4-25-1978

Transcript of proceedings Volume XII, Pages 2538-2595

Wayne C. Lenhart
Court Reporter

IN THE DISTRICT COURT OF THE UNITED STATES

FOR THE EASTERN DISTRICT OF WASHINGTON

COLVILLE CONFEDERATED TRIBES,

Plaintiff,

v. No. 3421

BOYD WALTON, JR., et ux., et al.,

STATE OF WASHINGTON, Interv. Deft.,

Defendants,

Consolidated with

UNITED STATES OF AMERICA,

Plaintiff,

v. No. 3831

WILLIAM BOYD WALTON, et al.,

Defendants.

TRANSCRIPT OF PROCEEDINGS

Volume XII

Pages 2358 to 2595

Spokane Calendar Tues., April 25, 1978 Neill, J.

IN THE DISTRICT COURT OF THE UNITED STATES

FOR THE EASTERN DISTRICT OF WASHINGTON

COLVILLE CONFEDERATED TRIBES, Plaintiff,	)	
v.	)	No. 3421
BOYD WALTON, JR., et ux., et al., STATE OF WASHINGTON, Interv. Deft., Defendants,	)	
Consolidated with		
UNITED STATES OF AMERICA, Plaintiff,	)	
v.	)	No. 3831
WILLIAM BOYD WALTON, et al., Defendants.	)	

BEFORE:

The Honorable Marshall A. Neill, Judge

DATE:

April 25, 1978

APPEARANCES:

For the Plaintiff Colville Confederated Tribes: MR. WILLIAM H. VEEDER
Attorney at Law
818 - 18th Street, N. W.
Washington, D.C., 20006

	MR. STEPHEN L. PALMBERG Attorney at Law Legal Office Colville Confederated Tribes P. O. Box 150 Nespelem, Washington, 99155
For the Defendants Walton:	MR. RICHARD B. PRICE Attorney at Law Box O Omak, Washington, 98841
For the Defendant State of Washington:	MR. CHARLES B. ROE, JR. Senior Assistant Attorney Gen. Temple of Justice Olympia, Washington, 98504
	MISS LAURA ECKERT Assistant Attorney General Temple of Justice Olympia, Washington, 98504
	MR. ROBERT E. MACK Assistant Attorney General Temple of Justice Olympia, Washington, 98504
For the Plaintiff United States of America:	MR. ROBERT M. SWEENEY Assistant U. S. Attorney Box 1494 Spokane, Washington, 99210
	MR. BILL BURCHETTE Trial Attorney Land & Natural Resources Div. Department of Justice Washington, D. C., 20530

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WILLIAM BOYD WALTON, et al., Defendants.	)	

BE IT REMEMBERED:

That the above-entitled action came regularly on for hearing on April 25, 1978, having been recessed from April 14, 1978, before the Honorable Marshall A. Neill, Judge, in the District Court of the United States, for the Eastern District of Washington, Spokane, Washington, the Plaintiff Colville Confederated Tribes appearing by Mr. William H. Veeder and Mr. Stephen L. Palmberg; the Defendant Waltons by Mr. Richard B. Price; the Defendant State of Washington by Mr. Charles B. Roe, Jr., Miss Laura Eckert and Mr. Robert E. Mack; and the Plaintiff United States of America by Mr. Robert M. Sweeney and Mr. Bill Burchette;

WHEREUPON, the following proceedings were had and testimony taken, to wit:

I N D E X

E X H I B I T S

		ID	AD	DEN
Defendants Exhibits:				
	B-W	2378		
	C-W	2379		
	G-W	2379		
	H-W	2379		
	HHH-W		2384	
	III-W		2384	
	JJJ-W		2384	
	KKK-W		2384	
	LLL-W		2384	
	MMM-W		2384	
	NNN-W		2384	
	PPP-W		2384	
	TTT-W	2549	2553	
	EEEE-W	2504	2523	
Colville Exhivit	39	2411	2448	
	40	2517	2526	

Morning Session

April 25, 1978 8:30 A.M.

THE COURT: Good morning.

COUNSEL IN UNISON: Good morning, Your Honor.

THE COURT: Clerk, call the case.

THE CLERK OF THE COURT: 3421, Colville Confederated Tribes v. Boyd Walton, Jr. consolidated with 3831, The United States of America v. William Boyd Walton.

THE COURT: Are all parties ready to proceed?

MR. PRICE: Yes, Your Honor.

MR. VEEDER: Yes, Your Honor.

MR. SWEENEY: Yes, Your Honor.

THE COURT: Well, I see there have been a number of motions filed since we last convened. I suppose we better take a look at where we are on those.

MR. VEEDER: Your Honor, yesterday the Colville Confederated Tribes filed a petition for a preliminary injunction. I did not notice it thinking that I would be much better if we could proceed and get the case in chief in, but we are convinced that before the month of June is entirely

gone the shortage of water is going to become apparent and I thought it would be well to get it into the record before Your Honor.

I ask leave to file a brief in support of that petition. I did not have a complete transcript, Your Honor, and I know what the rules say, but I ask leave to file the memorandum in support of this petition when I do have the full transcript, if I may, Your Honor.

THE COURT: That will be satisfactory, but other counsel should have a reasonable time in which to respond to that, of course.

MR. VEEDER: Oh, yes, Your Honor, and let the record show that counsel for each of the parties, the State, and Mr. Walton, Mr. Price, and the United States, have been served.

Now, I also have -- I don't know what Your Honor desired us to do about this, but you requested at the last hearing that I make reference to the citations as to what we were relying upon about the fact that the rights to the use of water in Omak Creek were not part of this litigation.

THE COURT: Well, that goes to one of the motions that Mr. Price has filed in the interim period.

MR. VEEDER: That is correct, Your Honor, and I'm assuming you don't care to hear from me on the subject now in light of that motion.

THE COURT: That is correct. That is Mr. Price's motion.

Mr. Price, the thing that concerns the Court on that motion is not the basic idea as to water of Omak Creek perhaps having something to do, in fact, I think from the record there is something to do with it already, with the problem we are facing in No Name Creek.

I have to be concerned about the extent to which you would like to expand the record.

MR. PRICE: The extent, Your Honor, would go, I believe, to the waters not being demanded during the regular irrigation season and beyond that I don't know how to define it, I guess is my problem, other than to rely upon the study and work that Mr. Jones has performed in that regard.

It is not my intent to try and seek an adjudication, although I think that would be appropriate, of Omak Creek but to have testimony relating to waters that would otherwise not be in demand during the off-irrigation season.

THE COURT: When this matter first came up

-- well, it has come up more than once, and each time, as you know, the Court has sustained objections to expanding this and it has been for the reason that if we got into the question of the burden of the use of the waters of Omak Creek, we don't have all the parties before us that are involved in the water of that particular creek. On the other hand, there is evidence in the record that at some time some of the waters of that creek have been diverted and used in what I guess we all talk about now, the No Name aquifer uses.

Perhaps the best way to approach this is if you would like to make a relatively brief offer of proof so I can get some feel for how far you would like to go if I grant your motion.

MR. PRICE: All right. I would be willing to do that if we could call Mr. Jones to the stand.

THE COURT: All right.

FRED O. JONES, called as a witness herein, having been previously sworn on oath, testified as follows:

THE COURT: Mr. Jones has been previously sworn. You are still under oath.

THE WITNESS: All right.

MR. PRICE: Good morning, Mr. Jones.

THE WITNESS: Good morning.

DIRECT EXAMINATION

BY MR. PRICE:

Q Mr. Jones, this will cover some of the questions that I posed to you previously, probably, in connection with your study of the No Name Creek basin, and in that regard, did the study of the No Name Creek basin involve stream flow measurements, among other things, of the surface flow of Omak Creek?

A Yes, they did.

MR. VEEDER: I object, Your Honor, and I want the record to show that we have objected in the past on any effort to bring Omak Creek in.

THE COURT: Counsel, this is only on an offer of proof. I am trying to find out what he is trying to get into the record.

MR. VEEDER: But he's going to make an offer of proof through Mr. Jones?

THE COURT: Through Mr. Jones which may be the quickest way to do it, I hope.

Q (By Mr. Price) Mr. Jones, in your study of the No Name Creek basin, did that study involve the source --

the use of water from Omak Creek?

MR. VEEDER: I object to this, Your Honor, on the grounds that this witness is not qualified. He is not a surface water hydrologist and I don't think he is qualified to go out and measure the water. I don't think he has any right to be testifying in this and he doesn't purport to be a surface water hydrologist.

THE COURT: Objection overruled.

THE WITNESS: May I hear the question again.

MR. PRICE: Would you read the question back, please.

(Reporter read back question line 24, page 2366 to line 1, page 2367.)

A Yes, it did.

Q And I believe your testimony, if allowed, is to the effect that there are sufficient waters to meet the demands that you have indicated in your testimony, in your direct testimony.

MR. SWEENEY: Your Honor, I know this is an offer of proof, but I still think it should be limited to direct questions rather than leading questions which I think this is.

THE COURT: All right. Rephrase the question.

Q (By Mr. Price) In your opinion, are there sufficient waters to meet the needs in the No Name Creek basin?

A There are.

Q And what sources and how do you determine that there are sufficient waters to meet those needs?

A The U.S. Geological Survey has taken measurements of Omak Creek in connection with the present hydrologic investigation and with one that was conducted in cooperation with the Tribe back in 1972 and '73.

Q And from those studies, what have you determined?

A We know that Omak Creek in a period of normal rainfall or maybe perhaps a little higher than normal will flow as much as 13,900 acre-feet of water per year and it has a peaking about 78 percent of the waters comes down from February to July so it has a large peaking ability and it's just -- I'm just thinking of the peaking water, that there can be no preplanned use for. There is none that I know of.

Q And these peaking waters would be in addition to what the normal flow of the Omak Creek is?

A Yes.

Q And how would these waters be beneficially applied in the No Name Creek basin?

A They could be applied to No Name Creek basin in two ways. The first would be by diversion of the No Name Creek directly into No Name Creek and they could also be used to recharge the aquifer in wells.

Q How would that be done? How do you recharge an aquifer from wells?

A Well, I believe that the materials in the aquifer alongside No Name Creek are quite permeable and the installation of some dry wells 20 to 30 feet deep would probably be very effective in recharging the aquifer.

Q Is it your opinion that these dry wells could be controlled so as to utilize the water during which you describe as the peak period?

A That is correct.

Q And not utilized during other times of the year?

A That is right.

MR. PRICE: I believe that is the extent of our offer of proof, Your Honor.

THE COURT: You may step down, Mr. Jones.

(Witness is excused.)

THE COURT: Does any counsel wish to object to the offer of proof?

MR. SWEENEY: The Government would object to the rendition of the testimony as part of Mr. Price's case in chief.

Mr. Jones is describing a theoretical plan for the use of waters outside what we believe is the aquifer. It is speculative and conjectural. It does not take into account possible uses down below for Omak Creek waters and in that sense it automatically brings into question all of the other uses on the Omak Creek stream.

He has merely described a physical solution to what he feels could be done, but he hasn't testified to whether that is legally possible.

He has also previously testified -- he didn't at this time -- but he testified there was no direct hydrologic connection between No Name Creek aquifer and Omak Creek, so even under Mr. Jones' testimony, we are getting into another watershed, and that is what we object to in this case.

MR. VEEDER: Your Honor, may I interpose an objection on behalf of Colville Confederated Tribes.

I respectfully submit, Your Honor, that the only appropriate way that I know how to bring in a totally foreign issue at this point in the trial

would be perhaps to have a motion to amend the pretrial order rather than by a motion of this character. I think the rules are very clear that the only possibility of inducing or injecting into a record a totally foreign issue such as here would be to have put the Tribes on notice well in advance. Now, if memory serves me, this pretrial order was entered, Your Honor, on June, I think it was June 12, 1976. Now --

THE COURT: Counsel, Mr. Price has pointed out that by the terms of that pretrial order, the reference is to the No Name Valley rather than to the aquifer, and the evidence is clear that within that valley Omak Creek flows across it.

MR. VEEDER: But, Your Honor, the right to the use of water are totally independent of the rights to the use of waters of Omak Creek, and that we have proved that conclusively, and I think there is total agreement that the natural affluent, the natural hydrologic system of No Name Creek is independent of Omak Creek, that we are at this point being required to have injected an entirely new question.

We do know though, as long as everyone is going into this matter, that the "surplus waters"

flowing into or flowing by, could very well be stored and would be stored if the Colvilles prepare their water use as they plan. There could be storage of water in the upper areas of Omak Creek to irrigate literally thousands of acres of land that are short of water in the No Name Creek area during the month of July, August, and September.

Now, if Mr. Jones is going to go into a flat of ideas about some kind of a physical solution, I respectfully submit that we should be, the Colville Confederated Tribes should put into evidence proof that by storing that surplus water, the numerous Colville members with allotments in Omak Creek would greatly benefit by the storage of that water for late use.

Now, we see what a Pandora's box is being opened. We see what is occurring. While we know -- we have done it. I have undertaken and I know personally, just like everybody knows personally here -- that there are those dry acreages upstream in Omak Valley. We know that surplus water can be impounded. I'm not buying what Mr. Jones says that these waters are not used.

I'm going to offer into the record the applications made with the State of Washington by

Mr. Walton and others and those applications to appropriate Omak Creek waters for use in No Name Creek were denied. I'm going to offer those in evidence.

But, secondly, if this is going to be opened up, I propose to call additional witnesses to put in evidence to prove conclusively the amount of acreage requiring late summer water in the Omak Creek Valley. I will also prove, if we are having offers of proof, that we can store those waters in the upper reaches and they can best be used within the Omak Valley for the purpose of late irrigation and I respectfully submit that the process is now being undertaken here to blur the record in regard to independent and separate rights to the use of water is a manifest injustice to the Colville Confederated Tribes at this point.

I certainly object to the offer of proof. I respectfully submit this Court does not have jurisdiction to order the water being diverted out of Omak Creek. I think it is an entirely separate and distinct suit and I think it is an effective way to deny the Colvilles their day in court, they having filed this case in September of 1970.

THE COURT: Does the State desire to make any comments regarding this motion? Mr. Mack?

MR. MACK: Not at any length, Your Honor. We support Mr. Price's motion and disagree -- as expressed earlier and I won't repeat here -- with much, if not all, of what Mr. Veeder just said. That would be the State's comment.

THE COURT: Well, gentlemen, I am satisfied that to open up the matter of the extent and use of waters of Omak Creek would go beyond the original scope of this litigation, although I must agree with Mr. Price that the actual language of the pretrial order is not so limited, but we don't have all of the parties before us who would be affected by evidence relating to the quantity and the burdens, the existing burdens of the waters of Omak Creek.

So, I am going to deny the Walton's motion in this regard.

Now, I think, Mr. Sweeney, you filed, since we last met, there is a new motion the Government has filed.

MR. SWEENEY: I don't think so, Your Honor.

It escapes me if I filed one.

THE COURT: Well, let me look here. There

is something that came in from you.

Oh, I think it was notice of additional witnesses and additional exhibits, perhaps.

MR. SWEENEY: No, I think the State filed a letter noting that certain additional exhibits that they were going to present from the archives and listing three or four additional witnesses.

