5-4-1981

Trial Transcript, Vol. 48

Frontier Reporting Service

File 155
4406
Box 11

case # 4993

File # 155

4406

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) Civil No. 4993
SYSTEM AND ALL OTHER)
SOURCES, STATE OF)
WYOMING.)

BEFORE: The Honorable TENO RONCALIO, Special Master Presiding.

FILED
5/20 19 81
Margaret V. Hampton CLERK
VOLUME 48 DEPUTY

BE IT REMEMBERED that on this 4th day of May, 1981, at Courtroom 2, Federal Building, Cheyenne, Laramie County, Wyoming, the above-entitled matter resumed for trial before the Honorable Teno Roncalio, Special Master, presiding, whereupon the following proceedings were had, to wit:

P R O C E E D I N G S :

ORIGINAL

APPEARANCES

FOR THE STATE OF WYOMING:	HALL & EVANS 2900 Energy Center One Building 717 17th Street Denver, CO 80202 BY: MR. MICHAEL D. WHITE, Special Assistant Attorney General and MR. SCOTT KROB
FOR THE UNITED STATES OF AMERICA:	MR. JAMES CLEAR Attorney at Law Land and Natural Resources Division Department of Justice P.O. Box 7415 Benjamin Franklin Station Washington, DC 20044 and MR. THOMAS ECHOHAWK Attorney at Law Land and Natural Resources Division Department of Justice 1961 Stout Street Denver, CO 80294
FOR THE SHOSHONE TRIBE:	SONOSKY, CHAMBERS & SACHSE 200 M, Street Washington, DC 20006 BY; MR, HARRY SACHSE
CLERK TO THE SPECIAL MASTER:	MR, LEO SALAZAR Attorney at Law 701 Rocky Mountain Plaza Cheyenne, WY 82001

THE SPECIAL MASTER: We will please come to order. I would like to let all of you know, and this is notice, that through the kindness of Judge Clarence Brimmer of the United States District Court for Wyoming, this Courtroom has been made available to us for today and for Tuesday and for Wednesday. There is a small chance that a lawsuit scheduled to start Thursday morning might be settled, in which case we might stay but we must not plan on it. So, if we haven't heard by Wednesday night, we are to have all of our material out of here on the close of the hearing on Wednesday and back to the little sweatshop room in GSA which we will use Thursday morning.

I have prepared, thanks to Leo's good work,--rather he has prepared exhibit dockets and indexes through the next several hundred exhibits. And, I'll pass those out to you now if you would like to have them and the record can show one to the State of Wyoming, one to the United States of America, Tom Echohawk that is, the other one to the Tribes, Mr. Sachse.

Very well, there are no motions to dispose of that are in time. There has been filed a

motion to compel production of computer program, and which we can't get to until Thursday, is that correct?

MR. SALAZAR: Right.

THE SPECIAL MASTER: Unless there was to be a waiver of the ten-day rule. And the other item we have, is a motion for expedited discovery, which was just filed in the last two or three days.

Dr. Mesghinna, you are the same Doctor who was here last week. You have been sworn.

THE WITNESS: Yes, sir.

THE SPECIAL MASTER: All right. And we are ready to proceed.

Mr. White -- Mr. Sachse.

MR. CLEAR: We had finished, Your Honor.

THE SPECIAL MASTER: The United States was finished with your --

MR. CLEAR: Direct.

THE SPECIAL MASTER: -- direct.

Mr. Sachse on direct --

MR. SACHSE: No, on cross-examination.

THE SPECIAL MASTER: Yes.

Mr. White, did you have an announcement you wanted to make,or a request from the Court?

MR. WHITE: I wanted to ask the Court if it would be possible after Harry Sachse finishes his cross to recess for the day, and the reason is I've got bronchitis and I'm taking medication that makes me incredibly fuzzy. He will probably pull the wool over my eyes three or four times on cross, and I would sure like to let him complete his cross and for us to recess for the rest of the day, Your Honor.

THE SPECIAL MASTER: I would like very much to accomodate you, but I wonder if we can't find some attorney, either with the Attorney General's office or with your firm, that can carry on.

MR. WHITE: I don't think that is possible. Mr. Krob has not been approved by the Attorney General yet for the purposes of examining witnesses, and Mr. Merrill who has been, is in Lafayette today. I'm advised this morning, because of his wife, who is in her last month of pregnancy has some sort of viral infection that has made her very ill and so, I'm it, Your Honor. So, I would respectfully request that you grant the State a continuance after Mr. Sachse's cross until tomorrow morning.

It seems that we have had eight or nine weeks of continuances requested by the United States and the Tribes, and one day ought not to make much difference.

THE SPECIAL MASTER: Well, I am reluctant not to grant your request and I am reluctant to grant it because, I think that the State of Wyoming should have somebody to back you up. It is almost the role of an indispensable man. If you're sick, you've got to get to a doctor, but with the gravity of this lawsuit, I think it would warrant that someone should be ready to carry on when you have to miss a period like that. But, we will go ahead with Mr. Sachse's material now.

Yes.

MR. ECHOHAWK: Okay Your Honor, the United States has no objection to Wyoming's continuance.

