that part of the Wind River Formation, as opposed to elsewhere?

A Well, I don't know if Riverton was located there because you could get groundwater or they were just lucky they located there, but they have this coarse grain facies which is believed to be recharged from water from the Wind River that is percolated into the alluvium under the Wind, into the ground, coarse grain in the Koner and Johnstown Valley on the Wind and in the Arapahoe area of Little Wind.

What you have in Riverton is you have your municipal pumping and some private pumpers. The municipal pumping, I believe, is on the order of about 2,000 acre-feet a year, or at least it is until they bring their surface source in, and whether that's in now, I do not know. I do not have a quantity on the other private pumping, but I doubt if the total exceeds 3,000 acre-feet.

Q (By Mr. Membrino) (Continued) Thank you. If you don't mind now, I'd like you to approach the exhibit WRIR C-33.

(Witness complied.

Q I show you what's been marked as U.S. Exhibit WRIR C-33A. Would you describe what that is for the record, please.

A This is an overlay just locating the communities on the reservation and the community water systems that obtain their water from either groundwater or subsurface underflow of the various rivers.

Q Did you prepare that exhibit?

A This exhibit was prepared by Dornbusch and Associates, but drafted by us from their worksheets.

Q Did you have occasion to compare this exhibit, that is C-33A with what was admitted into evidence yesterday, WRIR C-19?

A Yes. That is essentially the same information. The exhibit that was admitted yesterday did have population figures on it. I think it had Indian totals, this one does not.

And this is a different scale, this was made to fit the same scale as the geological map, and therefore, run down to the scale of one

square inch equals approximately 635 people. And there's a different notation, I don't know the exact number on the other.

Q And just to refer to the Court, what do the symbols, the circles and the dark circles and red circles represent?

A It's a proportion showing the Indian population to the total population.

Q Could you, using this, using the information on the exhibit, relate those population centers? What is depicted on the WRIR C-33, that is the geology of the reservation?

MR. WHITE: Same objection, Your Honor. He's testifying from an exhibit that is not in evidence.

THE SPECIAL MASTER: I'm inclined to sustain that. You're asking him to compare the overlay with the geology on the main exhibit.

MR. MEMBRINO: Your Honor, the main exhibit is a USGS map. Right now I'm using it only to illustrate Mr. Page's testimony.

THE SPECIAL MASTER: Right.

MR. MEMBRINO: He can easily testify without it, it's simply to orient the Court at

this stage of the game to the -- to what's depicted on the exhibit.

THE SPECIAL MASTER: What do you want to elucidate from him? State your question again.

MR. MEMBRINO: I want to -- I want Mr. Page to describe the geology that underlies those population centers.

THE SPECIAL MASTER: All right. That's a different question.

Describe the geology underlying those population centers.

MR. WHITE: That doesn't need to be done from the map then, Your Honor.

THE SPECIAL MASTER: I don't care where he stands, however.

THE WITNESS: Well, essentially what we're talking about is these communities obtain water from either underflowing or deep underground water. And this is just showing their source of water. I'm not going to discuss its general geology. The area, in the case of Boulder Flats, it receives its water supply underflow gallery from Popo Agie, Fort Washakie, Ethete, from

the Little Wind River; Arapahoe has deeper wells that would obtain its water supply from the Wind River formation. Pavillion also receives water from the Wind River formation as does the Riverton municipal system. As far as their groundwater component, it comes from the Wind River formation.

THE SPECIAL MASTER: May I ask a question. You testified earlier, Mr. Page, that the Wakeman field (sic) already had in production a deep well to the Madison.

THE WITNESS: In the Winkleman?

THE SPECIAL MASTER: Engleman.

THE WITNESS: Winkleman.

THE SPECIAL MASTER: To the Madison.

THE WITNESS: That's correct.

THE SPECIAL MASTER: Using that water in its secondary recovery.

THE WITNESS: That's my understanding.

THE SPECIAL MASTER: You also said down in the southeast corner there was another well in the Lander field.

THE WITNESS: Not southeast, right here (indicating).

page-direct-membrino

THE SPECIAL MASTER: Lander field area?

THE WITNESS: That's correct. That's the one that we took some measurements on.

THE SPECIAL MASTER: Tests on, and that is also producing water from the Madison?