MR. VEEDER: Maybe I can refresh your memory, Mr. Sweeney. Didn't you file a statement signed by Secretary Andrus to the effect there were going to be rules and regulations published?

MR. SWEENEY: That was some time ago. That was before we ended the trial last week.

MR. VEEDER: Well, I know, but I just wanted the record to show that particularly.

THE COURT: Mr. Sweeney, since our last session of court in this case, I find on April 12 you filed a supplemental exhibit list, an affidavit of Mr. Andrus.

MR. SWEENEY: I'm sorry, Your Honor, I misunderstood. That is correct. I did file a supplemental exhibit list to cover some maps and graphs prepared by Mr. Jones which were admitted during his testimony and also the affidavit of Mr. Andrus -- Secretary Andrus -- as to the promulgation

of rules and regulations.

I thought the Court was referring to something that may have been filed since we last met a week ago.

THE COURT: All right.

MR. SWEENEY: But we haven't anything. We didn't file anything in the interim.

THE COURT: I just wanted to be sure if there were any pending matters before we get back into the evidence --

MR. SWEENEY: Not from the United States.

THE COURT: -- that have been filed since the last session of Court.

THE COURT: Well, I guess, then, when we left off the last session Mr. Mack was in the midst of cross-examination of Mr. Maddox.

MR. MACK: Yes.

THE COURT: Would Mr. Maddox resume the stand, please.

MR. PRICE: Your Honor, if I might make a comment. There was an area of direct examination that I overlooked with respect to Mr. Maddox and would ask that before we get further into the cross-examination that I make a statement that I would like to put on that direct testimony and if

it would be more convenient to put it on now before all of the parties start cross-examination, I would ask leave of the Court to do that. I believe it would be fairly brief. It would relate to Mr. Maddox's belief or opinion as to availability of water resources in 901 and 903 for beneficial use.

THE COURT: Do counsel object to Walton's reopening direct before cross-examination continues?

MR. MACK: No.

MR. VEEDER: I have no objection.

MR. SWEENEY: I have no objection.

THE COURT: Motion is granted. You may examine on direct.

MR. PRICE: Counsel, and thank you, Your Honor.

GEORGE EDWARD MADDOX, called as a witness herein, having been previously sworn on oath, testified as follows:

DIRECT EXAMINATION REOPENED

BY MR. PRICE:

Q Mr. Maddox, in connection with your study, you are familiar with Allotments 901 and 903; is that correct?

A Not by that terminology. Could you give me the general physical location within the No Name Creek Valley?

Q All right. Calling your attention to Colville Plaintiff's Exhibit, I believe No. 7.

A Yes. These are the allotments that generally lie to the south of Mr. Walton's property and north of Omak Lake, reading the map. I have crossed parts of those.

Q All right. Have you physically been on those properties, portions of those properties?

A That is right.

MR. VEEDER: May I ask a question on voir dire, Your Honor.

Was this investigation undertaken subsequent to the last hearing, Mr. Maddox?

THE WITNESS: No, Mr. Veeder, it wasn't.

THE COURT: Proceed.

MR. PRICE: If I may approach the witness, Your Honor.

THE COURT: You may.

Q (By Mr. Price) Mr. Maddox, showing you what has been marked Defendant's Exhibit B-W, can you identify that, please.

A Yes, that is a stream that we saw during our traverse

of the allotments. I couldn't tell you which allotment it is, but it is slightly to the north and east of Omak Lake. The stream is flowing toward the lower reaches of No Name Creek as it heads toward Omak Lake and the view is generally to the west.

Q Can you identify Defendant's Exhibit H-W?

A That is an additional view. Closer up view of the previous stream and it's taken farther upstream.

Q And Defendant's Exhibit G-W?

A Again, the same stream and it is taken in the general vicinity as Defendant's Exhibit H-W.

Q And Defendant's Exhibit C-W, is that an additional water source in the areas of 901 and 903?

A Yes, it is. This is a separate water source than shown on the first three photographs and lies to the -- generally northerly of the first water source and again flows toward No Name Creek and it is a general area of intersection with No Name Creek. It is to the north of where the first, the stream shown on the first three photographs, generally.

Q Mr. Maddox, calling your attention to Defendant's Exhibit T-W, could you identify for us on that exhibit the location of the water sources that you have described in the pictures, defendant's exhibits.

A To the best of my ability, realizing that I didn't have this map with me in the field, it is my opinion that the water course shown flowing southwesterly across 903 and into 901 is the stream shown in the first three photographs that you have given me. The second water course, I do not believe appears on this exhibit.

Q There is an identification on that exhibit of a stream flow; is that correct, and is that --

MR. VEEDER: Object. This is leading, Your Honor.

THE COURT: Rephrase it.

Q (By Mr. Price) Is that what you are referring to?

A There is on the exhibit a line that I would interpret as generally indicating a stream shown on the legend as being a perennial stream.

Q Mr. Maddox, can you describe what you observed in connection with these water flows on the day you observed them and approximately when you observed them.

A Generally, beginning with the small stream flow that was in the last photograph you showed me, it appeared to head in the grove of trees that lie to the northeast of a road that traversed the two allotments and at the road it formed a pond due to the road

being a low place and then flowed southwesterly toward No Name Creek. Now, I didn't follow it up to its junction with No Name Creek. The flow was very small. It was difficult to estimate the flow in a flat, shallow stream. I would say that it was somewhere in the neighborhood of .5 cfs, in that general vicinity, which means the accuracy would be between .1 cfs and about .7 cfs, probably around .5 cfs as of the day I saw it.

Q All right. Would you describe what you viewed in terms of the larger water, stream flow. The larger stream flow which lay to the southeast from the first stream I described was flowing from the northwest and -- northeast -- let me correct that -- in some highlands. In part, the stream could be seen cascading down over some rocks though I didn't go to the point at which the stream came over the rocks. The source of the stream was higher up on the hill. When I first saw the stream it was flowing a substantial amount of water. Again, I didn't have any stream gauging equipment with me and I would have to estimate the flow as being about .5 of a cfs with the same accuracy I described before.

Farther down the stream as it flowed southwesterly

toward No Name Creek, the stream flow decreased to a low point which was near some plowed land that lay adjacent to the road that I have described that traverses the two Indian allotments, and again, I would estimate the stream flow to be somewhere around a tenth of a cfs, possibly slightly more. Again, these are estimates.

Q What did your observations about the flow of this water tell you about the flow of the land?

A It was my opinion, looking at the diminution in the stream flow, that there was a great deal of percolation into the sub-surface and looking at the soils that crop out onto the surface, it was and is my opinion that it is approximately the same type of soil material that is found farther north in the No Name Creek basin and north of Mr. Walton's land, generally speaking, and on one of the Tribe's exhibits that has been colored green. I don't recall the number of the exhibit.

Q Do you have an opinion as to the availability or source of water in this area for beneficial application?

MR. VEEDER: I object to the question. It is far too vague. Do you have an opinion as to availability for what, where and by whom.

THE COURT: He may answer the question. You may explore that.

A By this area, I assume you mean the two allotments that we have been referring to.

Q Well, the area where you observed these streams.

A Yes. It is my opinion that both direct use of this water either for irrigation of small amounts of land is possible in the early year. I have no direct knowledge that these streams flow throughout the year. Again, these streams could be used by channelization and guiding the water to No Name Creek for the purpose of fish propagation. Again, later in the year it is my opinion, looking at the soil materials, that shallow wells could probably be developed to draw on the recharge of water into the subsurface that I saw as a consequence of the diminution of the stream flow.

MR. PRICE: I have no further questions at this time.

Your Honor, again I would move for admissions of the exhibits in connection with Mr. Maddox's testimony in our previous session.

MR. VEEDER: Could we see those, Your Honor. I haven't had a chance to look at them.

THE COURT: We have to identify them,

Counsel. I don't know which ones you are talking about.

MR. PRICE: We move again, Your Honor, for admission of Defendant's Exhibits HHH-W, III-W, JJJ-W, KKK-W, LLL-W, MMM as in mother, -W, NNN as in Nansen, -W, PPP-W.

THE COURT: Has counsel examined those?

MR. SWEENEY: Yes, the Government has examined those and as I understand them, they are illustrative of Dr. Maddox's earlier testimony last week, his isopach maps and the elevations on March 20, May 13 and August 20 and as to a part of Dr. Maddox's testimony, we have no objection.

THE COURT: State?

MR. MACK: No objection, Your Honor.

THE COURT: Mr. Veeder?

MR. VEEDER: I have no objection.

THE COURT: Exhibits HHH-W through PPP-W, inclusive, are each admitted.

(Defendant, Walton's, Exhibits HHH-W through PPP-W, inclusive, are admitted.)

MR. PRICE: Thank you, Your Honor.

THE COURT: Mr. Mack, you may continue your cross-examination.

MR. MACK: Thank you.

CROSS-EXAMINATION CONTINUED

BY MR. MACK:

Q Dr. Maddox, you testified two weeks ago about your opinion as to the consumption of water by phreatophytes in the area of the Walton property; do you recall that?

A That is correct.

Q Am I correct in understanding that what you did was assume that if there were no irrigation development on the Walton property that there would be water consumed nonetheless by natural growth which would be phreatophyte plants.

A That is correct.

Q And am I also correct in assuming that to determine what the consumptive use would be, not water duty, but consumptive use of such plants, you went then to the work done by the Washington State University.

A For irrigation requirements, that is correct.

Q And you took a figure for orchard cover; is that correct?

A That is correct.

Q And is it true that you made a 65 percent calculation, explained that you assumed that the

phreatophytes would occupy only for your calculation purposes 65 percent of the land presently irrigated; is that correct?

A That is correct.

Q Would your figure then be conservative for what phreatophytes in natural condition might actually consume in the area of the Walton property?

MR. VEEDER: I object to this, Your Honor. There is no foundation whatever for it. Phreatophytes are a vast variety of plants. He made no identification as to what kind of phreatophytes he's talking about. Cottonwood trees are phreatophytes, uses water entirely differently from tules. I think we have to be specific on this. I think we should hear what kind of phreatophytes he is talking about on the bench line. I would be extremely interested to hear.

MR. MACK: Your Honor, I think Counsel could probably ask that one.

THE COURT: Mr. Sweeney.

MR. SWEENEY: Well, I have one objection. I think this was a leading question.

THE COURT: Well, he is on cross.

MR. SWEENEY: I would like to point out on this particular situation, Your Honor, that

Dr. Maddox is only by happenstance on cross-examination by the State. Dr. Maddox is being called as a witness for the State in its case in chief and this procedure ends up giving the State the opportunity to really cross-examine their own witness and I think in the position we are in that Dr. -- Mr. Mack should be directing questions in a direct manner to Dr. Maddox, because he is actually both a witness for the State and for Mr. Walton.

MR. MACK: I can rephrase --

THE COURT: Mr. Mack, the point is well taken. It seems throughout the trial that the State and Mr. Walton seem to be going down the same path as opposed to the United States and the Tribe. I think I should take that view, so use direct questions.

MR. MACK: Thank you, Your Honor. There does seem to be more friction at that table than ours.

THE COURT: Mr. Price.

MR. PRICE: Your Honor, for the record, I would like to state that I think I raised this issue back in year one, it feels like now, that possibly even in a written motion that the Tribe -- but I think in my oral argument -- that the Tribe

and the Government should be represented by one or the other but not both because in essence they are getting two cases in one. That may sound like a Madison Avenue ad campaign, but it is true, and they, throughout this case, have had the opportunity to, in effect, cross-examine their own witnesses, and as Your Honor points out, they are basically in the same camp, although sometimes they don't see it that way, and I don't feel that it is fair to allow them to put on their entire cases in which they have had the opportunity to cross-examine when they are not adversaries in this proceeding at all. They are both plaintiffs in a consolidated action and so I find it a little bit inconsistent to limit what genuinely would be considered cross-examination by an adverse party in this reference when, in fact, the Tribe and Government have been able to do that throughout this entire proceeding.

MR. MACK: Your Honor, I'm listening to all this. I really only had one more question, and your point, I understood it, and I could rephrase it.

THE COURT: Rephrase the question.

MR. MACK: Thank you.

Q Dr. Maddox, the 65 percent calculation which entered

into your computations, was that a limiting factor or not in deriving your figure for the amount of water that would be naturally consumed by phreatophytes in this area?

A It would be a limiting factor.

Q Thank you. That is all.

THE COURT: Cross-examination by the United States?

MR. SWEENEY: Yes, Your Honor.

CROSS-EXAMINATION

BY MR. SWEENEY:

Q Dr. Maddox, the stream you testified, or the two streams I guess, that you testified in this direct examination by Mr. Price --

A Yes.

Q When did you see that stream or those streams?

A It was -- I couldn't give you the exact date because I don't have my calendar with me but it was on about Wednesday or Thursday of the week preceeding the last week of trial.

Q So, it was the spring?

A Oh, yes.

Q And you don't know whether those streams dry up or not?

A Not personally, no.

Q Do you know that there were test wells drilled on the Allotments 901 or 903?

A I am aware of that from the logs by the U.S. Geological Survey, yes.

Q And they went down to bedrock; did they not?

A As I recall, they went to bedrock or near the bedrock.

Q And they found no water on those allotments?

A That is correct.

Q And there were seismic tests made on 901 and 903?

A This I couldn't -- I don't recall. They were made up on Mr. Walton's land, but I don't recall if they were made down below or not.

MR. SWEENEY: Let's see. Could I have Exhibit NNN, which is Nan, Nan, Nan, W, isopach, I don't know. May I approach this, Your Honor?

THE COURT: You may.

Q (By Mr. Sweeney) Can you see that?

A Yes.

Q I put up on the easel Mr. Walton's exhibit NNN-W which is your isopach map; is that correct?

A That is correct.

Q Now, as I understand it from your testimony last -- a week ago, that this shows the difference in water

levels that occurred between March 20 of 1977 and August 20 of 1977 at various spots within the No Name Creek Valley.

A May I check the legend on the map?

Q Yes.

A Yes, that is isopach of water level decline between March 20 and August 20, 1977.

Q Perhaps I should ask, what is an isopach? I am not familiar with that term.

A An isopach is a line joining points of equal change, either up or down. Equal thickness, it could be.

Q And you calculated that based on U.S.G.S. logs of the various wells within No Name Creek Valley?

A U.S.G.S. measurements of water levels of various wells within the No Name Creek Valley.

Q I see. That is what I meant.

And you then drew lines around certain areas that you felt were reflective of changes in water level as depicted on the map within No Name Creek Valley?

A That is correct. I constructed the isopach lines.

Q And to do that you had to make a certain number of assumptions; did you not?

A That is correct.

Q And then you planimetered the areas within these

different lines; is that correct?

A That is correct.

Q And that gave you what?

A A volume. Well, within the lines it would give you an area, and the distance between the lines, multiplying the area times the distance gives you the volume.

Q Now, I believe you testified that in utilization of the method that you used in examining the water availability or analyzing the No Name Creek Basin, the boundaries were important.

A That is correct.

Q Now, on this exhibit NN-W, as a matter of fact you drew these isopach lines to the lines of the granite bedrock; did you not?

A That is correct.

Q Where it slopes into the surficial deposits above the valley.

A That is correct.