THE SPECIAL MASTER: We'll go ahead with your cross now.

MR. SACHSE: On the Tribes side, we would like to accomodate Mr. White, but I would have to say that I don't expect my cross-examination to last more than an hour and if Mr. White was not going to have anyone to carry through the

day, it would have been a big help had we been notified before. I know you can't really tell how your health is going to do.

THE SPECIAL MASTER: Well, Mr. White recognizes it is an imposition, but it is not of his doing certainly.

MR. SACHSE: Right.

THE SPECIAL MASTER: And we will accomodate you.

MR. WHITE: Thank you, Your Honor.

THE SPECIAL MASTER: And we hope that you will keep it in mind as we go through the tribulations of the rest of the lawsuit.

Go ahead, Mr. Sachse.

MR. ECHOHAWK: Your Honor, before Mr. Sachse begins, I would like to file the United States' response to Wyoming's motion to compel production of documents which was related to the Crow Indian Reservation and the United States' response to Wyoming's motion to compel computer listings.

THE SPECIAL MASTER: All right.

MR. ECHOHAWK: Those were served on the State of Wyoming Friday.

* * * * *

THE SPECIAL MASTER: Mr. Sachse.

CROSS EXAMINATION

BY MR. SACHSE:

Q Dr. Mesghinna, as I understand your testimony when you were previously on the stand, you said that you took the acreages that had been given to you by HKM and that you made some reduction in those acreages to square off fields but that the major reductions you made in those acreages was not because of any engineering necessity but was because of advice from the economist, that, for economic reasons some acreages should be dropped; is that correct?

A Um-hum.

Q Now, I want for a minute for you to forget entirely about any definition of practicably irrigable acreage that any of the government's lawyers may have given to you. I want to ask you first, is the term practicably irrigable acreage a term of art in agricultural engineering such as depth to barrier, consumptive use or hydraulic conductivity?

A Well, the practicably irrigable land does not really lie with those definitions that you just mentioned in the engineering that I know.

Q Let me ask the question in a different way then.

Is practicably irrigable acreage a term of art in agricultural engineering?

A I wouldn't say that. It's more of a legal term rather than engineering.

Q All right. Now, I want you to assume the following definition for practicably irrigable acreage. Assume that practicably irrigable acreage means acreage of the same kind that has been successfully irrigated elsewhere in the west of the United States. Now, has the acreage -- Does the acreage that you've included in your design constitute practicalby irrigable acreage under that definition?

MR. WHITE: Objection; foundation. There's absolutely no fact in the record, no law cited to the Court that ... PIA could have that definition.

THE SPECIAL MASTER: I'll overrule the objection. It's an assumption or a hypothetical.

MR. SACHSE: Absolutely, Your Honor.

Do you want the question reread to you?

THE WITNESS: Yes, would you please say it again.

MR. SACHSE: Would you reread the question.

THE SPECIAL MASTER: Please read the question back.

(Off the record discussion.

(Thereupon the following question
(was read back as follows: "Q
(All right. Now, I want you to
(assume the following definition for
(practicably irrigable acreage.
(Assume that practicably irrigable
(acreage means acreage of the same kind
(that has been successfully irrigated
(elsewhere in the west of the United
(States. Now, has the acreage --
(Does the acreage that you've included
(in your design constitute practicably
(irrigable acreage under that defini-
(tion?"

MR. WHITE: I'll further object. The question is ambiquous, too general for a definitive answer. Lands being irrigated successfully is a question that involves many considerations. More importantly, however, in the west of the United States is roughly half this country and there ought to be some limitations to similar soils and climatic conditions.

THE SPECIAL MASTER: We still overrule the objection. Same kind I presume includes all classes and types and those are words of art in this case.

THE WITNESS: Yes. To answer that question it is yes, it is positive.

MR. SACHSE: Can you give examples of irrigation of lands roughly similar to lands that you made designs for?

mesghinna-cross-sachse

A Well, without going too far away, we have land in the Wind River Indian Reservation which is the Federal Indian Projects, which are successfully irrigated.

Q And that are substantially similar to the new lands that would be put into irrigation?

A I would say so.

Q Now, I want to move to the topic of drainage. When I looked at the drainage plans that you presented I saw what appeared to be a totally worked out system of drainage for almost all the acreage that was to be put into irrigation in the future projects, and yet I know that a great part of that acreage is classified as Class 1 and Class 2 lands by Kersich, HKM, and that the definition for Class 1 land is no drainage problem and the definition for Class 2 land, as to drainage, is slight drainage problem, easily corrected. Do you really think that you, to start this project, that you'd have to put in the drainage, totality of the drainage system that you outlined in your plans?

A First of all if we start the project right now there is no drainage problem at all. We are anticipating --

THE SPECIAL MASTER: You are what?

THE WITNESS: Anticipating.

THE SPECIAL MASTER: Anticipating?

THE WITNESS: Yes, future drainage problems. In fact, for the first four, five years I believe there won't be substantial drainage problems. So in practice when someone designs drainage it doesn't necessarily mean that you have to put all the drainage to start with. In practice what is done is since drainage is very complex you put about half of the drains first and see how it works, and you put monitoring devices to see whether the drainages are working or not, to see whether those drainages are indeed enough for the area that you have designed.