THE WITNESS: Madison. I believe the Winkleman Dome is Madison and Big Horn.

THE SPECIAL MASTER: And those wells are all using water in the enhanced recovery processes of oil production?

THE WITNESS: That's correct. For sure the Lander does, and it's my understanding it's used at the Winkleman Dome field also.

THE SPECIAL MASTER: Okay. You have no idea whether that comes to a total of 6,000 acre-feet a year, do you, the total being used?

THE WITNESS: Oh, no, I know it doesn't because there are other sources for that secondary recovery.

THE SPECIAL MASTER: Okay.

Q (By Mr. Membrino) Do you know what the well yields are in gallons per minute?

A Of these wells?

Q Yes.

page-direct-membrino

A No, I don't.

Q I'd like to turn your attention now --

A Pardon me, I know, excuse me. I know the Pavillion, I think their best well is getting maybe 45 gallons a minute, was a 5 or 600 foot well. It's into essentially fine grain facies so we know it was that deep. The best they could get out of it was 45 gallons a minute.

Q Thank you. I turn your attention now to what's been marked for identification as WRIR -- U.S. Exhibit WRIR C-33B. Would you describe for the Court what that is, please.

A This is an overlay showing the mineral resource development of the reservation as presented by Mr. Merchant.

Q Did you prepare that map?

A Again, it was prepared from rough maps provided by Dornbusch and Associates, and our people drafted it.

Q Was it prepared under your supervision?

A Yes.

Q Did you compare that overlay C-33B with what was introduced in evidence yesterday as U.S. Exhibit WRIR C-28?

page-direct-membrino

A Yes, I did.

Q Are they comparable?

A Again, different scale. They're -- in this one I had our people add, convert the annual water requirement to a gallons per minute requirement on a continuous basis, twenty-four hours a day, 365 days a year so there's an additional figure below each labeling from the other map. There are a few minor little drafting squiggles, but that's just within the drafting error. And this one, gasification is misspelled down here.

THE SPECIAL MASTER: Has what down there?

THE WITNESS: Gasification is misspelled on this one, it has two s's, it should have one.

THE SPECIAL MASTER: Oh, it's misspelled. It's an abomination no matter how you spell it.

MR. WHITE: We waive the objection. He's qualified as an expert not in spelling.

THE WITNESS: So essentially it is the same map with those minor exceptions.

Q Would you describe the different colored areas on the map?

page-direct-membrino

A Yes. First one represents the uranium development, both -- the circle represents the yellowcake process and this is a project outline of the formation that would be mined.

This is the gypsum, the light green is gypsum, again the outcropping formation containing the gypsum.

This dark green is the outline of the formations containing the coals, including the coal fired electricity generating station.

There's also some other coal fields down in this area with an in situ gasification plant in there. You have a scattering of these oil reserves, this one showing an enhanced oil recovery operation. There's another one there. This arrow points to its offsite source of water.

We have some gas reserves shown in yellow. Part of the phosphoria outcropping on the reservation has been outlined as a source of phosphate.

In this area here you have a phosphate rock beneficiation plant, and this would be the brown. You have an acid production, you have a sulfuric acid production shown in yellow page-direct-membrino

there.

Light green, gypsum wallboard plant; light yellow, anhydrous ammonia production.

Over here you have a natural gas, gas desulfuring plant.

Q Now next to each of those color codes there are figures, I don't need you to go through each of them at the moment, but could you tell me what they represent and the source of that information?

A The source of information is on the table, same numbers show up on table 4 that we previously mentioned. And these numbers are the annual water requirement and its conversion into a continuous flow of gallons per minute.

Q What is the purpose, what were you asked to do by Mr. -- Were you asked to do anything by the Dornbusch company when you were furnished with this information?

A They just asked for these various things, where they could get a water supply, if it was there, and --

Q And did you arrive at any conclusions -- we'll go through some of them here -- as to -- as to the oil reserves?

page-direct-membrino

A Well, those are essentially in existence at this point. We have-- As we talked about, they're getting water from the Madison, the Winkleman Dome Lander field. They have produced water with their oil they used for their secondary recovery. Then we -- finally the major use of groundwater is at the Pilot Butte field here, from, oh, maybe up to as many as twelve shallow wells. Shallow, they're twenty or thirty foot pumping underflow of the Wind River alluvial. This is -- we have tested one of those wells. Their production probably is in the order of a thousand to 1600 gallons a minute. I've seen both figures used.