Q And then you planimetered around those lines to arrive at your volumes?

A That is correct, to the limit of the bedrock.

Q Well, the bedrock slopes underneath the surficial deposits; does it not?

A That is correct.

Q So at the outer edges of where the bedrock meets the surficial deposits, you may have only a few feet of surficial deposit?

A That could be possible. I don't really know what the thickness of the surficial deposits is there.

Q But it would cut down the volume of water available, based on your planimetering of those areas, would it not?

A That is correct. With the slope to the sides, there would be some change in the volume of rock and water.

Q And you didn't make any adjustment for that; did you?

A Since I didn't know what the slope of the sides were, I assumed they were vertical for the distance that I contoured which I forgot what that is now, 35 feet, the greatest distance.

Q Have you examined the seismic profile?

A Yes, I have.

Q Do they show a vertical?

A No, they do not.

Q Now, I guess the largest change in water level reflected on Exhibit NNN-W is at the middle irrigation well of the Colville Tribe.

A As I recall, that would be about right. That -- can I look at the map?

Q Yes, and I think, well, yes.
A It would be a well that is approximately in the northeast quarter of the southwest quarter of Section 16 and I would imagine that it would be about the middle well and that shows a total decline of 44 feet for the period depicted on the map.
Q Now, that is taken from the U.S.G.S. records of the change in water level in that well.
A That is correct.
Q And I guess, I believe that is called the middle Colville irrigation well or Colville No. 1 well.
A I generally refer to it as the middle irrigation well, but it has been referred to in the trial as the Colville No. 1.
Q Now, the water level depicted in that well is deeper than the water level depicted in the wells both to the north and to the south of the middle irrigation well; isn't that correct?
A As shown by the exhibit and as represented by the data, that is correct, deeper below land surface.
Q Do you feel that the water level as reflected on the middle irrigation well is an accurate reflection of the change in water level of the aquifer?
A If I could rephrase that question before answering it, I feel that the change in water level elevations

reflects the change in water level elevation throughout the aquifer.

Q Well, if there was a situation where you were having well loss, for instance in the middle irrigation well -- .

A I don't understand what you mean by "well log."

Q Well, let me rephrase the question then. Well, let me go on this tack.

Have you examined the U.S.G.S. report?

A Yes, I have.

Q And the U.S.G.S. report doesn't show a decline in the aquifer at the middle irrigation well of 44 feet; does it?

A I would say that the data reflects that decline for the period shown here due to the data coming from the U.S.G.S. To the best of my knowledge, U.S.G.S. does not use their data in the manner which I have to make this map. In other words, they haven't used these time periods.

Q Well, they have hydrographs, however?

A Yes.

Q And as a matter of fact, Mr. Cline, in his hydrograph draws a line between the well line to the north of the middle irrigation well and to the level of the well line to the south of the middle

irrigation well.

A Could well be.

Q And it is several feet higher than the 44 acre-feet -- I mean the 44 foot change in the water level.

A The 44 foot change in the water level are from data collected by the geological survey rather than interpreted that with the changes they made during the time period at that particular well.

Q You don't know whether or not the U.S.G.S. people regard the 44 foot change in elevation as reflective of a change in the aquifer itself?

A No, I do not.

Q As a matter of fact -- well, you don't know that?

A No, I don't.

Q If the change in water level of the aquifer was not 44 feet but was, say, 38 feet, as reflected by the wells to the north and the south of the middle irrigation well, that would change your calculations as to the amount of water available; would it not?

A Yes, it would.

Q Now, you testified last week to a specific yield, I believe, of 10.6?

A That is correct.

Q And you used that figure for the entire No Name Creek Valley aquifer.

A That is correct.

Q From the north all the way to the granite lip at the south of Mr. Walton's property.

A I would have to put a limit that the 10.6 percent would not go all the way to Mr. -- the granite lip at the south end of Mr. Walton's property, but would be reflected on the Exhibit NNN-W by the zero decline line that is shown in the southwest part of Section 21 which is north of the granite lip.

Q How far down did you go on that?

A I have a point of zero decline. There is an observation well that has zero decline for the period I have. Now, I don't have that observation well number right at my fingertips. I would describe the well as generally lying within the southeast quarter of the southwest quarter of Section 21 and on the Exhibit it is shown with a zero and I don't know how else to describe it. I could mark it with a pencil or something.

Q Well, for my purposes, I see it on the copy of the exhibit Mr. Price gave me.

So, that is the limit of the 10.6 specific yield figure that you testified to?

A That is correct.

Q Now, in arriving at specific yield, did you

calculate the amount of water loss from the aquifer during that period?

A Loss in what manner?

Q Well, in any manner.

A I calculated the volume of groundwater pumped from the aquifer by Mr. Walton and the three Indian irrigation wells. There is some other minor pumping for domestic purposes but I consider that to be infinitesimally small compared to the pumping for irrigation.

Q How much was that pumpage?

A Could I refer to my notes?

Q Sure.

A I have it in cubic feet which would be 31,000 -- 31,071,023 cubic feet, and my tabulations are not totaled by well, and I also have the Walton irrigation pond which I did not include in my calculations. That was a diversion from within the system itself.

Q You have thrown me off. I have been dealing with acre-feet. Is that readily calculated?

A If I can use my calculator, I will try to convert it.

I have entered that number and I will divide it by 43,560, which is the number of square feet in an

acre. It comes out 713.29, essentially, acre-feet.

Q Of pumpage?

A That is correct, for that period.

Q Now, that is part of the water that leaves the aquifer which you have to know that to get to a specific yield; don't you?

A That is correct.

Q There are also other methods at which water left that aquifer; are there not?

A Yes, there are.

Q There is evapotranspiration.

A That is correct.

Q Did you calculate that?

A No, I did not.

Q How about the spring flow. That is another area where the water leaves the aquifer; is it not?

A I considered the spring flow to be an in and out situation. In other words, the spring flow was discharged from the groundwater and part of that spring flow would return to the groundwater and that water that did not return would be lost to evapotranspiration and would be a constant factor as would other evapotranspiration, so I eliminated those two facets.

Q So, essentially, you relied on the pumpage figure

which you gave us, then, as far as the outflow from the aquifer is concerned.

A That, in my opinion, is the principal stress on the aquifer.

Q And, now, in arriving at a determination of specific yield, you also have to determine what the inflow is because you are trying to arrive at a net amount of water; isn't that correct?

A No, that is not correct in the case of No Name Creek aquifer.

Q Why not?

A There has been other testimony by the Tribe and by the United States that the inflow to the aquifer comes from precipitation, irrigation return flow, and percolation of water from Omak Creek, and none of this testimony, nor is there any evidence that I'm aware of, nor in my opinion from my various field trips, is there any direct hydraulic connection from any recharge source to the aquifer of No Name Creek, consequently the recharge could be viewed as a constant throughout the year and so therefore, you can drop that from your calculations.

Q So, viewing it in that way as apparently you did, then you made no calculations as to the amount of infiltration from Omak Creek.

A That is correct.

Q You made no calculations as to the amount of recharge from precipitation?

A Not separate from the inflow of Omak Creek, no.

Q And you made no calculation as far as the recharge from return flow from irrigation water.

A Not as separate from the other two, no, I have not.

Q But, nevertheless, you arrived at a determination of 10.6 specific yield throughout the aquifer.

A That is correct.

Q Now, in using that, you arrived at the 440 acre-feet recharge.

A That is correct.

Q And that was from August 20 of 1977 to January 5, 1978.

A As I recall the dates, that is correct.

Q And that was about four and a half months.

A Approximately, yes.

Q And then to arrive at an annual recharge, you multiplied by three.

A That is correct.

Q And came up with the twelve to thirteen hundred?

A That is correct.

Q Now, as a matter of fact, you take four and a half months, -- this is a minor point -- but you take

four and a half months, multiply it by -- over a year's time you come up with about 1150 acre-feet; do you not?

A That may be more precise than counting on days, but the accuracy of the numbers, I would rather look at it in terms of four months and multiply by three. There is a lot of -- the numbers aren't that accurate.

Q So, but in your estimate, isn't it true, then, you went a little bit beyond what mathematically would be calculated on the basis that you use?

A Treating each number as a finite entity, that is correct, that is a true statement.

Q Now, what if you had used a specific yield of 9.6?

A Then the volume of inflow would have been lower.

Q As a matter of fact, that would be reflected, based on your method of calculations, at about 398 acre-feet during that four and a half month period.

A I haven't calculated it out, but it should decrease to something like that.

Q And if you go to 8.6 specific yield, it would be down to about 356 acre-feet.

A I haven't made the calculation, but it is going in the right direction.

Q So, it is significant, then, the figure that you pick for specific yield.

A Very significant.

Q Because it has a very fundamental effect on the amount of water you are going to arrive at as being available.

A That is true.

Q Now, did you calculate the water -- let's see. Strike that.

You calculated the recharge from August 20 to January 5, -- August 20, 1977 to January 5, 1978, and that was the 440 acre-feet.

A That is correct.

Q Did you calculate the amount of water from the start of pumping in the spring or the amount of water that came in during the spring up to August 20?

A I don't understand your question.

Q Did you make any calculation of the amount of waters that were recharging that aquifer from, say, March 20 of 1977 until August 20, 1977?

A No. Again, as I testified earlier, I assume that water that came in in that period of time was a constant as compared with what came in during the period of time August 20 through January 5 of '78.

Q So, you just, well, -- okay.

Now, on your water duty, you testified, I believe, to a water duty of approximately how many acre-feet?

A I don't recall specifically my testimony, but the water duty I used was two-thirds of the volume of water duty shown on Table 2 which is a five year frequency table of the publication by Washington State University.

Q How much does that come out in acre-feet per year?

A Without looking at the table, if we were -- I'm going by memory -- 39 inches, if I recall, is the water duty for alfalfa -- and it would be two-thirds times 39 inches, if I can calculate this --

Q Sure.

A I can give you a number, remembering that my 39 inches is from my memory and this is alfalfa water duty.

It would be 5.97, we will say 26 inches of water duty, of water. We will divide that by 12. That would be 2.16 acre-feet and that is slightly low, so take 2.16 acre-feet divide that by a delivery efficiency at 70 percent and that comes out at 3.085 would be the water duty accounting for a delivery efficiency to the system.

Q Of 70 percent?
A Of 70 percent.
Q Now, Dr. Maddox, you were a referee in a water adjudication involving the water of Bonaparte Lake and Bonaparte Creek.
A That is correct.
Q And that was an action brought by the State of Washington?
A That is correct.
Q To adjudicate the water use?
A That is right.
Q And you filed a report to the Superior Court of Okanogan County?
A That is correct.
Q I would like to read to you something.

MR. PRICE: Your Honor, excuse me.

Mr. Sweeney, I'm going to object to interjection of a previous proceeding in this proceeding.

THE COURT: Well, I assume this is --

MR. SWEENEY: This is sort of an impeachment situation.

THE COURT: Inconsistent prior statement, I'm assuming is what we are about to hear.

You may continue.

Q (By Mr. Sweeney) Well, Dr. Maddox, you did file a

report with the Okanogan Court on that proceeding?

A That is correct.

Q After taking testimony.

A That is correct.

Q For several weeks, as I recall.

A That is correct.

Q Now, I'm going to read something and I will show it to you after I read it, from the report, page 9.

"Expert testimony established that these crops, alfalfa, pasture and orchard, required 35 inches, 33 inches, and 28 inches of water respectively. The referee assumes an irrigation efficiency of 70 percent and calculates the volume of water required for these crops to be 4.04 acre-feet per acre per year for alfalfa, 3.81 acre-feet per acre per year for pasture, and 3.23 acre-feet per acre per year for orchard.

"Experience in past surface water adjudications indicates that the application of an irrigation efficiency factor such as this to

the water duty allocates more water than the typical irrigator needs for the particular crop. Consequently, the referee will use a water duty of 4.0 acre-feet per acre per year for all irrigation confirmation which duty is the approximate average for irrigating alfalfa and meadow grass, the predominating crops in this area."

Do you recall that language?

A Yes, I do.

Q Now, Bonaparte Creek is on what is sometimes called the north half of the Colville Reservation; is it not?

A That is correct.

Q And it's the part that was returned to the public domain early in this century?

A That is correct.

MR. SWEENEY: I have no further questions.

THE COURT: Mr. Veeder?

CROSS-EXAMINATION

BY MR. VEEDER:

Q Now, Dr. Maddox, I observe that you have relied heavily upon what we call Colville Well No. 1 and

I think you allude to it as the center well; isn't that correct?

A The middle Indian well, yes.

Q The middle?

A Yes.

Q And are you familiar with the depth of that well?

A Not right now. I could look up the log which I think I have with the U.S.G.S. reports, but not recall type of familiarity.

Q And it appears that on what we allude to as NN-W, the Walton exhibit, that well is in the center of one of your circles there; isn't that right, on Section 16?

A That is correct.

Q Now, did you know that there was a serious error in the depth of the well as reflected by the U.S.G.S. reports?

A I was not aware of such.

Q And would it make any difference to you if the measurements from that well as shown on Colville's Exhibit No. 33-10 disclose that the measurements taken on August 20, the date that you relied upon, in 1976, were seven feet below the depth of that well? Were you aware of that?

A I was aware that there was difficulty about the

setting of the pump bowls.

Q Would you answer the question. Were you aware that there was an error of that magnitude?

A No, I was not aware of that.

Q And would that make any difference in the form of the exhibit that you had, NN-W, if you were aware of that?

A No, it would not.

Q It wouldn't make any difference?

A No.

Q And the contours would be materially different if you had information that was correct; would it not?

A Yes.

Q In other words, the exhibit would look differently; would it not?

A If I had correct information, yes.

MR. PRICE: Your Honor. Excuse me Mr. Veeder.

Mr. Veeder has raised an issue about the level of the well. I don't believe there is any testimony as to who is correct or who is in error in terms of where the well was set or the depth of the well and I think he is misstating -- stating the situation as fact when that position is in issue, Your Honor.

THE COURT: Well, I think he is asking,

assuming that this is the situation.

MR. VEEDER: That is how I prefaced it, Your Honor.

THE COURT: You may continue.

Q (By Mr. Veeder) Would it not make a difference in the contours or whatever these are that you have depicted on NN-W? That would make a difference; would it not?

A Yes.

Q Assuming that is correct.

A If the survey data were incorrect and other data were correct, it could make a difference, yes.

Q And during the recess would it be possible for you to dig out 33-10 and also compare the data from the U.S.G.S. report which if memory -- well, I want you to look at that, would you, during the recess?

A Yes.

Q And so there would be a difference in the format of NN-W if that is shown, you said that; isn't correct?

A That is correct.

What is 33-10.

Q 33-10 is a hydrograph.

A Oh, yes.

Q And we will get it for you and we will also get for

you the U.S.G.S. report which does indicate the error.

MR. VEEDER: Now, I would like to have marked as Colville's Exhibit -- I believe it would be 39, the next exhibit, and it would be on the base of KKK-W.

THE COURT: What is the proposed relationship between KKK-W and 39?

MR. VEEDER: I was going to offer, we have a copy of Dr. Maddox's KKK up there and I just thought we would offer it as an exhibit. I believe that is the next one; is it not, Mrs. Davis?