Now, after monitoring for several years, if you find some areas that would require additional, then you put those additional. So in essence, the drainage designs we have put in is what you call maximum protection.

Q (By Mr. Sachse) Is it equally possible as a practical matter that if you put in 40% of those drains after five years, for instance, and then brought it up to 50%, if you saw areas where there was some particular problem, that you might never have to put in the

additional 50%?

MR. WHITE: Objection, Your Honor, it doesn't call for a professional opinion, it calls for pure speculation.

THE SPECIAL MASTER: And a little conjecture.

MR. SACHSE: Let me ask the State. The State then admits as a fact in this case that it's entirely speculated as to whether more than 50% of those drains would be needed? If the State will admit that I'll withdraw my question.

MR. WHITE: That's absurd, Your Honor. The record stands or speaks for itself. The objection is made, it is speculative.

THE SPECIAL MASTER: The objection is made, but he may answer the question.

THE WITNESS: The point that I would like to make in this matter is the theory of drainage analysis is not to perfection, it hasn't been perfected. So with the standard of knowledge that we have, with the level of knowledge that we have today, what we do is we design for the maximum protection, but designing maximum protection does not mean that we put all the drainage, as I said. In practice we put probably about 50% of the drainage, especially those areas which are

depth to barrier, you know, extensive depth to barrier. We put less drainage there and we see what happens. If it requires some additional, we put additional in future, but there are chances, in fact good chances that some of the drainages may not be needed. I think this is the way, how I would answer the question.

Q (By Mr. Sachse) So then when I look at another drainage cost figure on page 39 of your report, table 22 and you show cost, for instance, of $380 an acre for North Crowheart, $320 for an acre for South Crowheart and so forth, it's entirely possible that you never have to spend that amount of money in putting drainage for those areas?

A As I said, it -- this has been designed for maximum protection. There is a possibility that some of the drainages may not be needed.

* * * * *

Q If we take your assumption that you would put in 50 percent of the drainage, and whether you would put in any of the rest of it, we would have to wait for experience over the years to determine, then as far as any immediate costs or any directly forseeable costs of the drainage, we could really cut these figures that you have in half? in half?

MR. WHITE: Objection, Your Honor. Foundation.

THE SPECIAL MASTER: We could cut the figures, but I think in half puts it in the realm of conjecture. I would sustain.

Q (By Mr. Sachse) All right. Now --

THE SPECIAL MASTER: Not so much conjecture, it is almost total uncertainty by his very testimony. The future will tell.

MR. SACHSE: That's right.

Q (By Mr. Sachse) Do you know whether when the economic justifications of the Midvale Irrigation District were done, that an entire system of drainage for that district had to be justified before the system could be built?

MR. WHITE: Objection, Your Honor. The

Witness has not been qualified either on Midvale, or as an economist.

THE SPECIAL MASTER: He was asked, does he know. If he knows, he may answer.

A The thing that I know about the Midvale Irrigation District, is there are many sour lands and they are putting drainage in them now.

Q (By Mr. Sachse) They are putting drainage in now?

A Uh-huh.

Q But that district has been in operation for over 50 years, is that correct?

A Well, when I say now, I don't mean only this year. They have been putting it in for the last several years.

Q Thank you. Do you know whether the drainage problem should be less for lands that are higher up and sandy, with a high hydraulic conductivity, than for lands in the Basin area such as Midvale?

MR. WHITE: I object, Your Honor, to the question on the lack of specificity. What does he mean by hydraulic conductivity, what does he mean low Basin areas. It is a question that defies specific response and also, it is a question without foundation.

THE SPECIAL MASTER: The objections are overruled. I think the question can clearly be answered.

A Obviously, if you have higher lands compared with lower lands, there is a chance that water might seep out from the higher lands and collect to the lower lands. So in a sense, to answer the question from what I just have said, there are chances that the -- high chances that the lower lands will have higher drainage problems than the higher lands.

Q (By Mr. Sachse) Now, I want to ask you a question about the definition of barrier and hydraulic conductivity. There has been a good deal of talk about that in this suit. I want to be sure that I understand this correctly, and that the Court understands it correctly.

The definition of barrier, as used in the land classification, is a strata of land that has less than one-tenth of the hydraulic conductivity of the land above it, is that correct?

A That's correct.

Q All right. Now, if the land above the so-called barrier is highly -- has a high hydraulic

conductivity, if it's sandy land that the water flows through quickly, that would then mean that the barrier could also have water flowing through it, but at less than one-tenth that rate, is that correct?

A That's correct, yes. Because if the barrier has some permeability in it, if it is not completely, you know, 100 percent a barrier, there will be water flowing down.

Q Now suppose that the upper strata had a conductivity of ten inches per hour -- I don't know whether that's reasonable, but I just use it as an example -- then when you would reach land that had a conductivity of less than one inch per hour, even though it might be .9 inches per hour, that would be defined as a barrier, the way the soil classification was done, is that correct?

A That's correct.

Q Now, is it also correct that a barrier that has a permeability of over .0025 inches per hour can have an effect, perhaps a significant effect, on drainage taking place despite the barrier?