THE SPECIAL MASTER: What use is that being put to?

THE WITNESS: That's, again I believe secondary recovery.

THE SPECIAL MASTER: And is there a return of that flow to the river or is it recycled?

THE WITNESS: Not to my knowledge it isn't.

Q (By Mr. Membrino) Could you tell the Court what --

page-direct-membrino

THE SPECIAL MASTER: Well --

Q (By Mr. Membrino) What the acre-foot requirement for that is on an annual basis for that purpose?

A You mean the total?

Q Yeah.

A I'll refer to this.

THE SPECIAL MASTER: While you're looking, I have a question too. It doesn't sound reasonable to me, without further explanation or further facts, that that secondary recovery operation there will utilize the amount of water you mentioned and recycle its use to recover oil and not have some tremendous amounts of water gaining, building up somewhere somehow. There's got to be, to reinject it or flowed into the river if they're taking what you mentioned earlier every hour.

THE WITNESS: I cannot address the subject on their facilities there.

THE SPECIAL MASTER: Very well.

THE WITNESS: The total annual requirement is 6,580 acre-feet for all these uses.

Q (By Mr. Membrino) For all the secondary recovery?

A And this is my understanding, these are existing uses.

Q Are you able to tell us -- you may not be able to, but are you able to tell us how that secondary recovery process works?

A No.

Q Turning to the coal fields described on that map, could you describe what you were told the water requirements would be and whether or not you were able to find the source of water for that?

A In the case of the mine here, the requirement was 25 acre-feet a year. That represents 15 gallons a minute for that small usage. They could get it from shallow, shallow being two, three, four, five hundred feet wells, like stock and domestic type wells at the mine here. I don't know specifically where the mine's going to be, but they could get that on the site from formations that would not necessarily -- and these would be up in this area. You're looking at formations of -- you're looking in this, it wouldn't necessarily be one of these marked as a major aquifer, but would yield

page-direct-membrino

15 gallons a minute. They could have three, four, five wells, whatever they needed to get that quantity.

This larger requirement of 2,490 acre-feet, which represents about 1,540 gallons per minute for the coal fired electricity generating system, they would have to come to the nearest major source of water, which would be down to the Wind River and through wells like Pilot Butte, pumping underflow. I would envision a similar -- a similar type of setup as at the Pilot Butte oil field for that.

And let me just add one thing here. The way Pilot Butte, the way they have most of their wells, they are strung out on a levy right next to the river up about ten feet above normal flow stage, would have a couple out on pads out on the river itself. It's actually surrounded by water, at least when I was there, so I would envision the same type of thing in this area.

Q Tell me about whether you were able to find, locate a source of water for the requirements for the phosphate rock development?

A Phosphate rock development, the mine would be

page-direct-membrino

5 acre-feet a year, 3 gallons per minute. Again, they could get it where the specific mine is located. I would begin to doubt that they couldn't get it locally there from not even one of the major aquifers.

* * * * *

Q (By Mr. Membrino) Now, is there additional processing of that phosphate rock that's required?

A Yeah. You have in the Riverton area here phosphate rock beneficiation and acid production -- I'll move these numbers -- beneficiation requires 425 acre-feet per year, which you're looking at 260 gallons a minute.

THE SPECIAL MASTER: Isn't this repetitious? Wasn't this just given a few minutes ago?

MR. MEMBRINO: I apologize for that, Your Honor. What I would like to get as is whether or not you have been able to locate and where you were able to identify sources of water that would meet these requirements.

THE WITNESS: Well, essentially in the Riverton area it's the Wind River Formation as your groundwater source for both -- for these phosphate rock beneficiation and acid production.

Q Okay. So maybe to speed this along, generally you were able to identify water sources for all the mineral and resource developments depicted on the map?

A Those that I was requested to do that weren't

being served by surface water.

Q Okay, thank you.

Mr. Page, have you a total, by the way, of the water requirements for all these developments?

A Have I totaled them?

Q Yes.

A No, I haven't personally totaled them.