THE CLERK OF THE COURT: Yes, it is.

THE COURT: The reason for my question, Counsel, is -- let me check KKK here. All right. That has not been yet admitted.

MR. VEEDER: Oh, I thought it had.

THE COURT: Wait a minute. I'm on KK. I better get down to it. That has been admitted. My question is, if it's the same exhibit, why admit it again or is there some difference?

MR. VEEDER: Well, I think there are a great many errors on it, and I didn't think Mr. Price would want me to mark up his precious KKK.

THE COURT: All right, proceed.

MR. VEEDER: Okay.

Q Now, you have stated into the record at page 40 of the transcript that in your opinion the Peters observation well was plugged; isn't that what you said?

A That is correct.

Q Did you investigate whether it was plugged or not?

A No, I did not.

Q And you just surmised it, then, is that correct?

A Based on the data available.

Q You just surmised it.

A Yes.

Q Now, I ask you to step to what we have identified as Colville's Exhibit No. 39 which is your KKK and ask you to check the observation well, and you will observe that it is marked with a mark 1152. Now, did you check that with the United States Geological Survey or not?

A I did not check that specific number. It was a calculation from their data.

Q A calculation?

A Yes.

Q Well, how did you calculate that?

A You substract their depth of groundwater from the elevation of land surface.

Q So, you did not rely on that, then.
A Yes, I did.
Q You did or did not rely upon U.S.G.S. for that?
A I relied upon U.S.G.S. data for depth of groundwater and elevation of land surface and I made a calculation to obtain that number, using their data.
Q Well, how did you calculate it, then. What was the modus operendi?
A I subtracted the depth of groundwater from the elevation of land surface.
Q And didn't you find that the depth was 11 -- was not 1152?
A 1152 appears on my map. That is the number I calculated.
Q Well, what did you use to make the calculation? I didn't hear quite.
A Elevation of land surface and the depth of the groundwater.
Q And did you measure that yourself?
A No, from U.S.G.S.
Q And are you saying then that there was not a different figure in U.S.G.S.?
A To my knowledge, U.S.G.S. has not calculated that figure.

Q And it doesn't show in the report at page 72, the depth?

A It shows the groundwater.

Q Would you look at that. Do you have it?

A Yes.

THE COURT: Counsel, while he is looking at that, I'm not sure which well he's identified by the number 1152 on his --

MR. VEEDER: That is the Peters observation well.

THE COURT: Thank you.

A I have page 72. The data is March 20, 1977. I have a value for March 22 -- that is '76, pardon me.

Q For what?

A I looked in 1976, I'm looking for 1977.

We have a value for March 29, 1977 and they show on this page 72 of the U.S.G.S. report a depth of the water from land surface of 20.40, and they have calculated a water level elevation of 1145.88, approximately 1146.

Q So, there is a difference.

A There is a difference from their report and from the data that I was supplied to make this computation.

Q And what was that data?
A It was the field notes of the geological survey that was supplied to all parties to the litigation.
Q Do you have those with you?
A Not with me, no.
Q Well, could you get those during recess?
A I would have to go back to my office and it would take longer than 15 minutes.

MR. VEEDER: Well, this becomes important, Your Honor. He has made extremely important calculations as to the quantities of water, specific yield, and throughout, and I think that this is sufficiently important to see if he could get it at noon, and I would be glad to wait and proceed on this particular point.

THE COURT: Mr. Maddox, I don't know where your office is. How long would it take you to get this information?

THE WITNESS: I may have the information with me, Your Honor. Let me check and see.

This is the Peters domestic or the Peters observation?

MR. VEEDER: Peters observation well.

THE WITNESS: I have the values with me.

Q (By Mr. Veeder) And what do you mean by values, Dr.

Maddox?

A They are the data sheets supplied to all parties by the Geological Survey -- I will remove this from my book -- that show the date of the measurement, the hole cut, the depth below MP, the time, and that was all that was supplied. From that we have a water level elevation -- elevation of land surface that was also supplied by the Geological Survey, and for the Peters observation well, they indicate the elevation, the measurement point is 1167.876, and height of the MP above land surface is 1.60 and the elevation of land surface is 1166.28.

So, consequently, all of the distances below MP should be corrected to elevations, from the elevation of the MP. With this correction, and there is no discreet measurement on March 20, the closest is March 29, 1977. It shows an elevation of 1145.88.

Q So there is a disparity between your map and those figures; is there not?

A That is, well, again, the map shows the Peters observation well and the Peters domestic well, and I might have to refer to another tabulation of data that was put together for the construction of the map, and these are working data.

The data show, and these are indicated, I have to go to another map to find these, which are based on U.S.G.S. locations.

THE COURT: Counsel, maybe if we took the morning recess at this time, he could assemble some material.

MR. VEEDER: It would probably save some time.

THE COURT: Court will be in recess for 15 minutes.

THE BAILIFF: All rise. This Court stands at recess for 15 minutes.

(Morning recess is taken.)

THE COURT: You may continue.

CROSS-EXAMINATION CONTINUED

BY MR. VEEDER:

Q Did you have an opportunity to examine Colville Exhibit 33-11?

MR. VEEDER: I observed that I have been using 33-10, Your Honor. That is 33-11.

THE COURT: Thank you.

A Yes, I examined that exhibit.

Q And did you have an opportunity to look at Figure 18 of the U.S.G.S. report?

A Yes, I did.

Q And did you observe that Figure 18 of U.S. Exhibit No. 1, that on the date of August 16, 1977, there is shown a question mark?

A That is correct.

Q And did you check out the depth to water and at the same time check out the depth to where the well was situated -- the pump was situated?

A As shown on Tribes' Exhibit 33-11, yes.

Q Did you check that out in regard also to page 70 of the U.S.G.S. reports?

A Yes, I did.

Q And it does appear that it was pumping, the well

was pumping on the dates to which you have referred.

A That is a correct statement.

Q So, as a matter of fact, the U.S.G.S. report was in error by showing, was it not, that the bottom of the pump was as shown in the U.S.G.S. report.

MR. PRICE: Object to the form of the question, Your Honor.

MR. VEEDER: I will revise it.

THE COURT: Very good.

Q (By Mr. Veeder) Is it not true, based upon your checking on these matters, that in actuality the measurement of the U.S.G.S. was six feet below where the pump could have been drawing water?

MR. PRICE: Your Honor, I have the same objection, that he can answer as to whether or not there appears to be a disparity between --

MR. VEEDER: Well, let him answer if there was a disparity, it suits me, Your Honor.

THE COURT: Just a moment. Let him finish his objection.

MR. PRICE: He can answer as to whether or not he notes a disparity between Colville Exhibit and U.S.G.S., what the records reflect, Your Honor, and beyond that as to which one is accurate, I don't believe he has knowledge to testify to that, Your

Honor.

MR. VEEDER: I'm going to revise the whole question then because I want counsel to be correct in this matter too.

Q I'm alluding to the U.S.G.S. figure 18, and you looked at that; did you?

A Yes.

Q And that has marked on there for August 6, 1977, a question mark; does it not?

A That is correct.

Q And what does that question mark reflect to you, Mr. Maddox?

A That there was some question over the accuracy of the reading.

Q Yes, and now we refer to the levels of the water as disclosed by the U.S.G.S. report on page 70; isn't that correct?

A I would have to check my copy in the book.

Q Well, would you do that.

A That is correct, page 70.

Q So, as a matter of fact, assuming that you are looking at the correct page, there appears to have been an error in the U.S.G.S. measurement on that date.

MR. PRICE: Object to the form of the

question, Your Honor. He can testify as to whether or not he notices a disparity. As to who is in error, the Tribe or the U.S. Government --

MR. VEEDER: I repeat, Your Honor, I am not mentioning the Tribe.

THE COURT: Counsel, he didn't ask it in that form. He asked if it wasn't apparent that there was a discrepancy.

MR. PRICE: The last wording of the question, as I understood it, was, wasn't the U.S.G.S. figure in error.

THE COURT: No, I don't think that's his question.

MR. PRICE: If that is not his question, then I will not object.

THE WITNESS: Would you repeat the question. I have forgotten what it was.

Q (By Mr. Veeder) I will start over because I do not want any confusion as to what exhibit we are looking at. We are looking at the U.S.G.S. exhibit now. We are not looking at the Tribes' exhibit. We are looking at the measurement of August 16, 1977, as it appears on Figure 18.

A Correct.

Q And that shows a question mark. We review this

whole thing again.

A That is correct. It shows such a question mark.

Q And what does the question mark mean to you, then, Mr. Maddox?

A There is some uncertainty as to the accuracy of the reading.

Q Yes.

Now, in regard to your calculations as to specific yield and as to your 440 acre feet, the whole bit of your testimony, would that not have an effect, if there was a difference demonstrated in regard to the depth of water and to the well and the reliability of the data upon which you predicated your opinion?

A That is correct.

Q So there could be quite a variance there.

A That is correct.

Q Now, will you state, then, into the record whether, based upon your examination of this data, there is a disparity between the actual depth of water upon which you relied and the figures as set forth in the U.S.G.S. report. Is there not a disparity?

A I relied upon data set forth in the U.S.G.S. report for the well in question at the end of August that we are referring to.

Q Well, answer the question. Isn't there a disparity?

MR. PRICE: He just did answer the question.

THE COURT: No, he didn't. He didn't answer the question.

MR. PRICE: Your Honor, the question was, would there be a disparity if he relied on the U.S.G.S. figure. He relied on it --

THE COURT: He can answer yes or no.

MR. PRICE: He relied on the U.S.G.S. figure.

MR. VEEDER: Your Honor, I think this continuous interference --

THE COURT: He may answer the question yes or no.

THE WITNESS: Your Honor, I would have to qualify my answer.

THE COURT: You may qualify it if you feel it is necessary.

A I relied upon the U.S.G.S. data as it appears in the figure shown there and in their report.

Q And what figure was that now? 18?

A Yes, 18.

And if these data are in disparity with the true measurements as allegated by the Tribe and shown on Tribal Exhibit 33-11 --

Q We are not using -- we are talking strictly about the U.S.G.S. report now, Mr. Maddox. I have not brought in this latter in this series of questions I am asking you now.

A Well, there is no disparity between my data and the U.S.G.S. data for that date. I relied upon their data. If their data are wrong, my data are wrong.

Q In other words, if they are wrong, you are wrong; right?

A That is correct.

Q Thank you.

Now, let us go back to your figure in regard to the Peters well that you have set forth on your KKK which is the Colville Exhibit No. 39, and let's again take a look at that 1152 and check back on page 72 of the U.S.G.S. report and see whether on page 72 if you find the elevation 1152 anyplace on that page.

A It does not appear on that page.

Q It does not appear anyplace?

A On that page.

Q Now, is there -- and you said you relied upon the U.S.G.S. report for this data; did you not?

A That is correct.

Q So, as a matter of fact, there is a sharp variance

between page 72 upon which you relied and upon your KKK; isn't that right?

A That is correct.

Q Now --

A With regard to Peters observation well.

Q Well, that is what we're talking about. So in regard to Peters observation well, you have relied upon the U.S.G.S. report, Mr. Maddox, there is an error on your map KKK-W; is that not right?

A In regard to the Peters observation well, that is correct.

Q Now, would that error not have a significant difference in your calculated specific yield of 10.6?

A No.

Q Why not?

A I didn't use that value in calculating.

Q You didn't even take that into consideration?

A I did not.

Q Now, in regard to your statement, though, that the Peters observation well was plugged, that would have a difference, wouldn't it?

A For that particular time and day, yes, it would.

Q In other words, where you made that statement in the record that I read to you from page 40 of the

transcript, it would not be a plugged well, un-
quote, as of the period to which we referred; is
that right?

A No. The well is plugged. It's always plugged.

Q How do you know that is plugged?

A You look at all of the data and it doesn't reflect the changes in the aquifer. That one day is just one point in the data.

Q Now, having admitted that there was an error on 11 -- of 11 -- or seven feet on KK-W, how many observations did you personally make in regard to the Peters observation well? How many times did you drop the plumb line down there and measure it yourself?

A None.

Q How many times did you investigate that well yourself?

A None.

Q Now, is it not true that basically and fundamentally you are taking data and arriving at what could best be described as, well, on the basis of your background and all, an educated guess as to whether that is a plugged well.

A In regard to the Peters observation well, that is correct.

Q It is an educated guess.

A That is correct.

MR. VEEDER: I move to strike his testimony, Your Honor. We cannot possibly rely upon educated guesses here.

THE COURT: Motion will be denied. He is testifying as an expert.

Q (By Mr. Veeder) Now, you have stated, Mr. Maddox, that you have observed Colville's Exhibit No. 7 which is --

THE COURT: Counsel, let's do one thing at a time. What have you got this man over here to do?

MR. VEEDER: I asked him to lift this thing up so we can look at Exhibit No. 7.

Q -- and you stated that you agree with the general outline there of the northern extremities of the aquifer; is that not right?

A That is correct.

Q And you also stated, at least in your exhibit, KKK and what we have marked as Exhibit 39, that you have calculated the entire area of both the aquiclude and -- both the aquifer and the aquiclude in making your calculations; is that not right, as to specific yield?

A Within those areas that are included as shown on the various exhibits which numbers I have forgotten which show the isopach maps which did not include all of the red area that you refer to as the aquiclude. In other words, there is a zero line at the south end.

Q Where is that zero line, please.

A Could I refer to one of the other exhibits?

Q You certainly may.

A The zero line I'm referring to on the isopach of water level decline March 20 through August 20, 1977 lies approximately in the southeast quarter of southwest quarter of Section 21, Township and Range I don't recall right now, but it's in the center of Mr. Walton's property. The granite lip or the end of the red area is further south, approximately in the southeast quarter of Section 28, so my zero, the area that I would have to refer to would be bounded by my data which is marked by the zero line on the south that I have just described. On the north it would be marked by a minus one contour which indicates one foot of decline for the purpose of the map. I used that as a zero decline and lies to the north of the marking for gravel pit and is generally within

the northeast quarter, northeast quarter, Section 8.

Q Now, is it not true, alluding again to --

MR. VEEDER: May I approach the exhibit here, Your Honor.

THE COURT: You may.

Q (By Mr. Veeder) Is it not true that utilizing the Tribes' Exhibit No. 7 and locating the areas upon which you relied and the cross-section to which you ran apparently from granite to granite, you relied upon a well outside of the aquifer; did you not?

A Yes, to the extent that it lies beyond what I consider to be a groundwater divide.

Q Would you say that again.

A Yes. I relied upon a well which you describe as being outside the aquifer and I agreed with that statement in that the well lies northwesterly of what I consider to be a groundwater divide, so upon that basis it would lie outside the principal aquifer of the No Name Creek drainage basin.

Q And would it not also be a well that is in very "tight" material, a well that -- it would not be in water producing area; isn't that right?

A I agree that it would be in tight material relative to the No Name Creek aquifer, but water producing is too broad a term. I could neither agree nor

disagree with that.

Q You don't know whether if you drill a well there that it would be productive or not; do you?

A That is correct.

Q You don't know.

A I do not know.

Q So, as a matter of fact, when you were coming up with your 10.6, you were using water -- you were using a well outside of the No Name Creek aquifer. How --

A I was --

Q You didn't?

