2-10-1981

Trial Transcript, Vol. 13, Afternoon Session

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Case # 4993

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4371

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 2/25 1981

Margaret W. Haughton CLERK

DEPUTY

VOLUME 13

Afternoon Session

Tuesday, February 10, 1981

ORIGINAL

THE SPECIAL MASTER: Are you ready, Sandy?

MR. WHITE: I am, sir.

THE SPECIAL MASTER: Very well. Okay. Let's come to order.

Mr. White.

MR. WHITE: Thank you, Your Honor.

CROSS-EXAMINATION (RESUMED)

BY MR. WHITE:

Q Mr. Kersich, you may recall the cross-examination, or do you recall the cross-examination yesterday in which we discussed your definition of arable lands as well as the classes of lands as compared with the Bureau of Reclamation, do you recall that general cross-examination?

A Yes, I do.

Q I would like you now to turn to the formulation of your land classification standards, are those the standards which are in the United States Exhibit C-36?

A Yes.

Q Did you formulate those standards in conformity with the practice of the Bureau of Reclamation?

A Reasonably close, yes.

Q Would you take Exhibit SK-5, the portion of the Bureau of Reclamation manual --

A Just a minute, please.

Q Okay.

A Okay.

Q And turn to page 115.3.1.C.

A Okay.

Q Do you want to hold on just a minute?

At the bottom paragraph capital A general -- and it carries over to the next page.

A Uh-huh.

Q Have you found that?

A Yes, sir.

Q Would you please read that?

A "General. The land classification defining the arable area shall be based upon integrating land, agronomic, environmental, social economic relationships, primarily for characterization of the lands and for economic purposes. Although the distinction between land classes will be on physical features, the mapping specifications which express these differences will be developed on the basis of economic factors. The final irrigable area will be affected by additional

economic, environmental, social and engineering considerations involved in project formulation."

Q So when you got to the irrigable determinations there are additional factors to be considered, is that correct?

A That's correct.

Q In terms of the mapping specifications, those according to the Bureau are included -- or include economic factors?

A There are economic considerations included, yes.

Q What economic factors did you consider in the development of your standards? Perhaps we just could start -- well if you want to tell me what economic factors you considered, go ahead.

A I think that's a good question and I would like to tell you, really.

Q Sure.

A Because I think it is something we've got to clear up at this point in time.

For example --

Q Go ahead.

A Surface -- I'm sorry, did you say something?

Q I said to go ahead. I was just grabbing my paper.

A For example, there are some inherent productivity

and economic factors in any set of land specifications. And if you will look on -- under soil, there is a difference of soil depth for each of the three or four classes -- excuse me, four classes. Primarily it's been realized by people in the industry that if you have a deeper soil of better quality that you're going to have more productivity with less production costs or, at least, least production costs. Therefore there has been a distinction made between the amount of topsoil and the soil depth, the profile depth. I'm talking now in particular of the 48 inches that we really are concerned about in the potential root cell in each of these classifications.

The same thing has to do there. There is an economic factor not directly but inherently in moisture retention. If you have a soil that is -- can retain more moisture within reason and where the plants can take the moisture out of it, you will have a less frequent irrigation cycle required which will reduce your irrigation labor and it will reduce your costs if you happen to be sprinkling for example, you would have less

kersich-cross-white

power costs, for example, things of this nature. Alkalinity and salinity, the least -- the less of these salts and sodiums that you have that might affect you in plant growth, the better off you are. There is a distinction about the allowable amount in each of the three classes, for -- four classes, excuse me. Surface gravel and cobble -- I'm on page 2 now. Class 1, for example, says relatively free. Again, remember that we are considering the top 12 inches. We talked about surface gravel and cobble. Class 2 is moderately free but affecting tilt in some management. And so on it goes. Each one has a little higher deficiency. Topography and gravity, it is zero to two percent for Class 1. Basically that means you're going to have very little leveling, you're going to be allowed little longer runs on some of the laterals on your field systems. Again there is some inherent economic involved.

Surface leveling and graveling is not a critical feature with sprinklers on mechanical move systems, especially. Then field size, we tried to break out for mechanical moves on

kersich-cross-white

sprinklers that for side rolls we looked at a minimum of 40 acres although someone may put a hand move or some other type of system in there. For side roll it looks like about a 40 acre minimum was the most practicable or was the least that you would go to. A hundred acres minimum size for center pivot. That would be 1,000 to 1,100 feet centers. Just about the standard 130 acre size you'd get on a section.

Cover, in this particular instance was not a big factor simply because cover -- there just isn't any cover in any area we're talking about. We've got some sagebrush and grass and things of that nature. Then, finally, drainage. For any surface drainage problems, they are to be listed; if there weren't, that's fine.

With regard to drainage as I spoke yesterday, we were looking at the three factors of drain spacing, hydraulic conductivity and soil depth to barrier.

Now, as I said, for our investigation with the Bureau of Reclamation, they feel that in Montana, Wyoming, these areas that you can't space drains closer than 200 feet and develop --

kersich-cross-white

and not suffer an economic hardship. California, they said it's been their experience they can go down to 100 feet so those were some of the factors that were put in to develop productivity and economic viability.

Q Did you have an economist up on your team that helped you develop these standards?

A No, sir.

Q How did you determine in the words of the Bureau then with respect to Class 1 that the standards you used assured "the highest level of suitability for continuous successful irrigation farming measured in terms of the net income generated"?

A Well, I guess we'd better talk about this whole program again because it is obvious people are not understanding it. So if I might, just for a second --

Q Go ahead.

A Good. It also says somewhere in the Bureau that you first have to segregate the lands to give someone a base to work on. I think that's been pretty well accomplished.

Q Where does it say that?

A I can't remember right now but -- you've got to

kersich-cross-white

segregate the lands so the economist can begin to do his study. The economist can't go out and give you the answers before you have looked at the lands and just from a practical experience standpoint, you've got to give them something to work on.

Now, from what my experience with the Bureau indicated was that we -- and I keep saying Bureau, I'm beginning to wonder here why are we referring to the Bureau here because we are not doing a Bureau study. Nevertheless, let's talk about it for a moment. The particular lands that we are talking about here, these lands that we've got grouped in various classes according to chemical and physical deficiencies, if any, are being further reviewed in depth by an economist and by an agricultural engineer and in many respects they are undergoing quite a strenuous test here because the agricultural engineer is designing site specific systems to service those and developing costs on a site specific system.

Q Now, Mr. Kersich, aren't those the additional economic and engineering works that lead up to

the irrigable determination that the Corp talks about in the language that you read?

A Well, how can you apply costs of production and costs and returns and assign these figures if you don't know what it costs you to pay for the water, if you don't know what it costs you to pay for the services putting the systems on the lands?

Q The Bureau does that.

A I think we are getting afield here. It doesn't --

* * * * *

Q (By Mr. White) (Continued) The Bureau does that, don't they -- doesn't it, rather?

A Oh, I think we're doing it too. I'm having trouble understanding the differentiation because we're doing the same thing here.

Q I'm understanding -- having difficulty understanding how you feel that your system or your procedures are the same or identical or similar to the Bureau's when it doesn't meet the standards set out in the Bureau manual. Are you saying this is not a Bureau --

MR. SACHSE: I object.

THE SPECIAL MASTER: I will sustain the objection.

MR. SACHSE: It's not what the --

THE SPECIAL MASTER: I'll sustain the objection.

Q (By Mr. White) Let's delve into that. Did you use the Bureau procedure or not?

A For some things we did, like testing the lands, things of this nature, yes.

Q But you didn't use the procedures that we've gone through in SK-4 and 5, did you?

A Now --

kersich -cross-white

THE SPECIAL MASTER: I would like to take my own objection to that because he just read from SK-5, as an economic and physical factor that the land classification defining an arable shall be based upon integrating various factors, one being the economic relationship. He then went to great extent to tell what economic factors he cranked into the arability matter, so he has answered that. He does indeed use the criteria that you specified and had him read from in SK-5, Mr. White.

Q (By Mr. White) Mr. Kersich, then let's go to the next question I asked after you gave that answer, what you didn't answer, and that is how did you determine in the economic analysis that you went through for the standards, that these standards for Class 1 would, in the words of the Bureau, insure the "Highest level of suitability for continuous successful irrigation farming, measured in terms of net income generated"?

THE SPECIAL MASTER: Good question.

THE WITNESS: But the way we define Class 1 was not the Bureau's definition of Class 1.

Q (By Mr. White) Okay.

THE SPECIAL MASTER: That's what he wants to

hear.

Q (By Mr. White) That's what I wanted to know.

A Okay.

Q So your classification definitions weren't the Bureau's classification definition?

A That's correct.

Q The same thing true of arable land; is that correct?

A Yes, I believe I testified to that yesterday.

Q I'm not sure we got --

A We defined arable land as land which is capable of sustaining irrigation, and that's why we put the definition in our report so that people would understand what was meant by the way the term was used here. We understood at that time that that land base was to go, further studies which were economic and engineering in nature, and which may result in narrowing then of that land base, and for example, in this study I think that's the way it's going to prove out. I suspect, I can't give you the final answer at this time because that's not my domain, but I suspect that of the 85,000 acres roughly that we are talking about, arable, that the final claim will be based on

something maybe 60 or 70 percent of that. I can't --

Q But your definition of arable land was different than that of the Bureau?

A Right.

Q Now, let's go back to the question again. What did you do to determine that your standards for Class 1, in the words of the Bureau: To insure the highest level of suitability for continuous and successful irrigation farming, measured in terms of net income generated, or did you? If you didn't, just tell me you didn't do it.

A That's what I'm trying to tell you.

Q You didn't do it, okay.

A That the physical characteristics of the soil had been put together, they've been given to an economist, they've been given to the Ag engineer to determine the total cost of production from our classification. The economist and the engineer realized what deficiencies, if any, may be there and in many instances under Class 1 there may be no deficiencies, no reportable deficiencies.

Q So it's true then you made no determination with

kersich-cross-white

respect to net income as associated with your land classification standards?

A We personally -- I personally did not. Other team members are.

Q Now, the other team members, are those within the team that helped you develop this arable land base or are they persons of other firms that were not involved in that arable land base determination?

A I'm referring to Tom Stetson, who is the Ag engineer on the team, and Mr. Dornbusch, who is the economist for the team.

Q They were not part of your arable land base team; is that correct?

A Other than receiving our input, no.

END 11

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Q. (By Mr. White) Would you turn to C-36, please, your standards?

A. Okay.

Q. What were the facts and data upon which you based the soil texture standards for Class 1 for -- well, Class 1, period?

A. The texture was a review of the local area, what we thought in our minds from our understanding of irrigation would be acceptable for farming and for water management practices and, finally, in all of these various areas, we compared these with specifications which had been previously developed by the Bureau of Reclamation within this general area.

Q. Specifically what Bureau of Reclamation specifications did you use?

A. I don't recall all the standards. I'll try to give you the three or four off the top of my head that I know.

I think we had the standards from the 1947-48 study. We had the standards from that study in the early sixties.

I know that we had the Muddy Ridge standards, and there might have been two or three others that

were involved in there.

I believe there was a reclassification of the Cottonwood Bench area. I'd have to look into that, but I do know that we had several sets of standards that had been put together by the Bureau.

Q. Did all of those standards have the same soil texture for Class 1 that appears on --

A. I don't recall. I'd have to go back and look at it now. It's been quite some time since I looked at them all, but they are close to these.