Q Thank you. Just to recapitulate, then, all of these exhibits were prepared; that is WRIR C-32, C-33, C-33-A and 33-B were all prepared by you under your supervision?

A Yes.

THE WITNESS: May I talk to Counsel for just a second? We left off one. I'm sorry.

Q (By Mr. Membrino) We left off one exhibit?

A No, one mineral that I just realized.

Q I'm sorry. Please elaborate.

A Okay. I wasn't sure. We have the coal deposits and in situ gasification down at Alkali Butte. We talked about the coal up here (indicating), and I forgot to go down there. In that case we are looking at groundwater and we have aquifers available there, the Wind River,

Fort Union, Lance and Mesaverde Formations are present in that region there, and that would be the source of water.

Q Source of water?

A Yeah. I think that covers it all.

THE SPECIAL MASTER: Let me ask a question, please. You testified, among other things, that there were examples of water wells going to the Frontier Formation.

THE WITNESS: That's correct.

THE SPECIAL MASTER: And drawing comparatively modest amounts of water, even though it is not marked as one in blue on C-32, is that correct?

THE WITNESS: That's correct.

THE SPECIAL MASTER: How many other similar formations, for example, the Cody Shales or the Popo Agie Formations down in the Triassic, how many other formations are there under this Reservation that may hold water which there is a proof like that Frontier well?

THE WITNESS: Essentially all of them. If you -- we refer to this table here (indicating) where we have table one.

MR. WHITE: Your Honor, I would object to

page-direct-membrino

the witness testifying from the table. It is not in evidence.

THE SPECIAL MASTER: 31-A is in evidence. 31 table --

MR. WHITE: No, it's not, Your Honor.

THE SPECIAL MASTER: I guess it isn't. It has been offered, but not received.

THE WITNESS: Anyway, I don't have to refer to it.

THE SPECIAL MASTER: All right.

THE WITNESS: To my knowledge, other deep penetrating these formations at greater depth than the Reservation, I would -- there may be a few others, but I'm not aware of them, but penetrating at great depth.

I know the Frontier. Usually the wells, they were not water wells drilled to the Frontier, they have an oil well or plugback oil well.

THE SPECIAL MASTER: That brought in water?

THE WITNESS: Yes, or the oil-producing zone below maybe is not sufficient and they need water so they plugged off the oil producing zone and they had water they needed.

page-direct-membrino

Now, these formations that you mentioned where you see them outcropping, and we won't go into the detail of each color, but the other colors other than that yellow and dark brown in that south corner there where there is out-cropping or where they're at shallow depths -- well, I don't need the exhibit -- where they are at shallow depth underlying by, say, the glacial deposits, where they join the Wind River, where you have overlaps, you have stock wells. Some domestic wells, quite a few of those wells in sort of the range type area are penetrating these formations, including the Cody Shale, which you say is a shale, is not a water-bearing aquifer, but it will give a few gallons a minute which is sufficient for stock.

THE SPECIAL MASTER: Would that be true also of the Indian Meadows Formation and other similar formations where they come near the surface?

THE WITNESS: That is true for these other formations near the surface. The only possible exceptions are up in the northwest corner of the Reservation where some of these formations,

some of these formations lie well above, and their topographic highs I think would be drained. They may have permeability properties. Even in that case, you would be looking at getting a few gallons per minute out of them. It's just that, for instance, the Indian Meadows are something they have a lot of sands and gravels that if they were saturated would give more significant yields.

THE SPECIAL MASTER: Let me ask one more question, which is my obsession. In your studies on this Reservation and of its water resources and all to which you have testified, have you any knowledge whether or not surface characteristics would allow the construction of key dams or the impoundment of surface water that could be engaged in beneficially and store water in sizeable quatities?

THE WITNESS: I didn't look into that or investigate it.

THE SPECIAL MASTER: Okay, thank you.

(CONTINUED) DIRECT EXAMINATION

BY MR. MEMBRINO:

Q I will refer you, Mr. Page, then to U.S. Exhibit page-direct-membrino

WRIR C-31-A. This was -- was this prepared by you?

A Yes, it was.

Q Is it the product of your research?