A Well, the standard procedure in engineering or in any work, whatever you're going to word it, is

mesghinna-cross-sachse

to assume a barrier of one-tenth the permeability of the upper strata, as I said, so you use that one as a barrier really.

Q Right.

A But from the logic standpoint of view, there is water leaking there, if there is permeability, good permeability of the lower stratum. So, in a sense although that is not tangible, that is not something that we can concretely say that is true, there is a possibility of your drain spacing might, in reality, be farther than what you have designed for.

THE SPECIAL MASTER: Mr. Sachse, you have used the words hydraulic conductivity and then the word permeability interchangeably. Do you mean to do that?

MR. SACHSE: Well, I meant to do that. I might be wrong in doing that, and Dr. Mesghinna I'm sure, could correct me. I'm probably being a bit inaccurate there.

Q (By Mr. Sachse) Could you explain the difference between permeability and hydraulic conductivity?

A No, they are the same. They can be used interchangeably. They are words used by different

professions.

Q Uh-huh.

A But they mean the same, essentially the same.

Q Uh-huh. Now, in your work in spacing your drains, you have assumed that when you hit a barrier, it is really a barrier, and no water goes through just to be on the safe side?

A That's true.

Q But the fact may be otherwise, water may go through and you may not need that much in the way of drains?

MR. WHITE: Objection, Your Honor. It calls for speculation.

MR. SACHSE: It doesn't call for speculation, it is really just summing up what he's already testified. In fact, I'll withdraw the question.

THE SPECIAL MASTER: All right, that's fine.

Q (By Mr. Sachse) Now, I want to go to the cost figures that you have given for your pumping plants. If I understand correctly, you did not actually go to pump manufacturers, draw specific designs to get these figures but relied primarily, though not exclusively, on the estimating manuals of the Bureau of Reclamation for giving the figures

on pumps and pumping stations, is that correct?

A Our costs of pumps and pumping plants, we have relied, it is true, on the Bureau of Reclamation standards, but also we have relied on our experience in the company.

Q Now, I want to give you a hypothetical situation: First, I want to draw your attention to your report and testimony. As I understand the Arapahoe Pumping Station No. 1 is a 65 horsepower pump, and you have a price set for the pump and pumping station of $57,000, is that correct?

A That's correct.

Q All right. Now, wouldn't it be possible to buy that pump for approximately $8,000?

A I'm sure there is a possibility of buying it, eight to $10,000.

Q Well, let's say eight to $10,000 then. Now, if I were to say to you that other people in your field think that if you have gotten the price of the pump that the pumping station for a pump of this relatively modest size, should not cost more than twice the value of the pump, would that sound unreasonable to you?

A It depends what kind of design you're doing really.

You can just -- let me start from the lowest point what you can do. You can just buy a pump as you said, eight, $10,000 and put two planks of what do you call, wood, on top of the canal, set the pump there and that won't cost you much. This being the lowest thing that I would say, and on the other side of the arena there is the costs and the designs done by the Bureau of Reclamation which is in many cases to a certain extent, fully automated and with a lot of gadgets and so on, which is essentially as you said, probably the pumps might only be ten percent of the total framework. If you say, where do we stand on this in our costs in between what I have given you, to extreme costs, the lowest cost that can be and the highest cost that can be, I will say we are a little bit lower than the Bureau of Reclamation and higher than the lowest, what you call standard of pump and pumping plant.

Q Now, do you anticipate that in the projects of the size that you're working with, that the pumps and pumping stations would have to have the automation and other sophisticated devices that

mesghinna-cross-sachse

the Bureau of Reclamation includes in its larger projects?

A The automation that I said is, this is what I think, it doesn't say in their manual, but if you come to think about it, it has to be something of that sort in order to have such high costs, meaning like the structures and the improvements. They call it the accessories, electric equipment and the pump plant, miscellaneous manifolds and so on. The kind of thing that you can cut down from that cost are things like for example, in the structures and in the improvements, you can have the lowest structure whereby the water turns from the canal into the pumps and then it would be taken up by the pumps. That is essentially as far as we are concerned that's necessary. But, there are things, as I have testified previously, that we can cut down. Say, for example, the super-structure, the parking lot, the fence, such things can be, you know, out. They are not really essential. Instead of a super-structure, you can make just a shed. Instead of having, you know, a crane and so on to assign costs of cranes to move equipment from place to place, you can have

an overall crane for the whole project and so on, you know, so there are many things that you can cut down from this. But, I am saying also, we are a little lower than the Bureau of Reclamation costs, but we are much higher than the lowest cost that I mentioned to you.

* * * * *

409 WEST 24TH STREET
CHEYENNE, WY 82001
(307) 635 8280

FRONTIER REPORTING SERVICE

201 MIDWEST BUILDING
CASPER, WY 82601
(307) 237 1493

Q (By Mr. Sachse Continued) In terms of your engineering, you're not planning sophisticated automatic pump stations, are you? Aren't you planning a pump that someone turns on and turns off?

A Yeah, that's what we are assuming.

Q A pump that someone turns on and turns off?

A Yeah, as much as possible. The best thing is if you have a pump that is fully automated, but that is too much.