Q. You don't know whether or not they are the same?

A. Not without going back and checking the standards specifically.

Q. Soil texture in Class 2?

A. The answer would be the same for that also.

Q. Your texture standard is loamy sand to clay loam and silt loam?

A. Yes.

Q. Were you aware of any areas which have, say, a loamy sandy surface texture and where erosion is a problem?

A. No, I'm not aware where loamy sand textures were found on the surface in any large areas. We did have some loamy sand in the subsurface profile.

kersich - cross - which

Q. So with respect to your surface texture of Class 2 lands, you didn't find very many loamy sand lands?

A. Not that I recall, no.

Q. Are you familiar with the Bureau's experimental farm on Cottonwood Bench?

A. No, I'm not.

Q. Who talked to the Bureau people to get the Class 2 standard?

A. I don't recall at this time. You remember we are going back over two years now roughly. Now I'm sure Chick Smith would have talked to them. I'm sure that -- well, I'm not sure, but I would assume that Ross Waples may have talked to them also.

We had numerous meetings on these standards with the Bureau, including having them review them after we put them together.

Q. Were you present at those meetings?

A. I was across the hall, and the results of the meetings were brought in to me directly.

Q. And there was no report made to you of the failure of the experimental farm?

A. The failure of the experimental farm, on what basis did it fail?

Q. I'm asking you. Was any report given to you about the failure of that farm?

A. I don't know.

THE SPECIAL MASTER: Just answer the question.

A. (By the Witness) I don't know of any failure of the farm.

MR. ECHOHAWK: Objection, Your Honor. There's been no showing of what the experimental farm is about, the reason it failed or anything. I think it's entirely improper for Mr. White to infer such things when the facts aren't in the record yet.

THE SPECIAL MASTER: The objection is overruled. He didn't get into the details about it. He only asked if the experimental farm had failed, and the answer can be yes, you knew, or you didn't. I don't think in the record I should exclude the question yet unless he proceeds further.

MR. WHITE: I'm through with the area, Your Honor. I would ask more questions if he had known about it.

Q. (By Mr. White) From what source did you obtain the soil texture standard for Class 3?

A. Those would have been the same.

Q. The same?
A. Yes.
Q. The same with respect to soil texture for Class 4?
A. That's correct. It all comes down to reviewing what's been done in the area before and using our own judgment and experience.
Q. I see you have a standard for soil depth to clean sand, gravel or cobbles?
A. Yes.
Q. What do you mean by the term "clean"? Is there any quantifiable standard?
A. Basically that's material classified as sand that is roughly 85 percent sand or higher. I can't remember exactly the percentages, and some of the other finer materials with it.
Q. Would that 80 percent apply to gravels and cobbles as well?
A. No, there could be different varying characteristics or conclusions of those materials.
Q. What did you mean by the term "clean cobble" then?
A. Clean cobble, basically that's what we are saying there is that we expect or could accept some of the cobbles within that particular area. There was no percentage there. That was part of judgment

whether the cobble would be sufficient in quantity to inhibit root growth or decrease moisture holding capacity.

Q. How did you interrelate your soil depth to clean sands, gravel or cobbles for Class 3 to your other standards for surface leveling for Class 3?

A. To surface leveling for --

Q. Back on the second page. It says surface, leveling, and Class 3 says heavy leveling, maximum average cut 0.88 feet.

A. If you had an awful lot of leveling required and a very thin mantle, you would have probably downgraded those particular areas. If you had sufficient topsoil to maybe be a larger class but it required heavy leveling, then you may have downgraded that particular tract to 3, you understand?

Q. I understand.

A. They work intimately, not separately.

Q. So you did have an interrelationship and where you had had heavy leveling, you went back and checked to see whether or not after the leveling you would still have an adequate soil depth to clean sand, gravel or cobbles; is that correct?

A. I can't say we went back and checked it all the

time. That was a decision that was made many times in the field and in some instances verified by other land classifiers or even by myself.

Q. On what occasions did you verify it yourself?

A. Well, we went out in the field Friday to look at a couple areas where we thought we might have a very thin layer of soil, and as it turned out, we didn't. We had good soil silt matrix below the top 12 inches. There were some small gravels present, but sufficient fines to do the job that was required there with regards to root development and moisture holding capacity.

Q. Was this Class 3 land with a heavy leveling requirement that you checked?

A. I don't recall that it had a heavy leveling requirement. It was Class 3 land.

Q. Do you recall at any time that you went back and checked where you had a heavy leveling requirement in a thin soil?

A. Not offhand I can't recall, no.

Q. Under your standards for alkalinity of soils, what do you mean by optimum drainage conditions?

A. Normally coarse texture soils with few fines where the sodium as it moves through the profile or is

kersich - cross - white

moved through the profile would not be able to affect the clays and inhibit permeability.

Q. Did you develop quantifiable standards or quantified standards for that?

A. These chemical standards relate very closely to what work the Bureau has been doing in the area, and that's why we had confidence in them.

Q. What chemical standards did you use in that area?

A. The ones that are listed here.

Q. On the second page of your standards you have surface gravel and cobble. Class 1 and Class 2 are relatively free and moderately free with respect to -- do you have any quantifiable standards with respect to what's meant by relatively free and moderately free?

A. No, some of this would depend on the field classifier, and that's one of the reasons we try to obtain people with a number of years of experience in doing this.

I personally didn't see such cobble on the surface or in my inspections of the areas, and in the holes that I did dig, we did find gravel, but remembering that gravel is defined as up to three inches, that's not very big.

Q. Mr. Kersich, with respect to your slope standards --

A. Yes.

Q. -- your sprinklers, what was the source of those percentage standards?

A. Well, I can't recall the exact source. It may have been the specifications that the Bureau used on Muddy Ridge, but I'd have to go ahead and take another look at that. They are reasonably conservative though they are certainly not alarming to anyone that has done sprinkler irrigation.

Q. Are you aware of other standards that have percentage of slope as high as 20 percent for sprinkler irrigation?

A. It would take me a minute to think about this, but as far as under Class 3 lands at the 20 percent, yes, I think I have. I'd have to go back and look at the standards I saw that the Bureau used in the Columbia Basin, but as I recall, those were either approaching 20 percent or at 20 percent. It's obvious from inspection of the Columbia Basin that they are irrigating slopes steeper than 20 percent with success.

Q. Have you done land classification work in the Columbia Basin on those lands?

A. No, but we did spend some time out there with the Bureau of Reclamation people at the Ephrata office looking at various sandy areas and sprinkler applications that were being utilized there.

Q. Is that an area that's similar to the Wind River Indian Reservation area?

A. In what respect do you mean by similar?

Q. In any respect.

A. Well, it's undeveloped land in many places.

THE SPECIAL MASTER: You mean topographically, don't you?

THE WITNESS: It's rolling. It certainly has a different climate, of course.

THE SPECIAL MASTER: Does your experience lead you to know of areas where there has been irrigation of lands on a 20 percent slope in the Rocky Mountain Arid West?

THE WITNESS: Yes.

THE SPECIAL MASTER: I'd be interested in seeing some of those.

THE WITNESS: I have some pictures that, if I can find those, I could maybe send you sometime.

THE SPECIAL MASTER: The only 20 percent

kersich - cross - white

slopes I'm familiar with are those that have grown wine grapes over the centuries and only that's done with terracing and very serious terracing to catch the moisture and hold it on a slope that's that steep.

THE WITNESS: When you get into a slope that steep, you have to be very concerned with the surface texture so that your rate of application of water and the rate of infiltration or the rate that the soil will accept the moisture can be matched up, but it's entirely possible to go ahead and irrigate slopes that steep and --

THE SPECIAL MASTER: What percentage -- pardon me, Mr. White.

MR. WHITE: That's all right.

THE SPECIAL MASTER: What percentage of the Class 3 lands you have designated on these exhibits today would you say fall into the category of having that 15 to 20 percent slope? Certainly it can't be very much of it, can it?

THE WITNESS: No, there's not very much. I'm not sure that there's any that meets it. That was a parameter that was set up, and I don't recall just offhand any slopes that we finally certified for

arability that were up to 20 percent.

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Q (By Mr. White) With respect to surface leveling, did you determine the current costs of leveling or excavation?

A No. This one we used almost directly from the Bureau. The Bureau had some costs in the area. We worked with them on it trying to develop their information and these very closely approximate what they had broken out.

Q On what date?

A I can't remember exactly. I would have to go back and look at the Muddy Ridge and Cottonwood Bench work. This, of course, is, you know, subject to further review. This is the land classifier's best estimate. It is subject to further review by the engineer and the economist later.

Q Under your surface standards for sprinklers on the second page of your Exhibit C-36, does not the applicable language that extends through all four classes infer that leveling will not be required under any circumstances for sprinkler irrigation?

A Your leveling will not be required for the field size we are talking about here. There may be some

individual smoothing that may have to take place.

THE SPECIAL MASTER: While we're on that exhibit give me the language again of the footnote four, page 3, please, on the actual original exhibit.

THE WITNESS: Four says no drainage requirement is necessary for lands and then, sir, that should be --

THE SPECIAL MASTER: Yes, I have it too. Okay. Thank you.

Okay, Mr. White.

Q (By Mr. White) Which portion of the table itself did that footnote apply to, was it the last two?

A I have it on the last page, Mr. White, and then under Class 4 I have the footnote 4 on the portion that read "at least .10 inches per hour, at least 6 feet."

Q Okay. And I can't remember, did you make the change or did you make no change to the footnote 2?

THE SPECIAL MASTER: No change.

A I changed that one word irrigable to arable and then --

THE SPECIAL MASTER: You changed it right back to irrigable.

THE WITNESS: No, sir, I didn't. I didn't think I did.

THE SPECIAL MASTER: I thought you did.

MR. WHITE: There are two irrigables there and I believe he changed the first irrigable to arable. Is that correct, Al?

THE SPECIAL MASTER: I have a note here. This witness said there is a mistake. Then I had a note later on he corrected himself. So I made the note STEP meaning leave it alone.

Q (By Mr. White) Now, on the Court's copy of Exhibit C-36 --

A Yes, I show it here as arable, sir.

Q The first irrigable becomes arable?

A Yes.

THE SPECIAL MASTER: The second one is left alone?

MR. WHITE: Yes, sir.

THE WITNESS: Right.

THE SPECIAL MASTER: All right. Thank you.

Q (By Mr. White) Now let's go back to the second page, please, under surface leveling for sprinklers. You indicated no leveling would be required for kersich-cross-white

these field sizes?

A Basically, no leveling would be required for the fields. Over the entire field there may be some small land preparation that might be done, but there was no specific requirement for leveling.

Q Does land preparation include filling in gullies or is that part of leveling?

A Let's define a gully. I'm not trying to be wise and ask you questions, but I think there is an understanding here that if you have the normal rolling undulating terrain that we are talking about out in that area and sprinklers can go through it and you can get farm equipment over it, you're not going to spend a lot of time changing the character of your topsoil by trying to level that field out completely. Now there may be instances where you have to do some minimal work in some of those gullies.

Q How deep would a gully have to be before you would have to start doing that type of work?

A What type of equipment are you talking about, Sandy?

Q I'm talking about whatever you assumed when you

developed these standards.

A Well, I can't recall seeing many gullies that are going to have to have much work done with them out there. But side rolls or center pivots, and as I recall, there were no center pivots ever put in as the ag engineer designed, but it is awful interesting to see what the manufacturers tell you about the center pivots. For example, they maintain they will go down a thirty percent slope and up a thirty percent slope.

Q Okay. So you made no assumptions with respect to the depth of the gullies that would have to be filled or would require leveling, is that correct?

A Well, there's one thing that maybe you ought to think about and that is if the gully was so steep and so wide as to create a problem,normally, that would have been classified as Class 6 lands and taken out of the tract. And then how the ag engineer wanted to handle it. Whether he wanted to put a system on each individual tract or whether he wanted to go ahead and fill it in, that would be part of his concept.

Q I see. So he might include Class 6 lands in

kersich-cross-white

a tract and just fill it in so the sprinkler would go right across it?