A I was using a well on the northside of what is normally the groundwater divide --

Q Now, as a matter of fact, though, the specific yield of 10.6, in your opinion, certainly would not be applicable to that well; would it? The one that I'm alluding --

A Generally not. It would be right at the boundary that I have drawn and it would be a question, if it is applicable, it would be marginally so.

Q It would be marginally so.

A It would be right at the boundary.

Q And it might make a difference actually as to the 10.6; is that right?

A That is correct, if it were outside.

Q But you do not know, yourself?

A I -- I know that it is at the boundary I considered for the area of decline.

Q Now, as we move on down a little further, we also find, using your lines on Colville's Exhibit 36 [sic] or KKK, that you relied upon another well that I have had designated for you as outside the groundwater aquifer; isn't that correct?

A That is not correct.

Q Would you step up there and take a look, please, and state where you observe this location.

A The location would be generally on the southwest quarter of the northwest quarter of the southwest quarter of Section 9. The well in question, as I understand it, would be the old mission well.

Q And are you saying that that is inside of the aquifer or outside?

A I say it is within the boundaries of the aquifer.

Q And is it inside the boundaries of the aquifer as shown on 7 here?

A Yes, it would be at the boundary but inside, in my opinion.

Q You say it would be inside?

A Yes.

Q Now, as a matter of fact, if we were to take into consideration the 10.6 that you have relied upon there, would it not be important to consider actually the inflow of water into the groundwater aquifer while you are calculating the 10.6; wouldn't that be important?

A If it were other than a constant, it would be important, yes.

Q Now, when you say a constant, Mr. Maddox, are you stating to this Court and into the record that the flow of -- I mean the precipitation month-in and month-out is a constant?

A No.

Q Then how do you get a constant then from precipitation?

A We are speaking of precipitation as the groundwater aquifer would receive precipitation.

Q Just a moment. What do you mean by that?

A That the groundwater aquifer recognizes precipitation in the form of recharge to the aquifer, replenishment of the aquifer. So, looking at precipitation on those terms, precipitation falls on land surface, part is lost by direct evaporation, part by evapotranspiration from soil moisture, part runs off and part goes down into deep percolation. The aquifer cares about nothing of the other parts

other than that that goes into the deep percolation. Now, the deep percolation is guided not by the rules of hydraulics, but rather by non-saturated flow which is a phenomenon of moisture moving as a vapor front.

Q As a what?

A Vapor front.

Q A vapor front?

A A drop of water does not migrate through non-saturated soil, but through moisture vapor and then behind it follow droplets of water. The groundwater aquifer sees this vapor front as it reaches the zone of saturation where again we can apply the rules of hydraulics.

My reasoning is to say that despite daily, weekly, monthly and annual fluctuations in precipitation, as long as there is the basic precipitation for the watershed which is a long term mean, the amount of recharge to the aquifer would be constant or near constant.

Q Now, are you saying that during the month of July -- or the month of August, that if it didn't rain at all and fall on the surface of this area, that you would have a constant recharge during the month of August?

A If the month before and the month before that rain had been at some normal. In other words, taking the month of August, it would have no influence one way or the other, but if you take a month for about a three or four year period of time, the entire time span and average the precipitation, that controls the recharge to the aquifer, not one month's precipitation.

Q Suppose you had a period such as we had during the '30's and early '40's?

A Then, the amount of recharge to the aquifer would decrease as a result of these long term periods of low precipitation.

Q So, then it wouldn't be a constant; would it?

A Not in terms of the span of years that would include these years that were of low precipitation.

Q But doesn't sense and sensibility when we are talking about a Colville irrigation project, require that you take into consideration the "non-constant" periods that you just alluded to?

A Very definitely.

Q So, as a matter of fact, when you say that there is constant, you do not really mean a constant for a long time period; do you?

A No. It would be limited by the field of data you

have to work with.

Q So, as a matter of fact, you would like to shift your position just a little bit about this constant contribution from precipitation; wouldn't you?

A No, not at all.

Q Well, how, then, can you reconcile what you said when we say, well, there was a period of -- you are too young to remember, perhaps, but I remember it very well that there was about ten years of very bad, very short precipitation in this area and throughout the rest of the western United States; isn't that right?

THE COURT: Just a moment.

MR. PRICE: I don't believe that was a question. It started --

MR. VEEDER: I will start again.

THE COURT: Objection sustained.

Q (By Mr. Veeder) Isn't it true that based upon the records --

A That is correct.

Q -- that are in this evidence --

A That is correct.

Q -- there were periods of very short supply.

A Of precipitation; that is correct.

Q And that would change the constant concept that

you alluded to?

A On the long-term basis, it would.

Q Yes. Now, isn't it also true that from the standpoint of precipitation, year-in and year-out, and month-in and month-out, that these are sharply variable, the precipitation is sharply fluctuating and changing; isn't that true?

A Not as the groundwater aquifer sees it, no.

Q As the groundwater aquifer does what?

A Sees the precipitation.

Q As it sees the precipitation.

A That is correct.

Q Now, I will go back once more. You have a short period in June. You have a short period in July. You have no rain whatever in August. You have a short period in September, of precipitation. Are you saying during those four months there would be a constant deposition of water into the aquifer?

A That is correct.

MR. PRICE: Excuse me, Mr. Veeder. As to the last question, Your Honor. I'm assuming that was in the form of a hypothetical.

THE COURT: I assume so.

MR. VEEDER: By all means. I want this all hypothetical because this is where we are, Mr.

Price.

Q Now, are you saying that there was no -- there was constant in the period of 1976 during a very short period of precipitation?

A There was constant recharge to the aquifer, yes, my assumption is that there was.

Q And it didn't make any difference that there was no rainfall at all for a long period of time?

A In terms of 1976, no, it did not.

Q And how could that be?

A Again, as I explained earlier, from the precipitation, the aquifer doesn't care about anything except that precipitation that is percolating down through non-saturated media to the aquifer and sometimes, and there are no data available for the No Name Creek aquifer, but there have been extensive studies carried out on this. Sometimes it may require years for any particular drop of precipitation to move as both a droplet and as a vapor front to the point where it joins the saturated media that forms the aquifer. The period of time, of course, varies. There are no data to indicate what that period of time is for the No Name Creek aquifer.

Q So, as a matter of fact, you don't know how long it takes water to get into the aquifer after precipitation;

do you?

A That is correct.

Q So, as a matter of fact, you don't know whether it is a constant or not, if it rains today, how long it is going to take for that water to get in there; do you?

A Yes, I know it's a constant.

Q How long will it take?

A I would say it would take a minimum of five years.

Q And how do you figure that?

A Just by the thickness of non-saturated medium and the type of soil that were penetrated by drills in the general area and going to general tables that are available.

Q And what is the depth of that; do you know?

A It varies throughout the aquifer everywhere from 10 feet, we will say, to 35 or 40 feet.

Q And you are saying that at 10 foot depth, it would take five years for it to enter the aquifer?

A No, I'm talking of an average number. The average would be five years. It would be more in a 10 foot depth and less in the thicker.

Q And what is the average depth of the aquifer?

A Depth of the aquifer --

Q From south -- from fluctuating groundwater table to

the land surface?

A I would have to give a general number and say somewhere about 30 to 35 feet.

Q But you don't know; do you?

A I have never calculated it, no.

Q That's right. So this is, once more, an educated guess; right?

A That is opinion, that is correct.

MR. VEEDER: Then I move to strike it, again, Your Honor.

THE COURT: Denied.

MR. VEEDER: Because I don't think we should have educated guesses.

Q Now, Mr. Maddox, on page 46 of your testimony, I observe that you have stated into the record that you have calculated from August 20 through -- that is 1977 -- through January 5, 1978, that you estimated a 440.98 acre-feet would be the quantity of water, if I perceive what you are saying, that would be the volume, that would be the quantity that would enter the aquifer; is that right?

A As I recall my testimony, that is what I said.

Q Now, in the light of the variations that you had, Mr. Maddox, and the fact that there were errors on some of these locations as to depth of wells and

so forth, do you still adhere to the concept that there was 440.98 acre-feet?

A I would have to qualify my answer.

Q And to the extent of the qualification, would you state that into the record.

THE COURT: Just a moment.

MR. PRICE: Your Honor, I ask that the question be more specific. Counsel has alluded to errors in general and I do not know --

MR. VEEDER: I will be specific.

THE COURT: I don't think he needs to repeat all of the testimony. I think we all understand. He can answer the question.

Q (By Mr. Veeder) Would you proceed.

A The conditions of my answer would be that the Peters observation well was not included in my computations of the amount of recharge, therefore, that would have no bearing either plus or minus. There is a discrepancy between the Geological Survey data which I used and the Tribes' data as to the depth to groundwater on the middle Indian well and that would affect my computations and, consequently, the number 440 acre-feet or actually it would come from the 10.6 percent value for specific yield. That would increase and consequently that would increase the

amount of recharge from 440 acre-feet to something larger.

Q But you don't know what it would be.

A I would have to recomputate it, using the Tribes' data for the middle Indian well.

Q And now, in regard to the 440 acre-feet, would you state into the record why you do not take into consideration an actual drainage from the aquifer during that period.

A I don't understand what you mean by natural drainage.

Q Well, do you know that water runs out of the aquifer and runs downhill?

A Yes.

Q And the natural flow out of there is a continuous thing; is it not, a natural flow out of the aquifer is, under normal circumstances, anything we have in the record would show that the water runs out of that aquifer.

A I agree.

Q During the month of January.

A I agree that the water runs out of the aquifer during the month of January and the data so reflects, but it is not a constant.

Q Are you saying it's an intermittent stream running out of there?

A The flow fluctuates day by day and hour by hour and the measurements so indicate.

Q But it is a drainage out of the aquifer; isn't it?

A It is a discharge from the aquifer.

Q And it is not a constant.

A It is not a constant; that is correct.

Q So, but it is reducing the quantity of water in the aquifer; is that not right?

A It reduces in one area and adds to another.

Q Well, how does it add to another, where?

A As it discharges from the spring zone on Mr. Walton's property, we have a reduction in the water or a control to the water level to the north of that. To the south it is recharging.

Q Recharging what, Mr. -- ?

A The aquifer that lies on Mr. Walton's land. There is a stream flow loss as the stream discharge crosses Mr. Walton's land and the survey data so indicated as does the Tribes' data.

Q That there is a loss into the aquifer?

A That there is a loss of stream flow and it is my presumption that the loss is into the aquifer.

Q But you don't know that; do you?

A I have -- it's my opinion that it is.

Q And what is the basis of your opinion. It's flowing

over an aquiclude; is it not?

A It is not an aquiclude. That is part of my opinion. The second part is that the loss occurs without phreatophyte losses, that is, during cooler weather when the trees and grasses are not in bloom.

Q During that period there would be no -- certainly during the months after the frost comes there would be no evapotranspiration losses; would there?

A They would be de minimus. They would be there, but very small.

Q That's right, so what you are saying there would be losses into the aquifer, then?

A That is correct.

Q And how -- have you calculated the extent of those losses?

A It is -- it can be calculated but I have not made such a calculation.

Q But you didn't do that; did you?

A Not for this trial, no.

Q And was there any place where you could recover that water from the aquiclude if there are losses into it?

A Yes, it is recoverable.

Q And how would that be done?

A Part of it recovers through Mr. Walton's pond. There

is a groundwater discharge to the pond. Part of it is recovered by -- if you can term it recovered -- reappears at land's surface down on the north side of the granite lip on Mr. Walton's property.

Q But, as a matter of fact, that is down below any place where he can use it; is that not right?

MR. PRICE: That is calling for a conclusion, I think, that this witness doesn't know about.

THE COURT: Well, he can so testify, if he can.

A It could be pumped back up and put on Mr. Walton's land.

Q But there is no facility to do that now; is there?

A None that I know of.

Q So, as a matter of fact, when we are looking at the flow running out of this aquifer, you have not basically taken that into consideration in regard to your 440; isn't that right?

A Yes, I have.

Q Then how much did you attribute to that?

A Nothing. I said it was a constant.

Q It was what?

A A constant.

Q It was a constant loss from the 440?

A It was either a constant loss or a constant gain. I

just negated it from the calculations.

Q I hope somebody else is following you; I'm not.

THE COURT: Counsel, just ask the question.

MR. VEEDER: Excuse me. I shouldn't have said that, Your Honor.

Q Now, in regard to the 440 acre-feet that you are alluding to, you didn't take into consideration any inflow; is that right?

A I considered inflow to be a constant.

Q Therefore, you didn't consider it?

A That is correct.

Q And we have been through this precipitation bit; haven't we, so we don't have to go into that again.

A That is correct.

Q Now, I'm going to ask you to step to what I call your KKK here and request that you state into the record the contours upon which you relied in making your determinations. I see you have got 1075, 1080, 1085 and 1090; correct?

A Correct.

Q And where did you get those?

A Those are data calculated from the U.S.G.S. water level measurements made available to me.

Q And aren't those contours also -- aren't there contours shown on here that are 40 foot contours

taken, I presume, from the U.S.G.S. quad; is that right?

A That is correct, those are land surface contours.

Q And they are extremely important; are they not, from the standpoint of making the calculations.

A No, they are not.

Q Well, we will see.

Now, we will start here and we find that the land surface contour is 1080 at the point where the red arrow indicates a bright red mark that we have marked on there; isn't that right?

MR. MACK: Your Honor, if I might interrupt. As long as we weren't referring to any new marks, I didn't have any objection to referring to that as KKK, but I think what Counsel is really referring to is Colville's Exhibit 39.

MR. VEEDER: I will be delighted to refer to it as 39.

THE COURT: The exception is well taken. In fact, 39 hasn't been offered.

MR. VEEDER: Well, I will ask a question, then.

MR. PRICE: Your Honor, I would object to further questioning regarding the exhibit. I assume Counsel is going to try and pose many questions

about it and then offer it as being related to the testimony. I think it should be offered.

MR. VEEDER: Well, I will make the offer now, then, Your Honor.

MR. PRICE: And I would object, Your Honor, in that it has writings inserted there by somebody which merely point out the contour levels that are already on there and in addition to the north inaccurately state this witness's testimony as to inside or outside the aquifer.

MR. VEEDER: Well, I made the offer, Your Honor.

THE COURT: The difficulty is that we may be better off to mark up this rather than mark up the KKK or N. I have forgotten which it is.

MR. VEEDER: KKK, Your Honor, and I was just being courteous to the witness here.

MR. PRICE: I appreciate Mr. Veeder's courteousness. I have no objection to the exhibit as originally depicted and marking on it. I have to object to the writings that appear on there that have been inserted by somebody else. If these were deleted, I would have no objection to marking it.

THE COURT: Any other objections to the exhibit?

MR. MACK: The State agrees with Mr. Price.

THE COURT: Well, I think his point is well taken that the writing appearing on there hasn't been supported by any testimony. Of course, it may be marked later. I'm going to admit Exhibit 39. However, before it finally goes into the record, we may have to delete some of the markings on there unless they are substantiated by testimony, but you may proceed.

(Colville Exhibit 39 is admitted)

MR. VEEDER: Fine, Your Honor. Thank you.