Q Well, then in your pumping -- strike that before I get to that question.

In your testimony previously you said then -- this is from Page 4185 of the transcript: That it's not really necessary to have an over-structure in a pump station, but we've included the cost for our over-structure just to be on the safe side.

I assume you mean safe side in terms of cost there?

A Yes.

Q And you said you've included "Other costs such as parking lots that can always be subtracted."

A Certainly there is -- you can cut, as I have said,

from that cost, there is no question about it. But the point is where are your limits in cutting down. Although we have added that, in that, there is an area where it says pumping plant switch yard. One of the figures gives you the cost of pumping plant switch yard. We did not find it necessary to add that cost, for example, in there. We eliminated that because we assumed that it is inputted with the other costs that we have, we have put on. So, as I have said earlier, there is a possibliity of decreasing this because some of the things that we have included there are optional.

Q All right. Now, let me ask one further question on pumps. You had your prices fixed or set at approximately, from -- omitting Big Horn Flats for the moment -- for the other projects, from $366 per acre to a low of $138 per acre, that's on Page 22 of your report, table 15.

Is it fair to say that if you just want to get the job done and you're not concerned with the aesthetics of it or with building something that's going to be there as long as the Pyramids, but building something to the standards of other

mesghinna-cross-sachse

water projects built in the West for private persons or for the Government, that you could make a substantial reduction in these pumping costs?

MR. WHITE: Objection, foundation, and calls for speculation, Your Honor.

THE SPECIAL MASTER: I will overrule.

THE WITNESS: Could you please say the question again?

THE SPECIAL MASTER: Would your read it, please?

(Thereupon the following
(question was read back as
(follows: "Q All right.
(Now, let me ask on further
(question on pumps. You had
(your prices fixed or set
(at approximately, from --
(omitting Big Horn Flats for
(the moment -- for the other
(projects, from #$366 per
(acre to a low of $138 per
(acre, that's on Page 22 of
(your report, table 15.
(Is it fair to say that
(if you just want to get the
(job done and you're not
(concerned with the aesthetics
(of it or with building some-
(thing that's going to be
(there as long as the Pyramids,
(but building something to
(the standards of other water
(projects built in the West for
(private persons or for the
(Government, that you could
(make a substantial reduction
(in these pumping costs?"

THE WITNESS: First of all, to comment on the difference of costs that you see from $366 to $138 is, Arapahoe Unit in many cases it uses gravity flow so your pumping costs are low there. In Riverton East you have to pump a long distance, the lifts are hiher and when the lifts are higher the horsepower is high so your pumping costs will be higher.

THE SPECIAL MASTER: What costs like that of Riverton East reach the point that would result in a conclusion on your part, based upon your professional judgment that it is no longer a feasible project?

THE WITNESS: To say whether it's a feasible project or not, I wouldn't be deterred by pumping and pumping plant cost alone. I have to see the other costs because in some areas the pumping plant cost is high while drainage costs are low or canal costs is low. So we have to see overall cost.

THE SPECIAL MASTER: Thank you.

THE WITNESS: As to whether this project was built to the standards of projects that are built in the United States, in my professional

judgment we have designed this in such a way that this would be a good viable strong project.

Q (By Mr. Sachse) On Page 4124 of your previous testimony you were talking about the water holding capacity of the soil and you say -- you said that if the only positive information you had is as to the top strata of the soil and they don't have a very good water holding capacity --

THE SPECIAL MASTER: What do you mean, Mr. Sachse, by top strata?

MR. SACHSE: I'll read it. "Let's say gravelly, or for some matter the driller quit his drilling from there, so what we are assuming, we assume the water holding capacity of the rest, 3.5 feet of soil. Gravelly soil has a very low water holding capacity, so what we are doing is we are punishing ourselves on the water holding capacity on the rest of the profile."

I want to be sure I understand that. You're saying that where you had insufficient data to prove that the water holding capacity was better than shown in the data that you did have, you assumed the worst case?

THE WITNESS: What I mean to say by that is

if, say for example, for answering this question, let me bring an example. If we have received say a boring hole which is 12 inches in depth, for that 12 inches in depth we have the texture of the soil and we know what the water holding capacity is. But below that it says only, say gravel. So what we are assuming is that the rest of the stratum, which is 3.5 feet will use gravel. There might be better soil there, you know, way down, but that's essentially what we have. The data that shows is gravel, so gravel has lower water holding capacity, so we will assume that, as if the rest of the depth is gravel, which has lower water holding capacity, means that you are on the conservative side.

There might be a chance that, you know, that it might have better soil, but we are not including the chances that --

THE SPECIAL MASTER: But if there is better soil under the root zone, doesn't that detract from the general value of that particular part of the land, it doesn't add a factor to its capability, does it?

THE WITNESS: What I'm saying is we know

for a fact for the first -- for the top 12 inches of soil. That we input it as its respective water holding capacity. What we don't know is the water holding capacity below the 12 inches because we have to go another three and a half feet down. So now the point is what do we do as a water holding capacity for the 3.5 feet. So what we have assumed is we know that below the 12 inches it says there is gravel, the gravel has low water holding capacity, which means that you have to irrigate more frequent. So what we are assuming is if we irrigate more frequent -- By the way, that means you need more equipment, more cost. So in those areas where we don't have data we have assumed gravel, there is gravel all the way.