A Well, many times Class 6 lands are included in tracts depending on the field layout, the farm layout and one thing and another. So, yes, he may very well go ahead and either decide to include it and provide some kind of a walkway for his equipment to get across or maybe by looking at it, he knows that his equipment could get across that area, right.

Q Let's go to irrigation and pattern and field size, please. I see no standards except for side roll and center pivots, is that correct?

A Do you mean for a minimum size for side roll and center pivot?

Q Right.

A Yes, that's listed there.

Q Those are the only ones for which you have a minimum size?

A Yes.

Q And yet in your report you have indicated that other types of sprinklers might be used?

A I believe, yes, I said that a person -- we're talking here about either intermittent moves or

continuous move and a person could irrigate smaller tracts of lands, irregular shaped land if they used a hand move or a solid set type of sprinkler. To me that's very similar in management still to a gravity system. That's one reason I guess I don't differentiate that and call that a sprinkler system.

Q So a hand move sprinkler system is like a rainbird on the end of the hose, is that what you're talking about?

A It could be this or it could be an awful lot of aluminum pipe put on a little wagon and trundled out to your field. You assemble it. If you have risers and tie it to a water source, a little pump running out of your ditch, or something like that. Again, going back to my past experience, I have seen many times where you have a lateral on a side of a hill and the hill is rather steep and they just drop pipe out of the ditch and use the natural grade as the pressure. They do a pretty good job of irrigating many times.

Q That's generally for pasture land, isn't it?

A That's pasture but you can make hay on that.

I've seen hay fields, again back to the Columbia Basin.

Q What do you mean by solid set sprinklers?

A That would be a sprinkler that would be tied down -- there is a system that is manufactured for alfalfa where they vary the pipe and have what they call alfalfa risers. I'm not sure there's one in the Big Horn Basin but I know they are manufactured and I know they are used in places. That would, in fact, be a solid set. In other words, you didn't pick it up all the time. Another solid set would be if you had grapes or some type of orchard crop, you know what I mean.

Q Uh-huh.

A In other words, the facility is buried, it's not moveable.

Q Would you refer to Table 8 of your report which was --

THE SPECIAL MASTER: May I ask a question before you get through this?

MR. WHITE: Yes, sir.

THE SPECIAL MASTER: Define for us a point roll.

THE WITNESS: Sir?

THE SPECIAL MASTER: What's a point roll.

A It is when the field, the tract that you're working with comes to a sharp point or a series of points which may give you a problem of irrigating there.

THE SPECIAL MASTER: Right. Thank you. What did you call for?

MR. WHITE: C-43, Your Honor, the report, Table 8.

Q (By Mr. White) I see the hand move and solid set sprinklers described in footnote 1 under gravity.

(Witness nodding head (affirmative.

Q Do those types of sprinklers play any role in the lands which you have described as additional sprinkler lands or are those types of sprinklers limited to gravity?

A that type of sprinkler, of course, could be used anywhere so it could be used on additional sprinkler lands, but the lands that we're calling additional sprinkler here are lands which are

large enough and pass the criteria for either a side roll or a continuous move.

* * * * *

A (continued) But that's not to preclude a person from not using a hand move on that particular tract of land.

Q In Table 8, I see that there are, for Big Horn Flats, 6,088 acres of Class 2 land gravity, and then 191 additional Class 2 lands under sprinkler, additional sprinkler.

A Yes.

Q Do these exhibits, the large area maps that you have been talking about, show the location of those additional sprinkler lands?

A They show the location of all the sprinkler lands.

Q How would you find the, let's say off of Exhibit C-49, which is up on the tripod now. Where are the 191 acres of additional sprinkler lands located?

A That particular 191 acres?

Q Yeah.

A I couldn't find that unless we went to the book-keeping procedure I described to you at the depositions.

Q With the exception of Owl Creek, would your answer be the same for all the other additional

sprinkler lands that are listed on Table 8?

A Yes. On Owl Creek there are no gravity lands, all the lands are sprinkler categories.

Q But you couldn't point out those additional sprinkler lands on that map; is that correct?

A That's correct.

THE SPECIAL MASTER: I'd like to ask a few questions.

MR. WHITE: Yes, sir.

THE SPECIAL MASTER: Mr. Kersich, if there are 865 acres of Class 1 potentially arable on Big Horn Flats, did you study how many actual acres there are now of Class 1 on Big Horn Flats historically being irrigated or have been over the past decades?

THE WITNESS: There are no lands in this particular area of the Big Horn Flats --

THE SPECIAL MASTER: None whatever?

THE WITNESS: -- that are being irrigated now, sir.

THE SPECIAL MASTER: Do you know of any reason why, if there are 865 acres of Class 1 arable lands, that they were not put into irrigation in the past, in the decades past?

THE WITNESS: I think --

THE SPECIAL MASTER: Or for that matter in the North Crowheart area, South Crowheart or any place else.

THE WITNESS: I think those reasons are going to become evident when the agricultural engineer and economic --

THE SPECIAL MASTER: All right, somebody else's province, okay.

MR. WHITE: With respect to Mr. Kersich's answer, I'd ask you to put a footnote in your notes because that's the area we are going to cross-examine Mr. Billstein about.

THE SPECIAL MASTER: All right. It's in my head not my notes.

THE WITNESS: I think your note should go in, we're talking about 865 acres of undeveloped lands.

THE SPECIAL MASTER: Oh, yes. It's all undeveloped, all four classes?

THE WITNESS: As we noted this morning there are some lands in the Big Horn Flats study area along Sage Creek that, as I recall, are presently being irrigated, and someone will be discussing that during the future part of the trial.

kersich-cross-white

THE SPECIAL MASTER: Okay.

Q (By Mr. White) I want to make sure the record's clear, Mr. Kersich, in the Big Horn Flats you said that the 865 acres of Class 1 lands, which are shown on Table 8 in Exhibit 43 include no lands that are presently or historically irrigated; is that correct?

A Well, that's -- that I've got to check, but the purpose of this study is to only have the acreage in it which is not being irrigated at the present time.

Q So it could have been irrigated in the past and still be in your arable land study?

A If it were irrigated in the past and irrigation had ceased, there was no permit on it, you know, or any authorization to use water, that may have been included.

Now, whether or not there's some of that acreage within the 865, I can't testify to that now.

Q On the third page under drainage, your surface standard, --

A Yes.

Q -- Class 2.

A Yes.

Q What do you mean by "Relatively low cost"?

A Again, this is a judgmental thing, something that a farmer would do just by going out with part of his equipment, not putting any elaborate ditches systems in that convey water around his fields, things of this nature.

Q Whose judgment?

A The judgment of the classifier of the -- land classifier and collective judgment of myself in reviewing the lands.

Q Class 3 under surface drainage, you have "Expensive but feasible". What's meant by "Expensive but feasible"?

A There again, we're talking about where we have a -- could have an irregular surface or a large amount -- the area may be in a spot where a large amount of water could be delivered to this particular farm or this particular tract, and at this point in time then we would realize that we'd have to do more than just minimal work, we'd bring to the attention of the agricultural engineer to see whether he has to compute any particular engineering structures, etcetera, to

take care of that drainage around it.

Q So your land classifiers used the standards and they decided what was expensive but feasible, or did you, if you had that problem, did you go to the agricultural engineer before you made a determination?

A They make an initial determination and they alert the agricultural engineer through the soils characteristics.

Q So expensive but feasible again is the standards that are applied, is a judgmental thing?

A Yes. I'd like to correct that answer. It's judgmental but subject to further review.

Q Did you conduct any further review with respect to that?

A We looked at a number of these lands, as I said, out in the field, and in the aerial photographs and we didn't find any particular tract where surface drainage was going to be a particular concern.

THE SPECIAL MASTER: Did you find any alkali in that area --

THE WITNESS: Yes, we did.

THE SPECIAL MASTER: -- along that irrigation?

Did that serve sort of as a caution that maybe there'll be drainage problems again?

THE WITNESS: Yes, sir. In many of those areas we discarded -- we have a number of areas that we holes in from a standpoint of depth to barrier, things of this nature that looked okay from the standards, but those were discarded and eliminated because high presence of salts and high presence of sodium.

MR. WHITE: Your Honor, I need to get another exhibit, I'm sorry. Were you going to ask another question?

THE SPECIAL MASTER: Off the record.

(Off-the-record discussion.)

MR. WHITE: I didn't mean to interrupt your questioning, Your Honor.

THE SPECIAL MASTER: We'll take five minutes.

(Thereupon a five minute recess was taken.)

End 14

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THE WITNESS: Could I clarify one answer I gave?

THE SPECIAL MASTER: Yes.

THE WITNESS: There seems to be some question about this 191 acres on Big Horn Flats, and my answer said I couldn't point to the specific plot today, but if I have to find those 191 acres, it can be done by going back and working with the aerial photographs and the tabulations made of each section up there to locate those.

Q (By Mr. White) What kind of tabulations did you make in each section?

A They are similar to some I have here for some of those other questions I answered.

Q What is shown on those tabulations?

A Can I open one of these?

Q Oh, sure.

A Very good.

Q I'm not asking you for the contents. I'm asking you for the type of information that's included in that.

A Yes. The first thing that we have normally in each one of these units that we have is the date, the gravity, sprinkler, and the total by class

for each of them plus totals.

Those totals are further broken up into fee and trust, and then there is a column for the Township we are working in here (indicating).

Q And then did you break it down by section?

A Basically, that's correct, yes. We go down and we took each section and analyzed it for fee and trust lands. Many times fee wasn't involved like out in some of those areas, and we just broke it down by section and plat, and you have to look at the aerial photograph because the actual totals are on the large aerial photographs, and that is the way you would break it down to determine that the 191 acres are there.

Q I see that you have tapes there, adding machine tapes?

A Those are the check tapes to see that we have included each of the tracts.

Q And then you added up all the subtotals under trust for Classes 1 through 4 to get your total arable lands?

A That's correct, yes. And that's the way it would have to be done to be found exactly.

Q Rather than having you do it, I wonder if it

kersich-cross-white

would be possible for us to have copies of those tabulations? That way we can do it and save a lot of time in cross-examination.

MR. ECHOHAWK: That's fine with us. Do you just want the particular one you looked at?

MR. WHITE: No, I would like all of them for the arable land base. That way we don't have to go through parcel by parcel.

THE SPECIAL MASTER: Do you want to subpoena them?

MR. WHITE: I'm just asking if he would give them to us. We are in trial --

MR. ECHOHAWK: We will make them available for copying.

MR. WHITE: Sure.

THE WITNESS: I have a question. These are originals here, and could I make one request? When you make copies, if you are going to work off of copies, I would like to send someone from my office with you to make dang sure we get them back because there's a lot of work involved in these.

MR. WHITE: We will just arrange for Ross to go with them. Is that all right?

THE WITNESS: We have got another person back

at the motel, Bill Johnson.

MR. WHITE: Perhaps that would be the thing to do. We could do it within the afternoon.

THE SPECIAL MASTER: Why don't you take this, Mr. White, and see if this is adequate?

MR. WHITE: If he has them all, we are going to want them all because we have problems with the acreage numbers.

MR. ECHOHAWK: Mr. Kersich may need to work on this type of information tonight or --

MR. WHITE: That's why I was suggesting we do it this afternoon during the trial since he has someone that is not here and we have people that are not here and we could just get it done and not hold up the trial.

THE WITNESS: Either that or, Chick -- excuse me,--

MR. WHITE: Let's go off the record.

(At this time an off-the-record discussion was held.)

End 15

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Q (By Mr. White) Now, are those all the tabulations for your entire --

A There's North Crowheart, South Crowheart, Owl Creek, Riverton East, Arapahoe and Big Horn Flats.

THE SPECIAL MASTER: Six of them?

THE WITNESS: Those are all --

THE SPECIAL MASTER: All six of them?

THE WITNESS: -- originals; yes, sir.