Q Now, would you give us, on the basis of your own testimony, Mr. Maddox, the ground level elevation and the contour by looking at what we will refer to as Colville Exhibit No. 39 as it pertains to what we have marked on here, sort of a red area, and you can see the exterior lines of the contour running up there.

Would you state into the record what that contour surface level is, that contour of land elevation.

A According to the exhibit, the land surface would be less than 1080.

Q And how would you calculate that? Would you start then and work up, find your contour on there from the U.S.G.S. map? This is your map, Mr. Maddox. Would you find contour number -- elevation 1000, state into the record the distance between each contour and then proceed to tell us what contour line embraces and encompasses what we have marked on there as a red area. Would you do that for us.

A Within the accuracy of the map, I could.

Q The accuracy of the map?

A Yes.

Q Aren't those contours right?

A All U.S.G.S. maps are drawn with a certain field accuracy which is plus or minus one contour interval, and as you stated earlier, and I was trying to calculate if this was 20 foot contour interval or 40 foot. Assuming your statement is correct, it is a 40 foot contour interval, that means that the accuracy of the map is plus or minus 20 feet at each contour shown.

Q Just a moment. By what authority are you stating that there is an inaccuracy of 20 feet for each one of the contours? Is that what you are saying?

A That is correct. The maps are constructed with an accuracy of plus or minus one-half contour interval.

Q Is that your personal knowledge?
A Yes, it is.
Q And you have checked it out on the ground?
A Yes.
Q And you checked it out on the ground on this one?
A No, I have not.
Q In other words, you don't know whether that is correct or not here; isn't that right?
A I have not measured it to determine that.
Q So, you don't know?
A I know that that is the accuracy sought for in the maps.
Q Now, didn't you offer this map yourself as an exhibit to begin with?
A Yes, I did.
Q And did you qualify the groundwater -- the surface level contours on this when you offered the map?
A No, I did not.
Q Now, would you proceed to state into the record on the basis of what appears on this map, on the map that is here that we are looking at, at 39, would you state into the record what that contour is?
A The contour shown on the map, as I testified earlier, is 1080 which marks the northern, western and eastern

terminus of the red area you have depicted on the map.

Q Right. Now, isn't it also true when we look at the elevations that you have on here of 1080 and 1085 and to 1095, that basically using the data that you have offered you have groundwater stored above land surface; isn't that correct?

A That is correct.

Q So, as a matter of fact, you have a physical phenomenon that is impossible; isn't that correct?

A No, that is not correct.

Q Is there a lake down there now?

A There is a swampy area and a spring area.

Q But it is not part of the groundwater; is it?

A Yes, it is.

Q You mean the water on top of the surface is part of the groundwater?

A The spring is an outcropping of the water table.

Q No, but I'm talking about the area within that red area. Now, that is not all spring; is it?

A It's a swamp area, yes.

Q So, the groundwater that you are calculating there in regard to your 440 is part above the ground; isn't that right?

A That is not included in the 440.

Q Well, how can it be otherwise? You have got your groundwater contours there; don't you?

A As I testified earlier, the southern terminus that I use in computating my 440 is the zero line shown on Exhibit NNN-W which lies approximately in the southeast quarter, southwest quarter, Section 21. The red area depicted on Exhibit 39 lies within the northwest quarter, northeast quarter of Section 28, some distance to the south.

Q Now, is the entire area outside of which you calculated your 10.6?

A The area line was in the northwest quarter, northeast quarter, Section 28, the red colored area, yes.

Q The entire red area is out of your calculation?

A Within the northwest quarter, northeast quarter, Section 28, it is outside, yes.

Q The entire red area is out?

A Within the northwest quarter, northeast quarter, Section 28.

Q But part of it is within; is it not?

A No, it is not.

Q None of it?

A Not the one that is in the northwest quarter, northeast quarter, Section 28, it is not within the area.

MR. VEEDER: May I have just a moment to look at this, Your Honor.

Q Now, where is the boundary line between Section 21 and 28?

A The dashed line shown on the exhibit.

Q So, as a matter of fact, part of that red area is north of that line; is it not?

A That is correct.

Q So part of your calculation you have groundwater stored above the surface area; isn't that true?

A That is not correct.

Q In your opinion?

A No, factually.

Q Then what is this water here that is standing above the ground in the base of your contours?

A That is a swampy area and spring area.

Q And is not part of your calculation of 440?

A That is correct.

Q Now, we move up a little further and we have another area, red area, depicted here, and I will ask you to state into the record, using your exhibit and the contours as shown on there for the surface area, what is the level, what is the groundwater contour shown there?

A There are three groundwater contours generally

involved, the 1115, the 1120 and the 1125, and it would go over to about the 1127, 1128 contour if such were drawn.

Q You are talking about the land surface contours?

A No, that is water level.

Q I asked you for land surface contours.

A Land surface contours, the one shown on the boundary in the red is the 1140, approximately.

Q And you show your groundwater contours as 1120 to 1125, do you not, in that area?

A That is correct.

Q So, once more, you have groundwater stored above the land surface; isn't that right?

A The water level contours go above land surface; that is correct.

Q And as a matter of fact, isn't that a physical impossibility there were you have got a groundwater table?

A As I testified earlier, that is an outcropping of spring area and it is what I would anticipate would occur in an outcropping of spring area.

Q So your contours are really not as to groundwater but as to surface water in that area; isn't that right?

A No, they are as to groundwater. Groundwater crops

out in spring areas and becomes surface water.

Q Well, that is what has transpired here; isn't that correct?

A That is correct.

Q So, when you are calculating your 10.6, you are using groundwater contours; are you not, that are relating to surface water; isn't that right, at least in those areas?

A At least in those areas; that is correct.

Q So, there would be a further disparity, then, as to the reliability of your calculations on the 10.6; isn't that true?

A That is correct.

Q And have you any idea to the extent of that variance?

A That would cause the number to be lower than the 440, whatever the number was that I testified to earlier.

Q And isn't it also true that when we are observing this, Mr. Maddox, that if you have that situation in -- we have got a very limited red area there -- that you must have saturation right at the surface in the rest of the areas around there, to some degree; isn't that right?

A I would anticipate this to be so, yes.

Q So, once more, we have a situation where your 440 may be somewhat suspect as to the exactitude of it; isn't that correct?

A Oh, very definitely.

Q Very definitely.

Now, we proceed, then, to the next element. As I perceive it, you really have three steps here; isn't that correct? You had your 10.6; you had your 440, and then you came down to an estimate or I guess we have been calling it educated guesses, as to the twelve to thirteen hundred acre-feet, and you arrived at that, did you not, by simply taking the 440 and multiplying it by 3; isn't that correct?

A No, that is not correct.

Q Well, how did you get your -- I have before me on page 46 a statement that, in your opinion, the volume will recharge in the basin the entire year is approximately three times the volume one, computed for the period of August 20 -- I'm reading. Do you want to look at this yourself?

A No.

Q I will read it again then.

"It is my opinion the volume of recharge in the basin to the entire year is approximately three times the

volume (1) computed for the period of August 20 through January 5. In other words it would be about twelve to thirteen hundred acre-feet."

A I so testified.

Q And in light of the fact that there are quite obviously variances in your 440, depending upon the accuracy of the numbers you used, that 1230 to 1300 acre-feet might also be -- well, it is not precise in any sense; isn't that right?

A That is correct. It is bound by the accuracy of the numbers you use to derive it.

Q Yes, to the extent there are variations, we will have to look at a different number for exactitude; isn't that right?

A That is correct.

Q So, we are really -- in this situation if we find inexactitudes in the U.S.G.S. report, there are inexactitudes in your conclusions.

A That is correct.

Q Now, you have stated that you have calculated quantities of water that would be consumed in the state of nature.

A By natural vegetation, yes.

Q By natural vegetation, thank you.

And would you state into the record the kind and type of natural vegetation, phreatophytes, if you will, that you had in mind when you were talking about the water requirement or the consumptive use of these phreatophytes. What kind of phreatophytes are they?

A Alder.

Q Would you say that?

A Alder trees.

Q Alder trees, yes.

A Low bushes, I don't know what the name of them are. They grow quite densely down below the granite lip on the lower allotments and they stand eight or ten feet high and then the grass and, of course, cattails, tules.

Q Would you say the meadow grass would be a phreatophyte? That is where you walk in -- and we have all been in mountain areas where you see grass growing in a meadow. Is that a phreatophyte?

A For the terms of my computation, yes, it would be in that it would have a natural evapotranspiration demand on the system.

Q Have you any idea how much -- well, is it correct to use them as phreatophytes? Aren't they water loving plants?

A That is correct.

Q And meadow grass is not a water loving plant; is it? I'm just inquiring.

A Yes, to the extent that it has to have water to survive, it is a water loving plant.

Q And would you state into the record whether meadow grass, as we all know it, utilizes water throughout the entire irrigation season, in a state of nature, for example, on the Walton lands, all of the Walton lands.

A Yes, meadow grass uses water throughout the year on all of Mr. Walton's land.

Q In the state of nature?

A Yes.

Q And was all of Mr. Walton's land covered by meadow in the state of nature, or don't you know?

A I don't know.

Q So, as a matter of fact, it would be very speculative on your part, then, to calculate the water requirements of whatever vegetative cover was on that land during, in the state of nature, antecedent to any plowing by Mr. Walton?

A That is not correct.

Q Wouldn't it be speculative to calculate the quantities of water utilized, for example, by just

the normal grass that grows in the spring and dries up during the hot summer months?

A No, it wouldn't.

Q And have you been in that country during the period prior to the plowing up of and seeding into alfalfa of 892?

A No.

Q You didn't see that?

A No.

Q So, you don't know what kind of vegetative cover was there, for example, antecedent to 1975?

A No.

Q So, it would be purely speculative to guess at what kind of coverage was on there; isn't that right?

A Prior to 1975, that is correct.

Q It would be speculative on your part?

A That is correct.

Q Because you don't know.

A That is correct.

Q Now, do you find any great difference between Allotment 892 which is the piece of land immediately above Mr. Walton's property and Mr. Walton's upper alfalfa field? Do you know where that is?

A Yes.

Q Have you had an opportunity to find that there was

any difference in the quantity of water that would be used in the state of nature on those pieces of property?

A I would have to state an opinion.

Q Well, if you don't know, how can you state an opinion on a purely speculative matter?

A Based upon the soil data available.

Q And did you make a soil survey up there yourself?

A No, but the Tribe did and so did the -- the soil data are available from the drilling by the Geological Survey.

Q But you don't know what kind of vegetative cover was there; do you?

A Not prior to 1945.

Q '45?

A '75.

Q Now, assuming that the grass started growing in the springtime and it dried up totally, it just dried up, turned brown, didn't grow at all, in the month of July, August and September, wouldn't that make a difference in the quantity and the water requirements that was actually being taken out of the area by the vegetative growth on those allotments?

A During the time --

Q Wouldn't that make a difference?

A During the time the grass was dry, yes, it would.
Q So, assuming if the grass were dry from roughly the middle of early July for the rest of the period, the quantity of water, the water requirements would be greatly reduced by the fact that the grass was dry.
A During those months.
Q Yes. Now, have you seen alfalfa grow on Mr. Walton's land?
A Yes.
Q And it grows there during the latter part of the summer by reason of irrigation applied to it; isn't that right?
A In my opinion, that is correct.
Q So, as a matter of fact, during the dry period when the grass would normally be dried up and the period now that is being irrigated in alfalfa grown, there would be a sharp difference in the water requirements; would there not be?
A For those months; that is correct.
Q So, there would be a very drastic difference, then, between the lands in the state of nature and the water use during this period when it is being intensely cultivated and irrigated far more, being intensely irrigated, period.

A I would have to qualify my answer.

Q Well, go ahead and qualify it.

A During the period when, under natural growth, the growth would dry, and we are speaking solely of grasses now, as compared with irrigated alfalfa as practiced by Mr. Walton, during those months, the irrigated alfalfa would have a higher demand for water than would the natural grass, natural vegetation, for those months.

Q Yes, and how many days would you -- you are familiar with the general area; aren't you?

A I am.

Q And have you ever seen areas that are in eastern Washington where the grass on the surface was just plain dry?

A Yes, I have.

Q And isn't that the general situation in this area during the months of July, August and September?

A Generally speaking, August, late July, August, September most certainly.

Q So, as a matter of fact, you couldn't attribute water requirement for consumptive uses during that period as you would during the period of farming and irrigation as we have it now.

A For grass, that is a correct statement.

Q And if we are speaking now of the normal vegetative cover -- just a moment. Do you have any idea as to whether there was any, what the vegetative cover was antecedent to plowing and planting to alfalfa in 892, for example?

A I do not.

Q And you have no idea, then, in regard to the northern part of Mr. Walton's property, do you, as to what kind of vegetative cover was there antecedent to when he began farming in 1948?

A That is correct.

Q So, as a matter of fact, when you say that you can compare or you would make assumptions as to the quantity of water used in the state of nature, it is quite conjectural; isn't it, on those lands?

A No, it is not.

Q Well, now, if you don't know what the vegetative covering was there during that period and you say you don't, how could you arrive at a conclusion predicated upon a factual situation and come up with a conclusion?

A I look at the land below the granite lip prior to them being redeveloped by the Tribe and came to my conclusion about the ecology of the natural growth that would cover the area should farming

by Mr. Walton cease.

Q Now, are you saying that the situation on 901 and 903 below the granite lip, are comparable to the areas in the northern portion of Mr. Walton's property that is now in alfalfa?

A As far as the ecology of plant life, I made that assumption; that is correct.

Q But you don't know if it is correct or not?

A In my opinion, it is correct.

Q And how did you base that opinion? Did you see the same -- are you saying the soils are the same up there?

A No, not precisely the same. They are different.

Q And there are, there are more -- is it not true that on 901, the holding capacity of the soils is quite different from the holding capacity of the soils in the northeast quarter of Mr. Walton's allotment?

A As compared with the irrigation requirements, that is a true statement.

Q And wouldn't that be true in the state of nature, Mr. --

A You would have --

Q -- Maddox?

A -- controlling effect.

Q Just a minute. Is that not true in a state of nature,

when we are comparing and contrasting the lands in the northeast quarter, northeast portion of Allotment 525, and the southeast portion of Allotment 892; isn't that correct?

A You have lost me on the allotment numbers.

Q You don't know those?

A No.

MR. PRICE: That is not what he said, Your Honor.

MR. VEEDER: What?

MR. PRICE: He lost me on the question also.

MR. VEEDER: Well --

THE COURT: Well, it's a good time to take the luncheon recess. Court will be at recess until 1:30.

THE BAILIFF: All rise. Court stands at recess until 1:30.

(Luncheon recess is taken.)

Afternoon Session

April 25, 1978 1:30 p.m.

THE COURT: You may continue with cross-examination, Mr. Veeder.

MR. VEEDER: Thank you, Your Honor.

CROSS-EXAMINATION CONTINUED

BY MR. VEEDER:

Q In the closing moments before the noon recess, you stated you had some difficulties, Mr. Maddox, with the locations of the allotments.

MR. VEEDER: May I approach the exhibit.

THE COURT: You may.