THE SPECIAL MASTER: An assumption.

Q (By Mr. Sachse) So your assumption, in order to be 100 percent safe, assumes the higher cost rather than the possibility of a lower cost?

A Yes. Well, there are chances that -- there are chances also on the other side of the coin, there might be completely pure soil. I'm going to the highest extent, pure gravel, let's say that water

holding capacity is almost very low, so, you know, it balances out towards the end itself.

Q All right. Now, in HKM's soil classification standards they deal with the slope of the surface for sprinkler irrigation, and they classify Class 1 land -- of course I'm just talking about the slope now, slope classification, Class 1 lands, that slope is less, is zero to eight percent, and Class 2 land, which is still very good land, eight to fifteen percent, and Class 3 land, 15 to 20 percent. Now, am I correct in understanding your testimony to be that you eliminated all lands with a slope of over 15 percent in designing your project?

A Well, it is not deliberately eliminating them, it is a matter of cost. The more you go higher like this, the higher the cost of energy will be, power cost. And you'll have also higher cost of pumps, so it's -- that's how they were really eliminated.

Q So for economic considerations --

A It is economic considerations.

Q No soil or engineering considerations?

A It is economic considerations.

mesghinna-cross-sachse

Q You eliminated land that had over 15 percent slope.

You also testified that only five to ten percent of the land has a slope between ten and fifteen percent. Did you also eliminate some Class 2 land because of slope?

A I think I said maybe, I was not 100 percent sure, I was not sure really, that was my opinion. I didn't, you know, measure it exactly, that is five to ten percent, and so on.

If at all that would be economic reasons, you know, the more you go higher, the higher the cost will be.

Q So you may have eliminated some Class 2 lands to save money according to the economics that your economic advisors gave you?

A The point -- it's not as simple as that really. The point is you have to see the whole thing together, you have a big package there, different parameters enter into each other, so you have to balance the whole thing. It is when you see a land, it is not only the slope that determines, you know, it's the drainage, the canal, where is it in respect to that area, how far it is, the

mesghinna-cross-sachse

pumps, how much do they have to pump, how much the lift and so on. So it's a matter of the whole thing, as I explained before, in Riverton East, when the question was asked to me, what would be the highest cost that we would go before you quit for pumps, and that logic applies to what you're saying. It is a matter of looking at the whole thing together and eliminating some lands if they don't come up with that, but the point is we were looking more towards an economical strong project.

Q Now, I want to talk a little more about costs, this time for the side roll sprinkler and the laterals. As I recall your testimony you said you got the costs for that on-farm equipment by talking to Tom Shephard who runs a -- an agricultural supply store in Riverton. Is that correct?

A Yes.

Q Now, if this project were to be built, wouldn't whoever is going to build it put out those specifications on competitive bids and see where he could get the lowest price for what would be a very large amount of pipe to be purchased at

mesghinna-cross-sachse

one time?

MR. WHITE: Objection, Your Honor, foundation, speculation.

THE SPECIAL MASTER: Overruled; he may answer.

THE WITNESS: Definitely that's true. It doesn't mean we haven't considered that. We have considered it in our analysis, but as you are well aware of, we don't have controls on what you call competitive bids and so on. But there is a chance, in fact we have discussed with suppliers that those costs might be lower, as much as by ten percent. If -- as much as by ten percent if, you know, you buy in bigger quantities.

Q (By Mr. Sachse) Yes. Now, you talked about varying the pipes and you said -- and this is Page 4177 of the transcript, "That we assumed, which is optional, may not be necessary, we assumed that the pipes will be covered below ground, that's not necessary, but that increases the cost of the pipeline network, that is optional."

Now, assuming that that is optional and not necessary, how much money could be saved in --

approximately, a rough figure, I don't expect you to have an exact figure -- in dollars per acre by not burying those pipes?

MR. WHITE: I'll object to the question as to specificity. Is it money saved from the original investment cost, is there money saved throughout all the cost including costs of repair after the cows step on those PVC pipes?

THE SPECIAL MASTER: Is it also the fact that the pipe is put into trenches but the trench not filled or the pipe simply laid on the ground and left and not submerged? I'm not clear on the question either, so try it again, will you, Mr. Sachse?

Q (By Mr. Sachse) All right. Taking it as a fact, your testimony that this is not necessary, I'm not questioning you on your conclusion, you said it's not necessary.

THE SPECIAL MASTER: What is not necessary?

Q (By Mr. Sachse) To bury the pipe. What would be your saving in initial cost by not burying the pipe?

A Let me clarify this more. When I say optional, it doesn't mean everything cannot be -- should

be on top of the ground. There are obviously pipes that you have to put them below the ground. There are rods, there are farmsteads, there are, you know, many things that you have to consider. You know, people are passing, animals are passing by and so on, and in those areas where you think that by putting the pipe on top of the ground, meaning that without burying them, in those areas a savings can be made, initially, what you call investment savings can be made in those areas.