MR. WHITE: Could we take a minute --

THE WITNESS: Would it be all right if I left and talked to those guys?

THE SPECIAL MASTER: All right. Take five minutes.

MR. WHITE: I'm sorry for the interruption. It will save us a lot of time.

THE SPECIAL MASTER: That's quite all right.

(Brief recess.

THE SPECIAL MASTER: Shall we go back on the record?

MR. ECHOHAWK: I'm still working --

(Off-the-record discussion.

Q (By Mr. White) Mr. Kersich, footnote 3 on the last page --

A Yes.

Q -- your standards?

A Yes.

Q Discusses 200 foot drain spacing?

A Yes, it does.

Q Do you know who you talked to in the Bureau that approved the 200 foot drain spacing standard?

A I could look at my notes. I believe we have a telephone memorandum on that.

Q Okay.

A Okay, this is a memorandum that Bob Taylor called Jack Criss--it appears to be Jack Christopherson with the United States Bureau of Reclamation and I'm sure this is in Denver. And in there he discusses the depth of drain and the permeability and a minimum drain spacing.

Q Could I see that memo, please?

A Certainly.

Q Why don't you take it out of your notebook.

A I'll take it out. No problem.

MR. ECHOHAWK: Could I see that, Sandy?

MR. WHITE: Sure.

Q (By Mr. White) Do you know Mr. Christopherson's position with the Bureau?

A I would have to check but I believe he is the drainage engineer now in Denver. The fellow that -- Mr. Winger, I believe retired and I think he replaced him so he has a relatively high position in that type of work there.

Q I see. Your soil depth to barrier is 6 feet in your standards?

A That's correct.

Q Isn't it true that your memorandum, which you've kindly furnished me a copy with, indicates that the Bureau uses depth to barrier of 8 feet which in some cases was relaxed to 6 feet?

A That's correct.

MR. WHITE: Here's your memo back.

Q (By Mr. White) Why then did you go to 6 feet rather than 8 feet in the next standard soil depth to barrier?

A Because the depth of barrier is also a function of hydraulic conductivity and if you have the barrier located close to the surface and have a real high conductivity, like you might have in loamy sand or a texture of this type, it is kersich-cross-white

possible to design drains with spaces in excess of 200 feet. Now the initial classification work, you're trying to establish land which you are developing arable base. So you look at this and you say, if it has drainage barriers less than the depth of 6 feet as an average throughout the parcels, you'd throw it out. If it has a hydraulic conductivity of less than a tenth of the weighted average of the material above the barrier, you automatically throw it out. But when you get to the final one, then at this point in time, you go ahead and say okay, I've got a hydraulic conductivity of this, I've got a depth to barrier of that, what would my drain spacing be, and it would come out greater than 200 feet, you would leave it in knowing that the agricultural engineer is getting the same information you have, the hydraulic conductivities, the deep hole logs, the logs of any 10 foot hole, for example, in that area or less and he would actually design the drain. And as a consequence, you talk about economics. Here we've got economics involved again. And you don't know what system he puts on which will

decide the eventual size of drains anyway around the space because of the deep percolation loss and some of the other things, so you're giving the data to the engineers saying these lands can at least meet this minimum criteria. But you have to look at it and drain it, predicated on the type of system that you put on.

Q I think I understand. You used the 6 foot even though the Bureau said 8 but you gave the data --

THE WITNESS: Well, wait a minute.

THE SPECIAL MASTER: The Bureau said 6 to 8.

MR. WHITE: Wait, wait.

Q (By Mr. White) Would you read what it says there?

A I'll read it in the record.

Q Okay.

A A depth to barrier 8 foot which in some cases is relaxed to 6 feet.

Q Okay. And you used the 6 foot depth but you gave enough information to the agricultural engineer so he could determine whether or not the depth to barrier should be greater, is that correct? Was that --

A The depth to barrier should be greater or

what -- the most important thing here is the spacing of the drains.

Q Okay.

A So this is what you do, is you work with him many times and he eventually comes out with an irrigation schedule which determines about how much water the drains are going to have to function with or which are going to be a function of drains and knowing that he can determine high drain spacing. Determining his drain spacing, he determines the cost of his drainage. Knowing the cost of his drainage, he works that in the cost of his system. At that point in time, if the -- that cost when it is added to the other costs, if it exceeds the economic returns, you don't worry about drains because you don't have a project. You just discard those lands.

Q In any event. --

A It is an iterative procedure basically.

Q In any event, you did not include any land within your arable land base which had a depth to barrier less than 6 feet, is that right?

A There are distances in there where you find kersich-cross-white

where there's rock with a probe and you hit it at 68 inches or 66 inches, you go over here a few feet and you're down 11 feet to barrier. Yes, you do include those, understanding that when you design your drains, you'd design them to go through the rock. You develop a gravel envelope around them and the drains function. You might have -- there is no way to assure that every piece is below 6 feet. Many times there is because you go 30 feet and not hit anything.

THE WITNESS: Can I put this away now?

MR. WHITE: Yeah.

Q (By Mr. White) As I recall, you did some soil classification work on the Crow Reservation, is that correct?

A Yes, HKM did.

Q Let me hand you what has been marked for identification as SK-7 and ask you if that isn't the soil classification standard which you used for the Crow Reservation?

A Again, without going back and checking, I would have to check against my copies.

Q You don't know whether these are the standards

you used in the Crow Reservation?

A Well, I see nothing on here that says that they are other than your word and I'm not disputing your word, but I'm very cautious.

Q Okay, do you recall whether or not the soil depth to barrier which you used in the Crow Reservation was in fact a 20 foot minimum for Class 1?

A That's right. And I've got to explain something if I might, Mr. Counselor.

Q Sure.

A These are old standards. The work is not done. The drainage that we were working at is much different than what we are talking about now. As a matter of fact, right now within our own office we've been discussing the possibility of going back and redrilling this area and reviewing the internal drainage on the basis of the work that we did with respect to the Wind River.(sic)

Q But you did use the 20 foot minimum depth to barrier for Class 1 lands?

A At that time.

Q At that time?

A At that time.

Q And 15 foot minimum for Class 2 lands?

THE SPECIAL MASTER: At what time was that? What time?

Q (By Mr. White) What time?

A I'm going to have to check back.

THE SPECIAL MASTER: What year?

THE WITNESS: About '75, '76, I think.

* * * * *

THE SPECIAL MASTER: Are you reasonably sure this was probably the one you used on the Crow Reservation?

THE WITNESS: I would still like to look, if I might.

THE SPECIAL MASTER: Where is Crow Reservation, Montana?

THE WITNESS: Yes, sir.

(Brief pause.)

Q (By Mr. White) Mr. Kersich, in Exhibit 36, your land classification standards for the Wind River Indian Reservation, do you make any provision for lime?

A Well, we have a -- We got a provision for total salts, yes.

Q And in what page is that?

A Under salinity.

Q And that's where lime would be included within your standards?

A I'm not sure of that. I'd have to check that over with one of my soils scientists or one of my land classifiers.

Q Okay. We'll come back to that then.

THE SPECIAL MASTER: Let me ask a question.

What's 4 MMHOS/CM?

THE WITNESS: Millimoves, it's a measurement of electrical current.

THE SPECIAL MASTER: MHO, millimoves.

THE WITNESS: Millimoves is a reciprocal of ohms, as I remember.

THE SPECIAL MASTER: That's right, but what is the OS on the end, or is that whole thing millimoves?

THE WITNESS: That's correct, the whole thing.

THE SPECIAL MASTER: What's the CM?

THE WITNESS: Per centimeter.

THE SPECIAL MASTER: I see. EC?

THE WITNESS: Electroconductivity.

THE SPECIAL MASTER: Okay, thank you.

Q (By Mr. White) How did you consider any potential deficiencies, problems associated with erosion in your standards?

A Erosion now from surface drainage, are you talking about?

Q Yes.

A It's considered somewhat in slope, that's built in. On our two percent slope you're going to have minimal erosion problems.

It's also considered under surface drainage, and if there were any erosion problems, they're pretty much judged by the land classifier in his mind, and they're reported on the log or the tract.

Q What part does crop selection play in the type of erosion deficiencies that you may encounter with a particular parcel of land?

A I'm not sure I understand that question, Mr. White.

Q Well, if you plant a crop every year, aren't you going to have a greater problem with erosion that if you have alfalfa or hay that stays there year round?

A Certainly.

Q How was that factored into your slope determination or your slope standards?

A I don't think it's factored in your slope standards, but in the cultivation pattern and cultural practice that the farmer's going to have within the area, he's going to concern himself with erosion.

Also, the on-farm system is going to have an awful lot to do with any erosion from the water

applied by the farmer, of course.

Q I guess I must not have asked the question the way I meant to. How is erosion taken care of in your standards?

A The type of erosion that I understand you're discussing about through cultivation is controlled to a large extent by the cultural practices required for the crop, required for the area it is.

I don't see it as a big issue here because that's a cultural practice or can be handled by cultural practices rather than pure land classification.

Q That part is systems design rather than the land classification?

A Part of the selection of the cropping pattern, allowing for crops to be grown in areas like that, but as we both know, the most important thing is the management factor that's factored in the handling of those types of areas within the project.

Q What do you mean "The management factor"?

A Well, we all know that farmers have to exhibit good management to return good yields. That means they have to plant the proper crops at the proper

times; they have to harvest at the proper time, they have to minimize soil loss, things of this nature.

The SCS, as I recall, has been doing an awful lot of work providing that type of management to minimizing top soil erosion and to maximize returns.

Q Did you do any flood plan analysis as part of your land classification work?

A No, sir, we did not. Most of the lands that we examined were in a relatively small drainage where the lands we actually declared arable were above, reasonably above any of the major drainages.

Q What consideration, if any, did you give to varying patterns of air drainage?

A Air drainage?

Q Air drainage within the Reservation.

A I don't recall that we did much in that respect.

Q Okay.

(Brief pause.)

Q And Mr. Kersich, during your deposition, you indicated that, I believe the facts and data upon which you based your conclusions as to arable

land were the chemical analyses that you did, the drainage tests that you did, the H.K.M. soil logs and the tentative classifications or observations by your field classifier; is that correct?

A Plus my own personal reviews in checking some of the work, yes.

Q Four things; chemical analyses, drainage tests, soil logs, H.K.M. soil logs; tentative classifications; is that correct?

A Aerial maps, the aerial photographs that have been prepared, a review of the information on those photographs and a field review of the information testing some of the land classification judgments.

Q Did you bring your volume of township photographs with you?

A My workbook?

Q Yes, sir.

A Can I put these standards away for a minute?

Q You might as well leave them out; we may refer to them. You don't need to have them right in front of you.

THE SPECIAL MASTER: You're not offering this yet?

MR. WHITE: No, sir, Your Honor.

MR. ECHOHAWK: Your Honor, at this time, if we are going to proceed to another area, if I might, I'd like to inquire on the record where Mr. White received this exhibit that he entitled WRIR SK-7.

MR. WHITE: I'm under no obligation to explain that, Your Honor.

MR. ECHOHAWK: I understand --

THE SPECIAL MASTER: But you don't want to do that at this stage of the hearing. We have been so excellent in divulging the information and complying with the letter in good spirit of counselling. Why do you not wish to let him know where this SK-7 orginates from?

MR. WHITE: It may not be the set of standards. I think Mr. Kersich ought to be given the opportunity --

THE SPECIAL MASTER: Mr. Kersich was asked, were these your criteria used on the Crow Reservation, on the work you did up there, and you said I'm not going to answer that without checking my records up there.

MR. WHITE: Once Mr. Kersich is able to respond, if he indicates no, they're not his standards, then I will either pull them or explain where I got them.

kersich-cross-white

MR. ECHOHAWK: The reason I'm concerned, Your Honor, is Mr. White has represented that these were the standards used on the Crow Indian Reservation by work done by H.K.M., which would be contained within a preliminary report which has not been accepted by the United States and which is of a confidential matter. We're very concerned of the confidential information, that is not yet finalized by the United States, has somehow been violated.