A It is essentially abstracted from the sources listed below. The final column called Development Potential was general conclusions reviewing this other information. But the information was abstracted from these various sources with the bulk of the information in a similar table to this -- the first reference, U.S. Geological Survey Water Supply Paper 1576-I is just this presents a synopsis of the groundwater resources on the Reservation.

Q And as to the other tables in the exhibit, they're also your work product?

A Well, table two, the well yields, that was -- except for those with asterisks -- I mean, the preparation of the table was my work. The well yields, except those with the asterisks which I indicated were from the U.S. Geological Survey, are all of my research.

Table three, that's from Dornbusch and Associates.

page-direct-membrino

Q And table four?

A Table four, the first four columns are essentially from Dornbusch and Associates. The fifth and sixth columns are from me.

Q Is this information either prepared by you or your staff or derived from sources; for example, the USGS or Dornbusch and Company, the kinds of information you ordinarily rely on in carrying out your professional responsibilites?

A Yes.

Q And does this exhibit accurately express that information?

A Just a moment, please.

(Brief pause.)

Yes, to the extent other than the information provided by Dornbusch and Associates, which I did not generate, did not research and I won't speak for that, they can speak for it, but the well yields, this summary sheet and my contribution to table four, yes.

Q But even as to the work provided by the Dornbusch Company, that is something that you as an expert ordinarily rely on in your work, that is the work product?

page-direct-membrino

A Yes, as qualified consultants. Yes, I do.

Q Thank you.

Now, I turn your attention to the WRIR C-32. This exhibit was prepared by you?

A That's correct, under my supervision.

Q And it accurately depicts the information contained on it?

A Yes.

Q It's something you would rely on in carrying out your professional responsibilites?

A Yes.

Q I'll turn now to U.S. Exhibit WRIR C-33 and ask you the same. Did you prepare that exhibit?

A That's the geologic map?

Q That's correct.

A I didn't prepare it. The map itself is prepared by the U.S. Geological Survey.

Q Did you make any alterations on that map?

A No, I did not.

Q Is that the kind of map you ordinarily rely on in carrying out your responsibilities?

A Yes.

Q Turning to U.S. Exhibit WRIR C-33-A, you prepared that exhibit?

page-direct-membrino

A Yes, or it was prepared under my direction.

Q Based on the information from the Dornbusch Company?

A That's correct.

Q Is the kind of information the Dornbusch Company provided you ordinarily relied upon in your work?

A Yes.

Q I'll ask you the same question now of WRIR C-33-B. Was that exhibit prepared by you?

A Under my direction, yes.

Q Under your direction. And the source of that information?

A Dornbusch and Associates, with the exception of the gallon per minute number, the gallon per minute requirements.

Q Which were your addendum?

A That was correct.

Q Does the -- this is the kind of information you would ordinarily rely on in carrying out your work?

A That is correct.

Q Do WRIR C-33-A and B accurately depict the information intended to be displayed on them?

A That's correct.

MR. MEMBRINO: At this time, Your Honor, I move the admission into evidence of U.S. Exhibit WRIR C-33-A, WRIR C-32, WRIR C-33, WRIR C-33-A and WRIR C-33-B.

THE SPECIAL MASTER: Don't you want 31-A included?

MR. MEMBRINO: I said that at the top.

THE SPECIAL MASTER: All right. You want 31-A, 32, 33, 33-A and 33-B, is that true?

MR. MEMBRINO: That's right.

* * * * *

MR. WHITE: Your Honor, maybe the witness could take a short break from the stand while I get ready for voir dire on the exhibit.

THE SPECIAL MASTER: Well, it's fifteen to twelve --

MR. WHITE: I would just as soon go ahead.

THE SPECIAL MASTER: Do you want to take a five-minute break?

Go ahead, Regina.

MS. SLEATER: If I could request that we break for lunch at this time.

THE SPECIAL MASTER: Do you want to break for lunch at this time?

MS. SLEATER: Yes, I have a previous commitment.

THE SPECIAL MASTER: Well, in that event, we will break for lunch and be back at 1:15 if that sounds agreeable, and we will take the fifteen minutes on the other end of the lunch hour.

We'll recess until 1:15, and we have not yet admitted the exhibits and we will reconvene at 1:15.

(Thereupon a lunch break was
(taken from 11:45 a.m. until
(1:15 p.m.