* * * * *

Q In your cost figures for digging, whether it's digging canals or planting pipes of drains. am I correct that you got those figures from the Bureau of Reclamation estimate of costs?

A. Yeah, for all canals we got it from Bureau of Reclamation.

Q Now, do you know whether those estimates include a profit for the contractor that's going to dig those canals?

A. Well, those are estimating costs, so they should obviously include, I believe, the costs of -- I mean, the profits.

Q Are you aware that in the Federal Indian Projects a great number of canals were dug by the Indians themselves by hand?

A. Yes, in those days many canals were dug by hand.

Q All right. I'm not suggesting that these canals would be dug by hand, but I am suggesting that the Indians themselves with equipment that they also use for other purposes, such as road repair, might be the people who would dig these canals --

MR. WHITE: Your Honor, I would move to have Mr. Sachse's eloquent testimony stricken because he's not yet been sworn and subjected to

cross-examination.

MR. SACHSE: I'll change my question by saying:

Q (By Mr. Sachse) Assume that the Indians themselves were to use equipment already available and dig these canals themselves and that it is for their benefit so they wouldn't need an independent profit from it, wouldn't that then make the Bureau of Reclamation estimating levels inappropriate?

MR. WHITE: Objection, Your Honor. It assumes, first, facts not in evidence, whether or not the individual Indians or the Tribes or the Bureau of Indian Affairs has that equipment is not of record. We don't know what equipment is being talked about. And finally, I'm not quite certain, I'm sure that the record doesn't disclose, what Mr. Sachse means as an independent profit, and I assume that whoever did the work would have to make enough money to eat.

THE SPECIAL MASTER: Overruled. You may answer.

A Well, obviously, for example, if I have the land somewhere, 160 acres, and if I have to dig it, if I have to dig the canal myself with my own equipment, my own labor, it will be substantially lower in cost as compared to if I bring a contractor to do everything.

MR. SACHSE: Thank you.

Q (By Mr. Sachse) Now, are you familiar with a procedure by which companies, such as Continental Hydro, for the name of one of them, use the head on irrigation projects under an Act of Congress that sets this up to generate electricity from small generating plants that do not divert or consumptively use water, but just have the water pass through their plants?

MR. WHITE: I object on the grounds of relevancy, Your Honor.

MR. SACHSE: I'll show the relevancy --

THE SPECIAL MASTER: Just a minute, Mr. Sachse. The objection is overruled.

A. Yes, I know about that program. I came to know about it quite recently.

MR. SACHSE: For the Court's information, we'll supply the citation of the Act of Congress. There is an Act of Congress that now says that if energy is produced by any method other than the use of fossil fuels, the primary source of wind energy, solar energy and hydroelectric energy, that the electrical companies in the area are bound by law to purchase that energy and let it

enter into their grids at a cost established according to a formula set in the Act as one of the Energy Conservation Acts.

Q. (By Mr. Sachse) My next question is: In the irrigation system that you have designed would there be heads of water sufficiently to install some of these small electrical hydroelectric generators?

MR. WHITE: Objection, Your Honor.

THE SPECIAL MASTER: I'll sustain that objection because that's getting into a tremendously complex, difficult -- into another world of facts, figures, costs related to transmission, peaking productivity, areas of capacity and whatnot. It is just a different world, Mr. Sachse.

I doubt very much it is really within this witness' expertise anyway.

MR. SACHSE: All right, I'll go on to another question.

THE SPECIAL MASTER: All right, sir.

Q. (By Mr. Sachse) Can you tell me in whatever might be the most convenient way to describe it the maximum heads of water created in your irrigation system?

THE SPECIAL MASTER: Do you want this in feet and volume?

MR. SACHSE: I would leave it to the witness to state it the way that it would be the clearest.

THE WITNESS: Just to clarify things for me, do you mean the pressure on the sprinklers?

Q. (By Mr. Sachse) No, I do not mean that. I'm not talking about sprinkler pressure; I'm talking about heads of water that may be in the canals or the pipes so that if we later have someone testify as to the possibility of hydroelectric use, they will have the basic information as to the amount of pressure.

THE SPECIAL MASTER: Heads with capacity to provide the capacity to turn a turbine.

MR. SACHSE: Correct.

MR. WHITE: Your Honor, I'll now object to the question so long as the witness is not also asked to be specific as to the location of these particular heads that he's referring to.

THE SPECIAL MASTER: All right.

A. Just on approximately, I can't say because --

THE SPECIAL MASTER: Just on what, sir?

THE WITNESS: Approximately. I can't be definite on this.

THE SPECIAL MASTER: All right.

A. I will say like 20 feet or even over of head can be attained.

THE SPECIAL MASTER: Where?

THE WITNESS: In some of the canals.

THE SPECIAL MASTER: Some of the canals of which, of the North or South Crowheart or Riverton East, or do you recall from your work?

THE WITNESS: I think there might be a possibility in North Crowheart Canal at the -- specifically at the Pavillion Reach Canal and also at Arapahoe Canal, but I can't be exactly certain on the figures. But there are drops there that can be used for small hydros probably, although I am not an expert on this.