MR. WHITE: Your Honor, the point is I made no representation, I asked him if those were the standards.

THE SPECIAL MASTER: We'll cross that bridge when we get to it. If you're going to object to its admissibility on the breach of some confidential client/attorney relationship --

MR. WHITE: In addition to that particular concern, we do have other concerns which relate --

THE SPECIAL MASTER: We'll cross them when the time comes, but we'll wait for the answer from you to that question.

MR. WHITE: I was glad that Mr. Echohawk made it on the record, as to the source.

THE SPECIAL MASTER: You gentlemen are getting kersich-cross-white

tough all of a sudden.

Okay, next point on these maps.

Q (By Mr. White) Would you turn, please --

Would you turn, please to Township 2 North, 1 East.

A 2 North, 1 East.

Q Right. You might put a finger in another Township, 2 North, 1 West.

A Okay, they're both here.

THE SPECIAL MASTER: Mr. White, are these touching on earlier specific --

MR. WHITE: No, sir, that is a new area of inquiry.

THE SPECIAL MASTER: Thank you.

Q (By Mr. White) You should have 2 North, 1 West.

A Right there.

Q Okay. I refer you to that portion of land that has 729 in parenthesis. Is that 729 acres?

A Yes.

END 17

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MR. WHITE: Now we can turn this around so more people can see it.

THE SPECIAL MASTER: They can come up. Come up and have a look, whoever has an interest.

Q (By Mr. White) Is that land that you classified as Class 3 for sprinkler?

A Yes.

Q Could you point out where that land is located on one of your area maps?

A Two North, 1 West -- what particular portion of that area?

Q Well, it's the area that I asked you about, 729 acres.

A It would be the upper right-hand corner (indicating).

Q It's in this area right here (indicating)?

A Right here, sir (indicating).

Q Would you please explain how you determined the depth to barrier of six feet for that 729 acres?

A Deep hole 103 shows 11 feet to sandstone.

Q And is that within the acreage outlined?

A It's right next to it.

Q Well, it's a couple miles away from portions of it, isn't it?

A Yeah, yes, it could be.

Q. With respect to the portion of that 729 acres located down here in Section 13, what basis did you have to say that the depth to barrier for this area was six feet?

A. I don't see another hole on this sheet, but let me take a look at 2 North and 1 East.

Here is a Bureau hole just a little distance from that that I believe shows about a 14-foot depth there.

Q. Is that the depth to barrier, or is that the depth to the bottom of the hole?

A. Well, at this point in time I'd have to go check the Bureau log.

Q. Would you, please?

A. I don't have it here with me.

THE WITNESS: Do we have those available? May I ask a question off the record?

MR. WHITE: Off the record.

(Off-the-record discussion.

THE SPECIAL MASTER: Let's go back on the record.

Mr. White -- and Mr. Kersich, Mr. White has asked you is that 14 feet the depth to barrier or is that 14 feet to the bottom of the hole, and

I asked what difference is it, and Mr. White I think said in our discussion, "Well, it could have gone through the barrier to 14 feet," and I say to you: Is it possible that those 671 holes you drilled that you drilled some holes which went through barrier to bottom without reporting the fact that you hit barrier?

THE WITNESS: That's correct. We wouldn't -- if we had had a barrier there, we would have reported the barrier.

THE SPECIAL MASTER: Okay.

THE WITNESS: And normally that's Bureau practice also. If they hit something where they quit drilling, we would have gone to 30 feet if there had been nothing there. So would we, for that matter.

THE SPECIAL MASTER: Take it from there, Mr. White.

Q (By Mr. White) How close is that hole to the southern portion of that 729 acres? Isn't it approximately a mile away?

A. It's about a mile, yes. We also have a hole down here, one of our holes, 102, which is ten feet deep -- or 20 feet, excuse me -- no, wait a minute.

It's 16 feet deep next to a Bureau hole that is 20 feet deep.

Q. How far away is that from the 729-acre parcel?

A. Well, let's see. That would be Section 7, it appears to me. Would you agree with that? Section 7, it would be over in this area right here (indicating). There's another one up in here (indicating). We have another one over in here (indicating).

Q. That's at least three-quarters of a mile away, isn't it?

A. Right.

Q. How did you determine that the depth to barrier for that parcel was over six feet?

A. Frankly, we found nothing in there that showed the barrier was less than six feet.

Q. So the presumption is that the barrier is six feet unless you found something to the contrary?

THE SPECIAL MASTER: His criteria on all of these is at least six feet, at least six feet in each of all four instances.

MR. ECHOHAWK: I would like to inquire whether Mr. White is prepared to prove in his portion of the case whether or not there is a

kersich - cross - white

problem with the barrier in that particular situation.

MR. WHITE: Well, Mr. Echohawk will find out when it comes to my portion of the case.

MR. ECHOHAWK: I presume that Mr. White is prepared to do that.

THE WITNESS: Could I take a five-minute break?

THE SPECIAL MASTER: Let's take a five-minute break.

(Thereupon a five-minute
(recess was taken.

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THE SPECIAL MASTER: All right. Shall we begin, ladies and gentlemen.

Mr. White.

Q. (By Mr. White) Mr. Kersich, let's go back now to the 729-acre parcel classified 3 sprinkler in Section 1, 2, 11, 12, 13 and maybe a little bit of 14 in Township 2 North, 1 West. Do you have your plate in front of you?

A. Yes.

Q. Isn't it true that there is no boring hole of any type within the boundaries of that parcel?

A. There is a deep hole located within a few hundred feet, I don't have a scale here, but of that, portions of that parcel.

Q. How far away is that deep hole from the southernmost portion of that parcel in Section 13?

A. About a mile and a half.

Q. There is no hole whatsoever in that parcel, is that correct?

A. There is a Bureau hole that's located within a half mile of that parcel or less, about a quarter of a mile.

THE SPECIAL MASTER: You are artfully dodging his question.

(Laughter.

THE WITNESS: Well, I'm --

MR. WHITE: I figured if I asked it enough --

THE SPECIAL MASTER: That's all right. You have to say where it is but then a yes or a no or a but could have been in order too. But that's all right. We understand each other.

THE WITNESS: Can I finish the answer?

THE SPECIAL MASTER: Of course you can.

A. The point is that there are other indications that sandstone is less than six foot in depth in that area.

Q. (By Mr. White) You wouldn't know that from your Soil Log No. 7, which is the closest hole to the southern portion of that parcel, would you?

A. May I look at my Soil Log No. 7?

Q. Sure.

THE WITNESS: Let me get it from the back of the room, please.

THE SPECIAL MASTER: Off the record.

(Off-the-record discussion.

Q. (By Mr. White) Your soil log, Soil Profile Log No. 7 which is the closest to the southern portion of that 729 acres only goes to 24 inches, doesn't it?

A. That's right.

Q. So you couldn't tell whether or not the barrier was any closer than six feet from that hole, could you?

A. Not from that hole but there is one additional bit of information that you're not taking into consideration.

Q. Okay.

A. For example, in this Soil Log, look who it was logged by. Mr. Waples, correct?

Q. I don't know.

A. It says RW up there, doesn't it, on your copy?

Q. Is that Ross Waples?

A. Yes. All right. This particular area was discussed. Also in the Big Horn Flats area I believe it was nine soil pits were dug to try to determine what's happening with regard to gravel and where the sandstone may be. Mr. Waples was on the ground he felt from his own visual observations -- am I bothering you, Mr. White?

MR. WHITE: No, I'm very interested in your answer.

A. Okay. He felt from his visual observations that sandstone would not be within six feet of the surface.

Q (By Mr. White) And that's how you decided that 729 acres that doesn't have a hole in it enjoyed at least six foot to barrier?

A. There isn't any indication of barrier being less than what we've got reported on our deep holes where they are located around area. And I think as the practical matter we can't drill a deep hole on every particular tract.

Q. Well, over in the next Township to the east, that 729-acre parcel continues to another 102-acre parcel, doesn't it?

A. Yes.

Are you talking -- now let me -- are you talking about 2 North, 1 East, and you're talking about Section 7, sir?

Q Let me look over your shoulder. My copy isn't very strong.

A. Sure.

Q Section --

A. Section 13, right here.

Q. Section 13. There is 102-acre parcel with no holes whatsoever in that parcel, isn't there?

A. There's none indicated here, that's correct.

Q. Why don't you turn to 3 North, 3 West?

A. Okay.

THE SPECIAL MASTER: Give me sections too, if you can, Mr. White.

MR. WHITE: I'm trying to figure them out from the photograph, Your Honor.

THE SPECIAL MASTER: All right.

Q. (By Mr. White) In Section 3 dropping into Section 10 and going over into Section 2 there's a 242-acre tract, is that correct?

A. That's correct.

Q. There are three holes shown in that tract, is that correct?

A. There are probes, yes.

Q. How deep are those probes?

A. One of them stopped at 12 inches -- one of them shows stopping at 12 inches.

Q. How deep are the other two?

A. I can't tell you at this time. But they were made to ascertain the depth of the topsoil at that point and there is a listing of the topsoil, so obviously they were able to get deep enough to enable them to determine the textures.

Q. How many of your probes go six feet deep?

A. That would be very difficult to say but a probe

is usually put in to make sure there have been no change in the texture or the type of soil or the land form at that particular place. And so a probe is merely used to ascertain that it does meet the classification that the classifier put on it.

Q. The probe holes are unlogged, aren't they?

A. They are not logged.

Q. Unlogged, yes.

So isn't it true that you've classified as for 3 sprinkler and Class 2 -- excuse me, 3 gravity and Class 2 sprinkler that 242-acre tract with no logged holes within the tract going to six feet?

A. It is true that they classified -- the classifier on that particular piece of property classified that using probes to ascertain the soils and put the necessary limitations on that he thought were there for both Class 3 and Class 2.

One of the reasons he wouldn't necessarily have not logged the hole is he found no difference from anything around there. It was a uniform piece of soil.

Q. Do you have a log hole that shows that the depth

to barrier is at least six feet as required by your standard in that parcel?

A. In that particular parcel, no.

Q. Yes.

A. No. But it appears there may be some cut banks or something in there which might tell them something of that nature so all of these things have got to be taken into consideration.

Q. Right.

Let's stay in the same Township, please.

A. Yes, sir.

Q. Go down to a 25-acre tract that appears to be between the -- lying on the border of Section 1 -- excuse me, Section 2, Section 1 and Section 11 of that Township, do you see that parcel?

A. Yes, uh-huh.

Q. Is that classified as 3 gravity?

A. It appears to be, yes.

Q. But 6 sprinkler?

A. Yes.

Q. How would it happen that land would be arable for gravity but not for sprinkler?

A. It is 25 acres; it wouldn't go into our 40-acre limitation so therefore it would have been Class 6

for sprinkler. It is very clear to me.

Q Okay. I was just curious because of your no minimum size limitation on your other type sprinklers.

A. All right, but didn't it come in on Class 3 gravity and isn't it therefore being included in our Class 3 in your gravity?

Q. Let's talk about the Class 3. Is there any kind of hole in that parcel?

A. No.

* * * * *

Q (By Mr. White) (Continued) Down just below it in Section 12 and overlapping a bit into Section 11 is a 41-acre parcel.

A Yes.

Q You find that?

A Yes.

Q That's classified 3 gravity and 3 sprinkler; is that correct?

A That's correct. Um-hum.

Q Is there any hole whatsoever in that parcel?

A No.

Q And continuing on to the southeast in Section 12, do you find 118-acre parcel?

A Yes.

Q There is a hole there, isn't there?

A There's a probe of 12 inches, yes.

Q But there is no hole that goes six feet deep; is there?