Q (By Mr. Veeder) So, I am using Colville Exhibit No. 6 which is a General Geology map. Basically it sets forth the same geology as on the No. 7 that we are using, but it is possible now to --

MR. VEEDER: Is it all right if I give a little explanation here, Your Honor?

THE COURT: Yes.

MR. VEEDER: Because I think it would be helpful to the witness because I have been using familiar terms in this case and he is not aware of those.

Q Now, I will proceed back to where we were and I

inquired as to whether, in your view, the moisture holding capacity and the soil characteristics of Allotment 901 -- do you want to locate 901 there, Mr. Maddox?

A Yes, I have located it. Thank you.

Q -- and 892 were substantially the same. I'm asking you if you think they are substantially the same both as to water holding capacity of the soils, the kind and type of soils, the environment and the vegetative growth upon those two allotments, 892 and 901, are the same now and if, based upon your general knowledge, that they were the same in the state of nature, or is that too complex a question?

MR. PRICE: Your Honor, I'm going to object as to -- whether or not it is too complex -- to the repetitious nature of it on the basis of trying to go through cross-examination again with another exhibit.

MR. VEEDER: I'm really not, Your Honor. If Your Honor --

THE COURT: Just a moment. Let him finish his objection.

MR. VEEDER: Excuse me.

MR. PRICE: I don't think that is appropriate

and I would also object to the question as being a multiple of questions and I would wish that Counsel would keep it one question at a time. It might be easier to follow.

THE COURT: Well, I think it is proper to refresh the witness's memory as to what we were talking about just before lunch, so I will give him this leeway in his opening question.

MR. VEEDER: Well, I can hand up -- I had the reporter who very kindly wrote up my questions on this -- and if that would be helpful to him, I will.

THE COURT: If he thinks it is necessary.

THE WITNESS: I would like to see it.

Q (By Mr. Veeder) Would it be helpful to you?

A Yes, it would be.

Q Because we did refer in there and you and I went on different areas of points, courses.

A I have read the questions and your question that you repeated before, I would have to answer it in parts since there were several parts.

First, the soils on Allotments 901 and 892 which, if I recall, were the two allotments you referred to, are different.

Q They are different?

A They are different.

Q And -- go ahead.

A As a consequence of being different, the difference is that the soils on 901 are finer grained, or it appears from the logs that I have seen, to be a greater percentage of finer grained material in those soils than there are in the soils in 892. As a consequence of this difference, the greater amount of finer grained material, I would anticipate that the water holding capacity of the soil on 901 would be somewhat greater than the water holding capacity of the soil on 892, although I couldn't give you a quantitative measure of what this difference would be.

As a consequence of the difference in water holding capacity, I would anticipate that the density which natural vegetation would cover these two allotments would be different. There would tend to be more sparse vegetation on 892 than there would be on 901. As a consequence of the more sparse vegetation, I would anticipate there would be a greater preponderance of brush on 892 with some tall trees, that is, Alder-type trees, and less grass, whereas on 901 you would have something very similar to what I recall having seen in 1975

and 1976 and that is I paid both a vertical density and horizontal density on 901. The vertical density being made up of the taller trees, Alders and such, cottonwoods, if I recall, high brush that I don't know the name of, and grass.

Q So there would be a difference in water requirements; wouldn't there?

A Of these plants, there would be, that is right.

Q Yes. In other words, it is impossible to generalize in view of the disparity between the water holding capacity of those two allotments; isn't that right?

A I don't agree with that statement. I think you can generalize.

Q You can generalize?

A That is correct.

Q Now, in regard to the growth of trees, are you aware when 892 was farmed?

A Now, my first visit to the land was in 1975 and there was no active farming going on then, though there appears there had been some sort of field type crops in the past, so I couldn't tell how long ago.

Q But you couldn't see any field type crops. What you saw there was grass; wasn't it? Growing?

A Yes, that is correct.

Q And you didn't see any Alder trees except in perhaps a small clump down where the spring zone started; isn't that right?

A Along where the spring zone was, yes.

Q In other words, the phreatophytes that you observed on 892 were down near the spring, were they not, down near the spring zone?

A Well, there was grass on the land in general, but the trees were down near the spring zone.

Q That is right. What time of year was that, Mr. Maddox, that you were down there on 892? What month?

A It was in July, but I don't recall the exact day.

Q And wasn't the grass pretty well burnt at that time, pretty well brown?

A That is correct.

Q And so it wasn't using water under those circumstances, based on your previous testimony.

A It wasn't using as much water as it had been.

Q Well, when the grass is brown and crisp that way, it doesn't use any water.

A I would disagree with that statement. It is using some. It is small in comparison to what it would use when the grass was green.

Q And it would be small in comparison with the irrigated lands on Mr. Walton's property; isn't

that correct?

A At that particular time, that would be a correct statement.

Q Yes, so you wouldn't have a full irrigation season when it would be using the same amount of water; right?

A In a full irrigation --

Q In a state of nature.

A In a full irrigation season, considering the natural growth and irrigated land on terms of annual basis, one would equal approximately the same amount as the other.

MR. VEEDER: Could you read that back.

(Reporter read back answer lines 9 to 12, page 2473.)

Q And you are saying that during the dry periods when you saw this land when the grass was dried up, July, August and September, that those lands in 892 would be using the same amount of water as the irrigated lands on Mr. Walton's place now?

A On an annual basis, that would be a true statement.

Q On an annual basis. Now, how do you mean that? During the months of January, February and March and December?

A Well, from January to January, on a calendar year

basis, or take it on a water year basis, it wouldn't make any difference as long as your bases were the same on an annual basis, the 12-month period.

Q The normal grasses that are dry in July, August and September, would be the same as the irrigated fields of Mr. Walton?

A No, I -- no, I couldn't make that statement.

Q All right.

A I'm speaking with regard to phreatophytes consumption, of the trees we saw and the natural grasses that we saw, as compared with Mr. Walton's irrigated fields.

Q I have a difficulty following that. I don't --

Now, you state on page 56 of your testimony that there is shallow groundwater on most of Mr. Walton's lands. Now, what do you mean by shallow groundwater?

A In terms of groundwater of No Name Creek basin, I would term shallow groundwater as groundwater laying in depths of zero to ten feet below land surface.

Q Now, in regard to --

MR. VEEDER: If I may approach the exhibit and the witness, Your Honor.

Q I am now looking at 894. This is Mr. Walton's former Allotment 894.

A Yes.

Q And I ask you to find the general area in that area that is in that allotment that is now being irrigated and farmed by Mr. Walton. Are you acquainted with that?

A Generally, I could point it out on the map as being the land lying easterly of the --

Q Now, wait a minute. Wait a minute, get on 894, please.

A Oh. 894, Mr. Walton is only irrigating the small piece marked generally in red on the map.

Q Well, isn't he irrigating further up into the eastern part in here?

A If he is, I haven't seen him and I'm not aware. He may be. I couldn't specifically say that. I have seen irrigation on the part marked in red.

Q So, as a matter of fact, you don't know the lands that Mr. Walton is irrigating based on location; isn't that correct?

A That he is actually irrigating, that is correct. I have never seen it myself.

Q You haven't seen it?

A On all of his land, no.

Q So, when you say that there is shallow groundwater on most of his land, most of the 110 acres, you

don't know whether that would be true or not on 894; do you?

A As far as the data allow me to answer the question, that would be true and these data are U.S.G.S. data from the observation wells that are in there.

Q Well, where in the U.S.G.S. data do you find that most of Mr. Walton's land has a shallow groundwater table?

A The data --

Q Is it in there? I beg your pardon. Let me ask this question.

Did you find such a statement in the U.S.G.S. report.

A I don't recall such a statement being made. It may be there, but I don't recall it.

Q So, as a matter of fact, you don't know whether the U.S. Geological Survey said there was a shallow groundwater table in the eastern portion of 894; do you?

A I recall no such statement.

Q And you don't know that yourself, do you?

A Yes, I do know that.

Q That there is a shallow groundwater table on the west -- eastern part of 894?

A Based upon the data gathered by the Geological

Survey, that is my opinion or my professional judgment, however you want to classify it, that there is a shallow groundwater table on the eastern part of 894.

Q And what -- what does it overlie? Does it overlie the groundwater basin of the No Name Creek that we are talking about?

A In my opinion, it overlies the gneissic bedrock or granitic bedrock that is there.

Q Would you answer the question. Is it part of the groundwater basin?

A Yes, it is.

Q And you know that to be true?

A Yes.

Q And you went down and investigated that yourself?

A To the extent that I have mapped the groundwater contours I have, yes.

Q But you didn't include that part; did you?

A Yes, I did.

Q Of 894?

A If it's within the -- yes, I did.

Q Can you locate it on your, what we call now Colville Exhibit 39, can you locate that area?

A Yes, it is situated generally within the south half of the southeast quarter -- that would be

the southwest quarter of the southeast quarter of Section 21.

Q And you have information as to the depth of groundwater on that area?

A According to the map, it lies between -- lies in elevation between 1190 and 1195.

Q And did you include that in part of your estimated 440?

A May I refer to the earlier exhibits?

Q By all means.

A Maybe I can answer it from this.

No, I did not.

Q So, as a matter of fact, in regard to that one hundred and -- did you include that as the area that you thought would be covered with phreatophytes?

A Yes, I did.

Q Based upon a ten foot shallow groundwater table?

A I didn't specifically look at it that way, but that would be a true statement, yes. I didn't calculate my phreatophytes on a ten foot water table. I calculated the phreatophytes on the area of each field farmed by Mr. Walton.

Q Well, if it didn't have a shallow groundwater table, you wouldn't have throughout the irrigation season the consumptive use for phreatophytes; would you?

A No, you would have.

Q No, you would have?

A As I understand your question, it was a negative question and I disagree with you. You would have phreatophyte growth throughout the consumptive use season if there were non-irrigation there.

Q And what kind of plants would be growing there?

A Grasses, the medium or the high bushes that I referred to, and trees, Alder trees, cottonwood trees.

Q But you didn't see that in the state of nature either; did you?

A Yes, I did.

Q In a state of nature?

A Well, they are naturally there now, below the granite lip on Allotments --

Q Wait a minute. I'm talking about 894, Mr. Maddox.

A On 894 there are some of the high bushes. I think the bushes are willows that are there. The trees have been removed for farming purposes or whatever by Mr. Walton. There is some grass there so we have the high bushes and the grasses. The trees are not there or if they are, they are only small.

Q In the fields there are high bushes and trees?

A There are no trees. I say they have been removed. There are high bushes and grasses on 894.

Q Now -- and is that up in the upper part of the higher elevations of 894 that you are talking about?

A They would lie to the west of the road that traverses 894.

Q Now, would you approach once more what we call Exhibit 39, and I inquired earlier about -- see, there is marked on 39 outside the aquifer.

A Yes.

Q Would you identify the well that is outside, marked outside of the aquifer.

A I --

Q Just a moment. With the Colville Exhibit No. 6, and would you -- that is marked No. 3; isn't that right?

A I was just checking.

Q Well, would you compare them and see for yourself.

A Yes. The well marked outside the aquifer on Exhibit 39 is the same as the Well No. 3 as shown on Exhibit No. 6.

Q And you agree in general with the geology that is on Colville Exhibit No. 6; is that right?

A That is correct.

Q And that is outside the aquifer; is it not?

A As shown on Colville Exhibit No. 6, it is located

outside the aquifer, yes.

Q And you utilized that in your 10.6 specific yield; didn't you?

A That is correct.

Q So, in fact, you were using another well outside of the aquifer in computing your 10.6; isn't that right?

A I don't agree that it was outside of the aquifer.

Q Did you ever go up there and look at it, Mr. Maddox, yourself?

A No, not physically on the ground.

Q So you don't know whether it is there or not; do you, of your personal knowledge?

A I know that the well exists, yes.

Q How do you know that?

A I have a lot of measurements made by the Geological Survey and data supplied by the Tribe.

Q But you didn't go up and check the contacts between the water bearing strata and the lake beds; did you?

A No.

MR. VEEDER: I have no further questions.

THE COURT: Redirect, Mr. Price?

MR. PRICE: Thank you, Your Honor.

. . .

. . .

REDIRECT EXAMINATION

BY MR. PRICE:

Q Mr. Maddox, Mr. Veeder has questioned you at some length about a discrepancy between U.S. Geological Survey figure of a particular depth to water measurement in one of the wells on a given date. I believe it was the Colville No. 1 well; is that correct?

A I know it as the middle Colville Indian well, yes.

Q I think Mr. Veeder used the term that there was a sharp difference between the U.S.G.S. figure and figure that apparently the Tribe asserts should have been used.

If, indeed, you did use the Tribes' asserted water depth level rather than the U.S. Geological Survey, would that affect your computation as to the amount of water available for consumptive use in the No Name Creek basin?

A Yes, it would.

Q And in what manner would that affect your calculations?

A It would increase the volume of the recharge.

Q Would you explain how that would work, please.

A If the well in question, which I will refer to as the middle Indian well, the water level decline

in that was less than I had calculated using Geological Survey data which calculation was about a decline of 44 feet between March 20 and August 20, 1977, if that decline had been less and I don't know what -- let's say if it had been 35 feet, that would mean that a lesser volume of rock had been de-watered due to groundwater withdrawal, the same amount of groundwater withdrawal would have taken place, less rock de-watered. As a consequence, the specific yield of the rock would have increased from 10.6 that I had calculated to something higher. I don't know what it would be. Just for talking purposes, let's say it would increase to 12 percent, then on my computation of recharge, I computed the volume of water that was required to refill the void between August 20, 1977 and January 5, 1978, again, if the middle Indian well had a decline of 35 feet and it was filled up to whatever level that it is filled to the present time, which I don't recall, you would have had a lesser volume of rock filled with inflow but you had a greater volume, greater specific capacity, specific yield of the aquifer to multiply that volume by, so the net result would have been to have increased the recharge from 440 acre-feet for that period of time,

approximately 440, to something greater. What it would be, I wouldn't know. I would have to re-computate that.

Q Isn't it correct then that your calculation that you gave --

MR. VEEDER: Counsel, I can't hear what you said.

MR. PRICE: I'm going on to another question, Counsel, excuse me.

Q I think Mr. Sweeney questioned you along that same line. He was asking you if your specific yield figure decreased, 10.6, then there would be a decrease in the amount of acre-feet that you computed to be available for use in the No Name Creek basin; is that correct?

A I don't recall that question specifically.

Q All right. But if this specific yield figure did decrease, then your calculation as to availability of water would decrease; is that correct?

A That is correct.

Q And if your specific yield increases, that is going to yield more water, according to your computations.

A That is correct.

Q In that regard, Mr. Sweeney questioned you and was concerned about the walls of the aquifer being sloped rather than vertical, as used in your computations. Can you tell me how, using vertical walls in your computations affects your calculations. In other words, does it increase the amount of acre-feet of water available or does it decrease the amount of acre-feet of water available?

A By affecting the specific yield and by affecting the volume of rock, for instance if the wall rock were slanting, the volume of rock would decrease. The volume of pumpage, or withdrawal, would be the same. Consequently, the specific yield would have to increase. This same value for increased specific yield would on recharge make more water available for recharge, so it would increase the recharge figure.