MR. WHITE: Your Honor, I would move that the answer be stricken because under the law of evidence we deal in reasonable probability --

THE SPECIAL MASTER: Well, he said --

MR. WHITE: -- not possibility.

THE SPECIAL MASTER: He said it was approximately. I'll let it stand, Mr. White.

MR. SACHSE: Your Honor, I wonder, we've been at it an hour now, I wonder if we could take about a five-minute break and I should be able to finish

my cross-examination within a half hour after that.

THE SPECIAL MASTER: Mr. White, would that leave you -- Do you want to go off to see a doctor now and let one of your co-counsel take care of the remaining half hour?

MR. WHITE: I'll stick here until it's done, Your Honor, and then --

THE SPECIAL MASTER: Okay. We'll take a ten-minute break.

MR. WHITE: Thank you.

(Recess, 10:20 a.m.

* * * * *

THE SPECIAL MASTER: Okay. Will we please come to order. We'll try to expedite this, Sandy, so we can be of some help to you.

MR. WHITE: I'm fine as long as I'm sitting down. As long as Mr. Sachse wants to go, that's fine with me.

Q (By Mr. Sachse) On the voir dire of your exhibits for prior testimony, you explained that -- that you had planned water project for 18,000 acres in the Big Horn Flats that have been cut out on the advice of the economist. And the Master asked you if you could bring in figures on how much water it would take to irrigate that area if it were in fact irrigated. Do you have those figures?

THE SPECIAL MASTER: Did he answer the question at the time it was asked?

MR. SACHSE: No, he said he didn't have the figures then but he'd try and bring them in.

THE SPECIAL MASTER: Very well.

MR. WHITE: I'll object to the question on the basis of foundation, Your Honor. What kind of system is going to be used, what costs are involved, etcetera, etcetera?

THE SPECIAL MASTER: I may sustain some of those observations, objections at the moment, but for now I'll overrule, so he may answer. Do you have the figures?

THE WITNESS: Let me write it down.

(Brief pause.

THE WITNESS: As I have indicated before this time, we haven't made the in-depth analysis of this, but from the outset I can say around 66,000 acre feet of water is needed for those lands.

MR. WHITE: I'll object, and I move the answer be stricken. 60 to 6,000 feet of irrigation requirement, diversion requirement, what? What amount of water is needed?

THE SPECIAL MASTER: I'll let it in for what it's worth.

Q (By Mr. Sachse) Let's ask that question, the 66,000 acres for what?

THE SPECIAL MASTER: The objection's overruled.

THE WITNESS: I am talking in terms of water duty, overall water duty for all those acreages in Big Horn Flats.

Q (By Mr. Sachse) For the acreages that you have excluded in your report but that you did not exclude

in the map that accompanies your report?

In other words, we're not talking about the 2,000 some odd acres?

A I'm talking overall Big Horn Flats, including those which are there.

Q Including the 2,000?

A Yes.

Q And the 18,000?

A Yes, yes. Between 60 to 70,000 really, but we can refine this too if needed, but that is the range that we are talking.

MR. WHITE: I would like to renew my motion to strike on the basis of foundation. What efficiencies were used, what acreage are we specifically talking about and under what conditions? There are all sorts of foundation things lacking.

THE SPECIAL MASTER: It's so general now that it really has no probative value, so I'll overrule the objection.

MR. SACHSE: I have no further questions.

THE SPECIAL MASTER: All right. Before the State begins its cross examination, we will, Mr. White, take the rest of the day off hoping you can take care of your problem.

MR. WHITE: I certainly appreciate that, and I plan to be here with bells on in the morning.

THE SPECIAL MASTER: All right. Let's make it 9:15 in the morning, and if I should forget, Mr. White, if you would be nice enough to get a round robin letter out to you attorneys to sign, thanking Mr. Brimmer for using the courtroom.

MR. WHITE: Thank you, Your Honor.

THE SPECIAL MASTER: I'd like to read in the record, gentlemen, during the last three weeks we've seen many, many exhibits introduced, offered and accepted into evidence, we marked a warranty deed of the Harpoon Cattle Company regarding some land as a U.S. Exhibit WRIR-146, and also it evolved that we have an arable acreage with gradient of five per.cent or more in the Wind River as an exhibit, which was also marked U.S. WRIR-C-146. I will change the number of the gradient tabulation to C-151 so all of you may know.

MR. ECHOHAWK: Thank you, Your Honor.

THE SPECIAL MASTER: We are in recess until 9:15 tomorrow morning.

(Thereupon the proceedings were
(recessed at 10:35 a.m.

* * * * *

REPORTERS' CERTIFICATE

State of Wyoming)
: SS
County of Laramie)

We, Lamont Miller and Merissa Racine, Registered Professional Reporters in and for the First Judicial District, State of Wyoming, 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 4343-4390, 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 4th day of May, 1981.

LAMONT MILLER
Registered Professional
Reporter

MERISSA RACINE
Registered Professional
Reporter

Lamont Miller - Notary Public
COUNTY OF LARAMIE STATE OF WYOMING
My Commission Expires March 29, 1983

MERISSA RACINE - NOTARY PUBLIC
COUNTY OF LARAMIE STATE OF WYOMING
My Commission Expires Mar. 10, 1984