A Is there any need for it there?

THE SPECIAL MASTER: That's argumentative.

THE WITNESS: I'm sorry.

THE SPECIAL MASTER: Just answer his question; you don't have to argue with him.

THE WITNESS: No, but here again this is

kersich - cross - white

a problem with the classifiers, and I guess one thing we should do is look to the adjoining Township to see if there might be some more information there.

Q (By Mr. White) Go ahead.

A. Okay. This is 3 North, 3 West.

(Brief pause.

A. There's some holes, there's one hole that he augered to, I believe it says 36 inches, gravel and augered at 36 inches.

Q. That within the 118-acre tract?

A. That's in the larger tract at this point.

Q. The answer's no?

A. The answer is no. He made -- it appears that the classification line there may be separating two tracts, one which could be worked with sprinkler, one which may not be.

Q. I'm referring to the 118-acre tract.

A. Yeah.

Q. That's Class 3 for both sprinkler and gravity.

A. No. There's no hole in that particular tract. It just extends in the Township, in the next Township slightly.

Q. Would you please turn to Township 3 North, 1 West.

THE SPECIAL MASTER: Section?

MR. WHITE: I think it's 32 and 29, Your Honor.

Q (By Mr. White) See a parcel comprising 129 acres, Class 3 sprinkler. -- excuse me, Class 3 gravity, 2 sprinkler that --

A. Seventy-seven acres for sprinkler.

Q. Seventy-seven acres for sprinkler?

A. That's correct. There's quite a difference in parcel size.

Q. There's a dotted line in that parcel. What does that dotted line mean?

A. That dotted line means for class, for the sprinkler classification this particular portion located in the north and extending on into the Section 29 was cut off because it was neither of the size nor shape that would be applicable to sprinklers.

Q. And so you got 121 acres Class 3 gravity and 77 acres Class 2 sprinkler.

A. Yes.

Q. Is there a hole of any kind in that parcel?

A. There's a probe right on the boundary between the two.

Q. Is that probe logged?

A. No, but this is the results of the probe. He

shows a light textured surface soil, a light textured subsoil. He shows there's gravel in the profile, there's a potential gradient and a J factor, which is for size and shape.

Q. How, from that symbol, based on the probe, how deep did the person making the probe discover it was to barrier?

A. He didn't discover how deep it was to barrier, but there were no evidences of surface problem. There must have been good vegetation there, the very things you look for as part of your overall classification work.

Q. Immediately to the southeast there's -- of that parcel I just described again in Section 32, there's the parcel of 24 acres that's Class 2.

A. That's right.

Q. Sprinkler.

A. That's correct. It's Class 6 for gravity also.

Q. Is there any hole of any description in that parcel?

A. No, but you know, it's kind of interesting, he does call it, he calls it medium textured soils, medium textured subsoils, gravel in the profile, and a gradient. The gradient must have been sufficient

to throw it out from a gravity standpoint.

THE SPECIAL MASTER: I have a question, if not confusion running in my mind. If a probe is rarely deeper than 12 inches --

THE WITNESS: No, no.

THE SPECIAL MASTER: Probes can be deeper than 12 inches?

THE WITNESS: Yes. What happens many times, you hit a piece of gravel -- and I think I even brought a piece of gravel to show you what will stop a soils auger. When we're talking about gravel, we're talking about rocks like this, potentially like this (indicating).

So he's got information he needs, he realizes there's enough soils matrix in the gravel, he may not go any further.

But probes many times are the same depth of auger holes or maybe deeper.

THE SPECIAL MASTER: But the augered holes were 671, those were not probes?

THE WITNESS: No, sir.

THE SPECIAL MASTER: Those were augered log holes?

THE WITNESS: Yes.

THE SPECIAL MASTER: And probes can either be sometimes shoveled as well as drilled?

THE WITNESS: Well, you can use pits.. For example, on Big Horn Flats -- can I just take the time to talk about that, sir?

THE SPECIAL MASTER: Sure, I'd like you to.

THE WITNESS: As long as we've got the map here on Big Horn Flats, you run into a problem on Big Horn Flats with relatively shallow soils, there's gravel within most of the soils and sometimes cobbles.

You can't get a hand auger sometimes down through that; you can't get a power auger many times. If you hit a piece of cobble, and you only have to hit one piece at the right spot --

THE SPECIAL MASTER: So you use a pick and a shovel.

THE WITNESS: That's exactly what I was going to tell you. We put nine pits in there with a back hoe, and I can't remember the exact depth, but I'll guess they're from seven feet to nine feet, somewheres in that vicinity, anywheres in there depending on how we run into something, to ascertain, actually get it down and see what the root growth is, how were the roots of the native grasses, sagebrushes,

kersich - cross - white

things of this nature were growing, how they were able to sustain life in that particular environment, so that was why -- what we did there because of the fact that we couldn't get the information necessarily from just a soils auger.

Now, ordinarily in a soils investigation you try to use the auger as much as possible because it's a time and cost situation, and if you get a situation where you're not getting answers, then you get it from that.

Now, it's not unusual also, and I've done this myself on this particular project, to see where they probe to say 12 inches and then be concerned about the soils matrix because there wasn't any in the log, so what we did, we actually took a pick and a shovel out there and actually dug down two and a half feet to see what was going on in that particular area.

Q (By Mr. White) You say you back hoed it there -- I'm sorry, Your Honor.

THE SPECIAL MASTER: Is there a question about the economic feasibility of patches of land, 20, 22 34 acres by themselves unless they're continguous to something else that's being irrigated?

THE WITNESS: There is, sir, very much so,

kersich - cross - white

but not knowing how the agricultural engineer was going to design his system --

THE SPECIAL MASTER: You weren't given that.

THE WITNESS: We put it on there and let him make the decision.

Now, it's not unusual for the agricultural engineer -- many times these small pieces will be separated from a larger piece by a whole piece of Class 6 land, for example. And there are many reasons you can have Class 6 lands, it could be too rough or -- well, many types of things.

THE SPECIAL MASTER: Sure, sure.

THE WITNESS: So you don't know how the final design is going to come out, so what you got to do is locate that land.

THE SPECIAL MASTER: Let him worry about that.

THE WITNESS: And allow it to go through the next two or three steps screening process.

THE SPECIAL MASTER: Thank you very much, sir.

* * * * *

Q (By Mr. White) You spoke of these backhoe pits in the Big Horn Flats area?

A Yes.

Q How many acres were there in the Big Horn Flats study area?

A In the Big Horn Flats study area, I couldn't tell you offhand. They are substantial, but --

Q Certainly in the neighborhood of 50,000 acres?

A I wouldn't give you an estimate. I would have to sit down and count the sections, would be the easiest way. If you want me to do it, I'll do it right now.

Q Okay.

A Do you want me to do it?

Q If that's the way you have to do it, I thought maybe you would know.

A I would be very happy to do it. It will take me some time.

THE SPECIAL MASTER: How many acres in the study area? I presume it's a total of the sections shown on that Exhibit 49 --

THE WITNESS: C-49, you bet.

Q (By Mr. White) You don't need to count the sections? Roughly 18,000 acres?

A No, no. You asked me how many acres in the study area. That was your question.

Q That's right, and you told the Master the figure on the lower right-hand corner of Exhibit --

A No, I did not tell the Master.

THE SPECIAL MASTER: I think I interjected it would probably be a total of the sections shown on that exhibit and from its exterior boundaries.

THE WITNESS: That's correct.

THE SPECIAL MASTER: I suppose we can all prove that by just multiplying 640 times an awful lot of sections.

Q (By Mr. White) You don't even have a rough idea how many acres are in that study area?

A Not without going back through my study notes.

Q But the acreage is in excess of 18,000 acres, isn't it?

A There are quite a number of more acres that have been declared arable.

Q And you dug how many pits in that area?

A We dug nine, sir.

Q Nine for over 20,000 acres?

A Nine pits --

THE SPECIAL MASTER: Well, Mr. White, that has a tendency of possibly being argumentative. The 20,000 acres are reduced to considerably less in the white space which eliminates a large amount of land that you would not want to waste any more pits.

Q (By Mr. White) So we are down to 18,000 plus acres that you classified; is that correct?

A Yes, we have classified 18,900 and some odd acres as arable.

Q And you dug nine pits in that area; is that correct?

A I'd have to check, but, yes, as I recall, that's the figure I put in, and that's to the best of my knowledge the number of pits we put in that area.

Q How many pits did you dig elsewhere?

A Not very many.

Q Not very many?

A As I recall, I don't think we dug any.

Q So the only backhoe pits you constructed were in the Big Horn Flats area; is that correct?

A Yes, we dug our pits after we had done our initial

soil survey work, land classification, and we went back in to confirm our findings or our lack of knowledge in that area.

Q Let's go back to Township 3 North, 1 West, and the 24-acre parcel, Class 2, sprinkler, in Section 32.

I may have asked you the question before, and I apologize if I did, but I can't remember whether I did or not.

Is there a hole of any type within that 29-acre parcel?

A No, there's none shown here.

Q And immediately to the east, still in Section 32, is an 18-acre parcel. Is there a hole of any type in that parcel?

A No, sir.

Q Would you please turn to Township 1 North, 1 East?

THE SPECIAL MASTER: Section?

Q (By Mr. White) I direct your attention to a 94-acre parcel in the northwest portion of your township aerial photograph. Are you able from your photograph to describe the section in which that 94-acre parcel falls?

A Okay. That would be Township 1 North, 1 East, Section 7, and I'm pointing to a parcel here that has a soils class designation of 2T1 over HHG, which is heavier soils in the surface, heavier soils in the three feet below, and a gradient problem, or at least a gradient concern.

Q Is that 94 acres classified 2 for gravity and 1 for sprinkler?

A That's correct.

Q Is there any logged hole within the boundaries of that parcel?

A There doesn't appear to be a logged hole there. There is a probe to 72 inches though.

Q Is there any log of that probe?

A No, sir, but the results of that probe are certainly evident in the denominator of the soils classification.

Q Immediately to the south of that 94-acre parcel --

A This would be --

Q Still in Section 7.

A Yes, it will be in the SE 1/4 of Section 7.

Q There's a 25-acre parcel that's, I believe, Class 1 gravity, Class 6 sprinkler. Do you find that?

A Yes.

Q Is there any hole whatsoever within that parcel?

A There's no hole or probe indicated, no. One thing -- can I clarify one thing on that?

Q Sure.

A Okay. If you'll look, there is a line drawn that has an arrow, half an arrow on each side of the line, which indicates that those two parcels appear to be relatively the same as far as soils classification and so on.

There's also a deep hole located about a thousand -- it's about twenty-six -- well, I'm going to say a thousand feet, and you can argue with me on that if you want to.

Q I would have said a quarter of a mile.

A Well, 1,300 feet, okay. There's a deep hole that we do have a log on that shows 8 feet there, and there's another probe in that area, a logged hole 14, which shows 106 inches to any barrier, so there's been a pretty comprehensive system of holes there for that particular 25 acres.

I think there's sufficient information for a qualified person to make an ascertation there.

Q Those holes are either 1000 or closer than 1000 feet

that parcel though; is that correct?

THE SPECIAL MASTER: He said 1,300 feet. You said twelve, he said thirteen, and he said okay, something like that.

MR. WHITE: I was trying to be accommodating, Your Honor.

Q (By Mr. White) The same township down in Sections 17 and 20 and 19.

A Okay. Section 17.

Q 20 and 19.

A 20 --

Q There's a 29-acre parcel that's classified 6 gravity, 1 sprinkler. Do you find that?

A Yep.

Q Is there any logged hole within that parcel?

A There's a probe in there.

Q Is this a logged hole?

A There's no logged hole. There is a logged hole to the south of that at about 1,200 feet.

Q Now, about a mile south of that in Section 29 there's a parcel of 40 acres that's classified 3 gravity, 6 sprinkler. Do you find that?

A Yes.

Q Is there any hole whatsoever within that parcel?

A There's not shown, and I would like to point out one thing, if I may again? Just so everyone understands it.

Many times they will put a probe down and ascertain a particular area and it won't show because probes are just probes. That's what they are. I don't have any problem with that in reviewing their work.

What makes me wonder about that is there is an alkalinity condition in that particular area.

Q But you don't know of your own knowledge that a probe was placed in that 40-acre tract and an indication was made of its location, do you?

A I can't recall that I discussed that particular tract as one of the tracts.

Q Let's move to the east about a mile and a half over to Section 21 and 22. Do you find a 23-acre tract there that is classified 3 gravity and 6 sprinkler?

A I'm sorry. I was trying to find myself.

Q I'm sorry. 21, 22 --

A Okay.

Q In the common south corner of those two sections.

A Okay. I'm there now.

kersich-cross-white

Q And there's a 23-acre tract classified 3 gravity, 6 sprinkler. Is there any hole whatsoever within that parcel?

A Within that 23-acre parcel there does not appear to be any hole, no.

It's interesting though that he did classify that as 3 for gravity and 6 for sprinkler. He indicated heavy soils with alkalinity and leveling problems.

Q Would you please turn to Township 3 North, 2 West?

A 3 North, 2 West. Very good.

Q Mr. Kersich, I direct your attention to a 137-acre tract in the south central portion of that township which is classified 2 gravity, 2 sprinkler, and ask you if from your photograph you are able to determine the section or sections in which that tract is located?

A Okay. This was 3 North, 2 West?

Q Yes.

A Are you referring to the section in Section 28 here?

Q Well, I can't find 28 on here.

A Well, this would be 30 and this would be 29 (indicating). 28.

Q Okay. Yes --

A A 137-acre tract is classified as 2 gravity and it indicates a soils deficiency and it's classified as 2 for sprinkler and the denominator says it has a medium textured surface soil, a light textured subsoil, or the next 3 feet, and then it has gravel in the profile.

Q Does that 137-acre tract extend into Section 27 as well to the east?

A A very small portion of it does, yes.

Q Does a portion extend to Section 33 to the south?

A A very small portion, yes.

Q Is there any logged hole in that parcel?

A Not in that particular parcel, no.

Q To the southeast of that parcel --

A There's a probe though. I should get that on the record. We did probe it. There's a probe indicated.

Q There's no logged hole?

A No, but there is a probe.

Q Now, about a half mile to the southeast there's a 71-acre parcel that's primarily in Section 34 and maybe in Section 33 to some small part and Section 27 to small part which is classified

kersich-cross-white

6 gravity and 4 sprinkler. Have you found that 71-acre parcel?

A Yes, I have.

THE SPECIAL MASTER: 6 gravity, 4 sprinkler?

THE WITNESS: Classified 6 gravity, 4 sprinkler.

THE SPECIAL MASTER: All right. That's the first 6 gravity I think I have run into. Is that about right?

MR. WHITE: I think we have a few others.

THE WITNESS: I believe so, sir. We have had some others.

Q (By Mr. White) Is there any hole whatsoever in that parcel?

A No, that's a long narrow parcel located across the top of the section. There is a logged hole indicated some 400 feet, 500 feet to the north.

Q But that logged hole --

A Obviously, the classifier in doing his work, there was no gradient on the Class 2 drilling -- there is a gradient portion here, and he separated those two parcels and downgraded the parcel you are referring to.

Q That logged hole you mentioned is about three-quarters of a mile from the western edge of that parcel, isn't it?

A I think the most important thing here is the distance north and south because the parcel appeared to be the same as far as characteristics in an east-west direction.

Q Isn't it true that the logged hole you referred to is three-quarters of a mile from the western edge of that parcel?

A From the western -- no, it's not true.

Q How far is it?

A I'd say it's a half mile or a half to five-eighths of a mile.

Q Okay.

A The logged hole is shown to the west side of the center line, it appears to me, on my map and it's five-eighths --

Q That's also about a half mile away from the eastern edge of that parcel, isn't that true?

A Yes, that parcel does go down to a very small piece.

Q To the east and slightly south of the 71-acre parcel do you find a 93-acre parcel that's kersich-cross-white

located in Sections 35 and 36 and is classified 3 gravity, 2 sprinkler?

A Yes, there is a long narrow parcel abutting another arable parcel.

Q Is there any hole in that parcel?

A In that parcel?

Q Yes.

A Not right in that parcel, no.

Q Would you turn to Township 2 North, 3 West, please?

A There are some other holes located south of that though.

I'm sorry. I missed your township.

Q 2 North, 3 West.

A 2 North, 3 West.

Q I'm sorry. I have to arrange my papers here. You are much better organized than I am.

I'm sorry. I missed a couple parcels I wanted to ask you about in 3 North, 2 West, the one we were on before. Could we go back to that, please?

A Yep.

Q In Section --

A Wait a minute. Let me get it first.

Q I'm sorry.

A 3 North, 2 West.

Q Section 25.

A Section 25, yes. I'm at Section 25.

Q Do you find one parcel of 18 acres that's classified 2 gravity, 6 sprinkler?

A 18 acres, yes.

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Q (By Mr. White) And another parcel of 30 acres classified 3 gravity 6 sprinkler?

A That's correct.

Q Is there any hole whatsoever within either of those two parcels?

A There are no holes that I can see here, no.

Q Now, let's go to 2 North, 3 West.

THE SPECIAL MASTER: May I just ask a question before you leave where you are?

THE WITNESS: Yes, sir.

THE SPECIAL MASTER: Are there any holes in that general irrigated area within a mile --

THE WITNESS: There is a Bureau hole 19 feet deep, another Bureau hole 20 foot deep, a Bureau hole 7 foot deep.

THE SPECIAL MASTER: What are there distances from the two parcels just described?

THE WITNESS: All right, the parcels, 18 and 30 acres, are located between 19 foot --

THE SPECIAL MASTER: The two holes?

THE WITNESS: Yes.

THE SPECIAL MASTER: Okay.

THE WITNESS: I'm sorry. I didn't get the Township.

MR. WHITE: 2 North, 3 West.

A 2 North, 3 West.

Q Sections 17 and 18.

A Let's see. That would be Section -- okay. I have found myself here.

Q Did you find a 130-acre parcel that was classified 6 gravity, 3 sprinkler?

A 6 gravity, 3 sprinkler.

Q Did you find that in Section 17 or 18 or am I in the wrong section?

A It extends into both Sections 17 and 18, yes.

Q Is there any logged hole in that parcel, that 130-acre parcel?

A No, sir. There is a -- the information on the aerial photo I have shows a probe, it shows, in fact, that the grade was steep. It was 12 percent at this point.

Q Let's go about four or five miles to the east.

A Four or five miles to the east?

Q Yes, sir.

A Have you got the section?

Q Section 14.

A What is it, sir?

Q Section 14, along the east edge of Section 14.

A Okay. Okay.

Q Do you find the 16-acre tract there that was classified 3 gravity 6 sprinker?

A 3 gravity, 16-acres, 6 sprinkler. Yes, I've found it.

Q Is there any logged hole in that parcel?

A Not in the parcel, there is one just to the west of it.

It is kind of interesting, the parcel on the west was 2 gravity and 1 sprinkler and this little piece was downgraded to 3 and 6.

Q Now, it is interesting there in that 139-acre parcel on the west that you show a 10-foot draw in a Class 1 -- or a 10-foot deep draw in a Class 1 sprinkler area, don't you?

A That's right.

Q Okay.

THE SPECIAL MASTER: Now, was that Class 1 sprinkler area or was it a Class 3 sprinkler?

THE WITNESS: It is the area just to the east of it.

MR. WHITE: The one we were talking about, Your Honor, --

THE WITNESS: To me, I think that is interesting kersich-cross-white

because it points out that the classifier understood the problems of the agrigultural engineer and pointed that out to him so he could handle it in his design.

MR. WHITE: I was pointing, the original question there, where there's no hole is this small 16-acre parcel then I went, Your Honor, to --

THE SPECIAL MASTER: Immediately west?

MR. WHITE: -- to the west to the 139-acre parcel.

THE SPECIAL MASTER: Not the 130. I see.

Q (by Mr. White) Does that symbol in the 139-acre parcel indicate a 10-foot deep draw?

A It appears to be, yes.

Q And the land in which that draw is located is classified as Class 1 sprinkler?

A Yes.

MR. WHITE: That's all for Big Horn Flats right now. It would be a good time to take a short break, Your Honor.

THE WITNESS: If we could --

THE SPECIAL MASTER: It is ten after four. Do you want to go another hour? If so, we'll take a five minute break, if not, we'll go right on. Do you want a little catch-up time?

MR. WHITE: I could use some catch-up time.

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

(Recess 4:11 p.m.

end 22

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THE SPECIAL MASTER: All right, shall we go?

MR. WHITE: Your Honor, I think there was an agreement among Counsel that we'd go another 20 minutes if that would be all right with you, Your Honor.

THE SPECIAL MASTER: All right.

Q (By Mr. White) Let's turn to the Owl Creek area.

A Okay, sir.

Q On the Big Horn Flats area. In Township 8 North, 2 East, Section 1.

A Well, with these photographs I have it's hard to determine townships.

Q Look in the lower right-hand corner and see if you can find the photograph that has 44 North and 98 West.

A I've got it here, yes.

Q Okay. And you see the second section to the left on the bottom right-hand corner?

A Yes.

Q Is that Section 1 in Range 2 East, 8 North?

A It's in Range 2 East, and it would -- I'm sorry, could I take time to get the exhibit, cross check myself here?

THE SPECIAL MASTER: Sure.

MR. WHITE: Sure.

(Brief pause.)

THE WITNESS: I found it.

Q (By Mr. White) I got the wrong township.

A Its Range -- Well, I don't think that's important because this photograph goes above the --

Q That has to be Township 8 North, doesn't it?

A I got the parcel, I know its located here.

Q That's the parcel that's shown on Exhibit C-52 in the Section 1 that's just above the Standard Area Boundary, and just below the Second Standard Parallel North; is that correct?

A That's correct.

Q Okay. You find a 75-acre tract there that's classified 6 gravity, 2 sprinkler?

A That's correct.

Q Is there any hole whatsoever within that 75-acre tract?

A Not directly. There is a hole three, four hundred feet to the west of that parcel, and the boundary line falls on the east side of the drainage there.

MR. ECHOHAWK: Your Honor, I'd like to object at this time. I think it's Mr. White's kersich-cross-white

intention to go through, to keep on doing this to point out particular areas where there's no holes and the United States has no problem with Mr. Kersich when he says in certain parcels there are no holes. I think the whole matter can be cleared up just by inquiring whether it's necessary to have a hole in each particular parcel. I think this is a terrible waste of everyone's time.

THE SPECIAL MASTER: Well, I think he explained it on the specific nature and identity and characteristics of each particular parcel, and some places it's been almost obvious that there is no need for a hole. On others where there is a couple of hundred acres and no holes anywhere and no probes, it may raise a reasonable doubt to the wisdom of having it classified as it was. So I think it's getting accomplished, and if not too many more inquires this way, we might have a few more because it does serve a purpose of testing the expertise, the professionalism and the quality of accuracy that went into these classifications, and some of them may be embarrassingly left with a little bit of a hole in there, and he says he's not a perfect man like the rest of us. I think we said last week no one has a monopoly on perfection

or virtue in this world except the publishers of Playboy.

But I would say if the questions go on in this way, allowing the most maximum latitude to the witness as to his explanations after the direct answer, a few more I think I'll listen to them.

MR. WHITE: Thank you, Your Honor.

THE SPECIAL MASTER: Without prejudicing or raising it again, if you think he is going too far.

end 23

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MR. WHITE: I would like to state for the record that we are not in any way trying to impugn the professionalism of Mr. Kersich. I have got -- I would be ashamed to make any suggestion that we would try to impugn his professionalism.

I am trying to point out, Your Honor -- and the purpose of this line of questioning is that there may be insufficient data upon which to make the classification, and I'm not impugning his professional abilities at all.

THE SPECIAL MASTER: Very well, Mr. White.

THE WITNESS: Do I have a chance to take that particular statement and xerox it and send it out to my clients?

MR. WHITE: Well, that's probably the best -- or the worst endorsement you could have.

THE WITNESS: No, but I think it proves that we know what we are doing out there.

I might point out there was another hole, 59 in the tract directly east of that. It's not as if there wasn't any information there.

Q (By Mr. White) Was that a probe or a hole?

A That was a hole.

Q That didn't tell you the depth to barrier?

A. I would have to look at logged hole 60. Do you want me to do that?

Q. Logged hole 60 is the closest hole to that, isnt' it?

THE WITNESS: Could we go off the record?

THE SPECIAL MASTER: Yes.

(Off-the-record discussion.

A. (By the Witness) No, I don't see anything in this Township.

Q. (By Mr. White) Do you want me to give you a copy?

A. Sure.

Q. I don't know if you can read the xerox copy there very well.

A. This particular hole was logged by Ross Waples again. I might just read it into the record, the log. The way he made his decision, I think it's pretty interesting.

Q. Let me ask you about the log. The question was, I believe, how you could tell the barrier was at least six foot deep from the log of Hole 60 which was the closest hole to that parcel.

A. He had two things here. He was able to hand drill this log to 72 inches with no problems. He went through clay loamy textures to clays. He noted at the end of the hole here at the 72 inches that he

hit shale and there was heavy salts in this profile, and he declared the land -- and also the color changed on him, interestingly enough, but he did put down a boundary that went beyond the hole.

In other words, the hole, in his estimation, denoted Class 6 soils were nonarable soils.

Q. Is shale not a barrier?

A. It depends on the type of shale, how hard it is and what the hydraulic conductivity is.

THE SPECIAL MASTER: What was the basis for his making it 2 sprinkler?

THE WITNESS: It's not classified, sir, as sprinkler. That's all Class 6 lands out here, where the hole is.

THE SPECIAL MASTER: Oh, I beg your pardon. I thought that was 2 sprinkler.

MR. WHITE: The 75 acres that we are referring to, Your Honor, I believe Mr. Kersich will verify, is 2 sprinkler.

Q. (By Mr. White) Isn't that correct?

A. Yes, but this hole is outside the sprinkler area. I think we ought to keep the record straight on that.

THE SPECIAL MASTER: All right. Thank you.

Q. (By Mr. White)- That's the closest hole to that parcel?

A. That's the closest hole to that parcel, and there is a boundary between -- there is a drainage here. Many times there are cut banks and exposed banks where a land classifier can examine the profile from there.

THE SPECIAL MASTER: When you say there's a drainage there, does that mean there's a ditch dug to drain the land?

THE WITNESS: No.

THE SPECIAL MASTER: It's a natural drainage?

THE WITNESS: Yes, a natural drainage.

Q. (By Mr. White) Isn't it true that the log for Hole 60 shows that shale was encountered at the 42-inch level?

A. Normally what a land classifier does in this situation is put the final material. He has classified this as clay, so obviously he wouldn't be in clay at 42 inches, so he hit shales, and he hit these heavy soils in that area, and he classified it as nonarable.

Q. Owl Creek is an easy one. There wasn't much there.

Let's go to Arapahoe.

A. Give me the Township and Range, please.

THE SPECIAL MASTER: That should be the smallest in the bunch.

MR. WHITE: No, Owl Creek is.

THE WITNESS: There's less than 4,000 acres on Arapahoe.

THE SPECIAL MASTER: Arapahoe is, yes, 3,814. That should be very small, 4,016 on the --

Q. (By Mr. White) Let's go to 1 South, 3 East, Section 20.

A. Section 20, yeah.

Q. Over in the west half.

A. Yes.

Q. There's a parcel of 14 acres that's 3 gravity, 6 sprinkler?

A. Yes, it's a parcel that says light texture both at subsurface and a shaped factor for the gravity and a little gradient.

Q. Is there any logged hole within that parcel?

A. Not within that hole. There is a Bureau hole, of course, located just directly to the west of that.

Q. Let's go about two miles to the east, Section 21. Do you find -- I'm not sure whether it's an 82 or an 80-acre parcel.

A. On my map it appears to be 82 acres.
Q. And it's classified 6 gravity, 2 sprinkler?
A. Yes.
Q. And is there any logged hole within that parcel?
A. Not within the hole, but here again there's a deep hole of ours located just to the east of that parcel, and it shows 18 feet to sandstone.
Q. And that distance from that deep hole to the western edge of the 82-acre parcel is approximately a half a mile, isn't it, or a little bit more?
A. I'd say it's a half a mile or eight-tenths -- yeah, a little bit more. There is a Bureau hole down -- well, from the western edge to the Bureau hole there would be a quarter of a mile or less.
Q. Talking about Bureau Hole 10?
A. Yes, sir.
Q. Isn't it true that Bureau Hole 10 only goes to five feet?
A. It may well be, but that certainly is enough information to assist anyone working on that.
Q. Do you see just to the northeast of that 82-acre parcel in Section 21 Bureau Hole 12 on the other side of the 82-acre parcel?
A. I see a Bureau Hole 1, 2 -- there might be.

kersich - cross - white

There's a Bureau hole that I can't read the number on by the FIP boundary. That's the boundary by the FIP, as I recall.

Q. Right above the 62 --

A. Well, it's above the 2 and just slightly to the east.

Q. You don't read that as a 12?

A. I can't read it as anything.

Q. How about the Hole No. 11 just to the south of that 82-acre parcel? Can you find that, the Bureau of Reclamation Hole?

A. Yes, I can find it, but I don't know what the log on it is. There's a hole of ours though that appears to be just slightly to the south and east of that.

Q. Let me hand you a copy of the logs for those Bureau of Reclamation holes that bracket that 82-acre parcel on the north and the south and ask you whether or not all of those holes are only five feet in depth.

A. They appear to be 60 inches in depth, Hole 12 -- let's see. Hole 10. Where is that? Yeah, I'd have to look at the hole sheet to make sure that this 60 inches is for this hole also.

Q. Well, maybe we can get the hole sheets out.

Do you have a hole sheets with you?

A. No. I would like to check on that a minute, but I don't believe we brought them down.

MR. ECHOHAWK: I would like to object to that in that he represents that those are Bureau of Reclamation holes and we have no foundation that that is, in fact, what they are.

THE SPECIAL MASTER: I will sustain the objection.

MR. WHITE: Do you want to get it out, fellows?

Q. (By Mr. White) Mr. Kersich, do you know what a Bureau of Reclamation hole log looks like?

THE SPECIAL MASTER: You have seen a couple of million.

A. (By the Witness) I have seen them.

Q. (By Mr. White) These look like Bureau of Reclamation hole logs?

THE SPECIAL MASTER: Let's let him find it. It's a close enough matter that factually it isn't going to make that much difference, but you may go ahead. You are showing that it was one foot shorter than what the criteria is supposed to be?

MR. WHITE: Yes.

THE WITNESS: Can I clear that up?

THE SPECIAL MASTER: Let's wait a minute until he gets the exhibit. I know that other factors mitigate on what he is doing on that.

THE WITNESS: But we have a deep hole in that area.

MR. ECHOHAWK: Which page are we talking about?

MR. WHITE: It should be Sections 21 and 28, folks, 1 South, 3 East.

(Off-the-record discussion.

MR. ECHOHAWK: I'm going to find the thing you are talking about.

MS. SLEATER: But we could be here for quite a long time.

MR. WHITE: Let's go ahead.

THE SPECIAL MASTER: In the interest of time, Mr. Echohawk, would you remove your objections long enough -- I would ask you to consider if you wish to remove the objection -- the objection has been sustained, and they are looking now for something to prove it as a Bureau of Reclamation log. Mr. Kersich has additional information he wants to give regarding those holes, and I want him to give that and it may be that upon your hearing it you

may not care about whether the objection is made or not because your point having been served as far as the evidence is concerned.

Will you go ahead with what you had, Mr. Kersich?

* * * * *

A We have a deep hole located right in the corner that's a piece of land which has been classified as 6 gravity, 2 sprinkler.

THE SPECIAL MASTER: 2 sprinkler?

A And also it is contiguous or associated with another tract of land which has been classified as 3 gravity and 1 sprinkler and located approximately almost on the section line between Sections 21 and 27. Slightly east of the intersection of Sections 21, 22, 27 and 28 is a hole that I had drilled and in perusing the logs, I showed the depth of that hole as being 18 feet to sandstone in that particular area.

Q (By Mr. White) Mr. Kersich, is that hole in the parcel, the 82-acre parcel?

A No, it is about 100 feet to the east of the eastern edge of that parcel, sir.

Q And isn't it about, at least a half mile from the western edge of that parcel?

A Yes, it is.

Q And aren't the three Bureau holes, which are shown on your photograph, closer to that parcel than your H.K.M. deep hole?

A No, I would say hole No. 11 isn't closer to that

parcel.

Q Let me ask you, closer to the center of the parcel?

A Center of the parcel? Well, here again I would say that my hole, H.K.M.'s hole is closer than hole No. 11 to the center of the parcel.

Q Okay. Now then, in Sections 29 and 30 --

A 29 and 30? Okay, sir.

Q Excuse me, I missed one up here that I want to ask you about.on the common borders between Sections 22 and 27.

A 22 and 27? Are we back now to where we were discussing a moment ago, sir?

Q Close.

A Oh, 22 and 27. Okay, yes.

Q You have a large block of fee land in there and to the left of that is, it looks like either a parcel of 50, maybe 59 acres?

A I believe it is 50 acres.

Q Fifty acres?

A Yes.

Q Classified gravity 1, sprinkler --

A That's correct.

Q Is there any hole whatsoever within that parcel?

A There is no hole in that parcel. We've got to again point out there was sufficient -- the classifier developed sufficient informatin to put light textured soils for the soils in the top four feet, a J factor and a leveling for the surface.

MR. WHITE: Your Honor, this would be a good time to take a break.

THE SPECIAL MASTER: Do you want to call it a day? Start at 9:15 in the morning.

THE WITNESS: Thank you.

THE SPECIAL MASTER: All right, we'll stand in recess until 9:15 in the morning. We can leave our material in the room.

(Off-the-record discussion.)

MR. WHITE: Your Honor, could we go back on the record just so we can --

THE SPECIAL MASTER: Do you want to do it tonight or do you want to do it in the morning?

MR. WHITE: It will just take a minute, then we won't have to worry about it.

THE WITNESS: I would like to work on the whole thing.

THE SPECIAL MASTER: Let's wait until the kersich-cross-white

morning, if that's all right with you.

We'll do it in the morning.

(Proceedings recessed, 4:46 p.m.)

END

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REPORTERS' CERTIFICATE

State of Wyoming)
: SS
County of Laramie)

We, Lamont Miller, Merissa Racine, Viola J. Lundberg, Registered Professional Reporters and Notaries Public, hereby certify that the facts as stated in the caption hereof are true; that we did at the time, date and place, as set forth, report the proceedings had before the Honorable Teno Roncalio, Special Master, in stenotype; that the foregoing pages, numbered 1351-1550, 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 for any of the parties hereto, nor are we interested in the outcome thereof.

Dated this 10th day of February, 1981.

LAMONT MILLER
Registered Professional Reporter

MERISSA RACINE
Registered Professional Reporter

VIOLA J. LUNDBERG
Registered Professional Reporter