Q Mr. Veeder on Exhibit 39, I believe it is Colville Exhibit 39, has marked some red areas in which apparently he has attempted to depict some areas where you show the water level higher than the surface level of the land. Is that an inaccuracy or an error on your exhibit?

A It is not.

Q And why is that?

A The groundwater level would depict the gradient or the slope at which water is moving in the subsurface. When that slope intercepts land surface, you have an outcropping of springs. Consequently, I was not particularly looking at the land surface nor was I paying a great deal of the data on that because I was not computing spring flow, but rather I was computing groundwater gradients, and as a result, what the maps shows is groundwater gradients and has nothing to do with spring flow because I considered spring flow to be a constant in and out.

Q That map does not affect your calculation or computation as to the availability of water; does it?

A As I testified earlier, the small area, the middle small area of red which lies to the north of Mr. Walton's house, would make a very small change in my computation, but the area concerned is so small that the base number would not change. In other words, the 440 would still hold firm because of the areas involved.

Q Is that one of the reasons that when you testified here you didn't testify to an exact figure of an available acre-feet of water, as I understand it. You testified to a range.

A That is correct.

Q And is hydrology in that regard an exact science? Is it capable of coming up with an exact acre-foot figure?

A It is not.

Q Is it accepted practice in matters of hydrology to incorporate variances and allowances into your computations?

A It is accepted practice.

Q Why do you do that? Why do you calculate in variances and so forth?

A Calculate in variances due to the accuracy of the values you are working with. That is, with water, either surface water or groundwater, you are measuring a moving medium that is affected by its very movement. It is a dynamic medium, so you measure it at an instant in time and even as you take each measurement, the water is changing. It is changing in amount of flow and changing direction of flow, so you have to take, in layman's terms, it would be an average reading. You are always working with averages. Unless you know the accuracy of the values you are working with, you can be led astray by thinking you had a very accurate number, but even the most accurate number has ranges for that

accuracy. There is always a plus or minus value to which you are working with.

Q Do you recall Mr. Watson's testimony that he came up with a range from anywhere from 480 to 600 acre-feet of water available, firm annual water supply?

A I remember that he had a range, yes.

Q Do you recall how he picked 550 out of that range, by chance?

A I recall that he took that as an average within the scope of the range of values that he had to work with.

Q Mr. Maddox, there was some reference by Mr. Veeder and yourself to the contour levels on the exhibit to which you were referring. I will refer now to Colville Exhibit 39, and, again, are variances purposely calculated or not into those calculations of contour intervals?

A I don't know if they are purposely calculated in. You have an accuracy of values for land surface elevations and the accuracy that the Geological Survey tries for is plus or minus one-half contour interval, and for greater accuracy, you must have greater detail in your field surveys and probably a different scale map.

Q So, you are working within the data that is

available?

A That is correct.

Q Mr. Maddox, are the 1930's and 1940's relevant in trying to determine the accuracy of 1977 water level fluctuations in the No Name Creek aquifer?

A Not in regard to 1977. In response, I should say, to 1977 groundwater withdrawals, no, they are not.

Q Mr. Maddox, Mr. Veeder questioned you about phreatophytes, in particular with regard to Mr. Walton's property. Did you rely solely on meadow grass in your calculations?

A No, I did not.

Q What did you rely on?

A Again, I looked at the general No Name Creek basin and saw that below the granite lip there was an ecology of grasses, high bushes and trees, and looking around upon Mr. Walton's land and just highway driving down from the Mission, looking at the other types of vegetation that grew in the area, they were comparable in type. My opinion, based on data I had available then and data I have available now, is that if Mr. Walton and the Tribe were to stop farming all the lands within the No Name Creek drainage basin, that it would return to the phreatophyte density we saw on the

lands below the granite lip which in part had been farmed at one time and could see outlines of fields down there, they would return to some natural vegetation which would be controlled by the amount of water available, amount of space available for sunlight and consequently using all of these values, I came up with an overall evapotranspiration loss as compared with Mr. Walton's diversion of water and use for irrigation on his land.

Q How did you calculate the evapotranspiration of the plants and trees?

A In general, I used data that were developed by research elsewhere in the United States and attempted to correlate the data by empiricism with the No Name Creek aquifer. Specifically, these data are included in reports by the Geological Survey in connection with State engineers. At the present time most of the phreatophyte research goes in the Pacific Southwest and correlating phreatophyte water consumption with water consumption by field crops, more specifically alfalfa, and then coming to the state of Washington and looking at alfalfa consumption here, as practiced by Mr. Walton, and then looking at a comparable crop which I took to be orchard with ground cover, it was my

opinion, that orchard with ground cover is the correlating crop within the state of Washington.

Q Did you rely on any specific publications in reaching your calculations?

A Yes, I did.

Q For example?

A Could I get them out of my briefcase.

Q Yes.

A I relied upon three publications. The first is the United States Department of Agriculture Forest Service Handbook, No. 266, "A Guide for Surveying Phreatophyte," that is p-h-r-e-a-t-o-p-h-y-t-e, "Vegetation." This guide generally gives survey guidelines as to how to calculate vertical and horizontal density of phreatophytes. It is a methodology type publication.

The second publication I relied on is a United States Geological Survey water supply paper. It is No. 1659, "Potential Groundwater Salvage on the Pecos River in New Mexico."

The third volume is "Consumptive Use and Water Requirements in New Mexico," and it is New Mexico State Engineer Technical Report No. 32 by Blaney and Hanson. I might mention Blaney is the same Blaney in the Blaney-Criddle equation.

Using the publications which I have used before in the Pacific Southwest, both in Arizona and in New Mexico, and judgment based on first hand work along the Pecos River with phreatophyte eradication in Arizona, it was my opinion that these publications were, they were written back in the '60's, but they are still quite applicable on all phreatophyte problems.

Q Mr. Veeder was concerned about the ground cover in 892 as to whether or not that would conform with the vegetation that we might find naturally occurring on the Waltons' property. As a matter of fact, are you aware that the No Name Creek surface flow occurs mostly, if not at the present time entirely, on the Waltons' land and not any where on 892?

A I have only seen it on Mr. Walton's land. I have no knowledge beyond that.

Q And are you familiar with the fact that there are several springs, at least four or five springs, that occur on the Walton property which do not occur on Allotment 892.

A I have seen those springs on Mr. Walton's property, yes.

Q Okay. And is it true or not that the water delivered from these other springs would be

consumed in part by the phreatophytes?

A That is correct.

Q So, that comparing 892 with the Waltons' property is not necessarily a very valid comparison.

MR. VEEDER: These are all leading, Your Honor, all of these questions. I object to them.

THE COURT: Sustained.

MR. PRICE: That is all I have. Thank you, Mr. Maddox.

Thank you, Your Honor.

THE COURT: You may step down, Mr. Maddox. Thank you.

(Witness is excused.)

MR. PRICE: Call Mr. Thorp to the stand.

JOHN F. THORP, called as a witness herein, being first duly sworn on oath, testified as follows:

THE CLERK OF THE COURT: Would you please state your full name to the Court.

THE WITNESS: John F. Thorp.

THE CLERK OF THE COURT: Will you spell your last name, please.

THE WITNESS: T-h-o-r-p.

THE CLERK OF THE COURT: Thank you.

DIRECT EXAMINATION

BY MR. PRICE:

Q Afternoon, Mr. Thorp. Can you hear me all right?

A Yes.

Q Where do you reside at the present time, Mr. Thorp?

A Out of Oroville, used to be the post office at Cheesaw.

Q How old are you, Mr. Thorp?

A I'm 76.

Q And how long have you resided in Okanogan County?

A My father moved there when I was six months old.

Q Are you presently retired?

A What?

Q Are you presently retired?

A Well, semi.

Q Semi? All right. Did you ever hold the position of County Assessor for the county of Okanogan?

A I did, for 19 -- I was elected in 1934 and retired from it in 1940 -- January, 1943.

Q Do you know who would have held that position for Okanogan County as County Assessor in the early to mid-1920's?

A The man prior to me was James Silverthorn and the

man prior to that was Grover Fore [phonetic] and the man prior to that was Jerry Frye.

Q Are any of these individuals alive at this time?

A What?

Q Are any of these individuals living?

A No, they are all passed away.

Q During your tenure, Mr. Thorp, did you have occasion to place former Indian allotments on the Colville Indian Reservation on the tax rolls for Okanogan County?

A Whenever they was patented, yes.

Q And would you explain the process that you went through. In other words, how did you know when property was transferred from trust status to fee simple status?

A I had a man that worked in the Bureau of Land Management and also I'd go check them in the Indian Service in Nespelem.

Q All right. When you received notification, did your office attempt to make an evaluation of the property when you put it on the tax rolls?

A We did.

Q And how would you do that?

A Well, I would send a man, a field man out. Ed Nelson was my field man at that time. I only had

one, and he would make the evaluation.

Q Was water considered as increasing the value of such land when it was found to be pertinent to the land?

A Yes, but not as much as it would now days. We assessed irrigated land at $30 to $40, that was away from the river. Then the Okanogan River was assessed much higher.

Q And in terms of inflation and all, what you are saying, the evaluation for water would be much higher now days?

A That would be hard to say.

Q Okay. To your knowledge, Mr. Thorp, are the records, the Okanogan County records which would have reflected the assessment of the lands when they first came out of trust status to fee simple status in the early to mid-1920's available today?

A No, they are not. They stored them in the cupola of the old courthouse there, and the pigeons roosted on them and the water blew in on them and later I understood they were burned up.

Q Nobody would want to look at them anyway after that, I suppose.

MR. VEEDER: I didn't hear what you said, Counsel.

MR. PRICE: I said --

THE COURT: No question.

MR. VEEDER: Thank you.

Q (By Mr. Price) Did the Government ever object to those lands being placed on the assessment rolls, Mr. Thorp?

A No.

Q Did the United States Government ever object to those lands reflecting an assessment for water where water was appurtenant to the land?

A No.

MR. SWEENEY: I don't think he has laid a foundation that Mr. Thorp knows what the Government did or did not object to. When you are talking about the Government, that is a rather widespread apparatus and I don't think --

MR. PRICE: I can rephrase it.

THE COURT: Rephrase the question.

Q (By Mr. Price) Mr. Thorp, did the United States Government ever object to you personally, did anybody representing themselves --

THE COURT: Go ahead.

Q -- to being an employee of the Government in any capacity, object to your assessment reflecting the value of water on lands that were being placed

on the tax rolls?

A Not to my knowledge.

Q Did any member of the Colville Tribe during the period you were in office --

A No.

Q -- ever object to these lands being placed on the tax rolls and reflecting water values where water was found to be appurtenant?

A They did not.

MR. PRICE: That is all I have. Thank you Mr. Thorp.

THE COURT: Cross-examination of the witness?

MR. MACK: Not from the State.

THE COURT: United States? Mr. Burchette?

CROSS-EXAMINATION

BY MR. BURCHETTE:

Q Mr. Thorp, on the assessment of the property back in the '20's, to your knowledge did they assess the property on the basis of a reserve water right?

A Yes, I'm sure they did because I got one in northern Okanogan County and they assessed it that way.

Q How do you know it was a reserved water right.

MR. VEEDER: I would object. This is

beyond the scope of the direct examination, Your Honor.

THE COURT: Overruled. Go ahead.

A Can you repeat the question.

Q You said that you know that the assessment was predicated on a reserved water right. My second question is, how do you know that it was assessed on a reserved water right? How do you know that?

MR. VEEDER: Object to the question. This calls for a legal conclusion by the witness. He is not qualified, Your Honor.

MR. BURCHETTE: Your Honor, what I am asking --

MR. VEEDER: Well, just a moment. I objected to it on the ground that he is asking a legal question.

THE COURT: I heard your objection. He is trying to answer it. You were trying to respond to his objection, Mr. Burchette.

MR. BURCHETTE: Well, I think it is quite clear what I am trying to do, Your Honor. I am trying to find out from Mr. Thorp how it is that he knows that it was a reserved water right on which they based the assessment.

THE COURT: He may answer, if he can.

MR. BURCHETTE: Back in the 1920's.

MR. VEEDER: May I ask the witness a question, then?

THE COURT: No, you may not.

A Just supposition with me, more or less, except on my own land or my father's land, at that time.

MR. VEEDER: I object to any answer. He says it is just a supposition, Your Honor.

THE COURT: The record will stand.

Q (By Mr. Burchette) In evaluating a piece of property with a reserve water right, how would you assess it as opposed to, say, a normal appropriative right or is there a distinction between the two in the assessment?

A Not to my knowledge.

Q So, there is no difference between the valuation with a reserve water right as opposed to an appropriative water right; is that correct?

A To my knowledge, there is not.

Q Mr. Thorp, do you know the difference between what is referred to as a reserve water right as opposed to, say, the definition for an appropriative water right?

A I do not.

MR. BURCHETTE: I have no further questions,

Your Honor.

THE COURT: Mr. Veeder?

MR. VEEDER: No, I have no questions.

THE COURT: You may step down, Mr. Thorp. Thank you.

MR. PRICE: Thank you, Mr. Thorp.

(Witness is excused.)

MR. PRICE: Call Wilson Walton to the stand.

MR. THORP: May I be excused?

THE COURT: Yes. Is there any reason for not excusing the witness?

MR. SWEENEY: No objection, Your Honor.

MR. VEEDER: No, Your Honor.

THE COURT: You may be excused from further attendance, Mr. Thorp. Thank you.

(Mr. Thorp is excused from further attendance at trial.)

MR. PRICE: If I may try and put up another exhibit, Your Honor.

THE COURT: You may.

WILSON W. WALTON, defendant herein, having been previously sworn on oath, testified as follows:

DIRECT EXAMINATION

BY MR. PRICE:

Q When you first moved onto the property in 1948, did you have occasion to observe the valley floor on your land in terms of the grasses throughout the summer season of '48?

A Yes, I did.

Q And can you tell this Court whether those -- were you mechanically diverting water and irrigating the year you got there?

A The beaver dams?

Q The very first year. Mr. Walton, just a minute, please.

What did you observe about the grasses on your land the first summer year you were there? Did they dry up or did they stay green or what?

A No, they stayed green all summer, especially in what I call the bottom land, the flat land --

MR. VEEDER: Your Honor, may I just raise an objection to further testimony by this witness. I'm sorry to interrupt, but Mr. Price had this same witness on for direct examination. He made no reference to the right to recall this witness. We are opening up an entirely new field of direct examination on the witness that was -- there was

no request to have the right to recall him when the witness was let off the stand to begin with.

Now, if we are going to reopen this case, I think it ought to go into the record on it, Your Honor. I have never heard of -- well, I'm going to object to it because I think it is entirely improper.

THE COURT: Counsel, what is the purpose of recalling the witness?

MR. PRICE: To testify about the matters that we have heard about here today, Your Honor, which I can't say that I knew they were going to come up. They happened to. He has prepared an exhibit depicting the state of the land when he came there in 1948 which I think is very pertinent to this case and I would like to have him identify it. He has drawn in the beaver dams, the areas, the treed areas that he cleared and such, which has relevancy to this phreatophyte consumptive use matter and he was not discharged during his previous testimony, and we are not attempting to cover any similar ground. We are not going back over any --

MR. SWEENEY: It looks to me like this is a matter of rebuttal in normal handling of a trial procedure.

THE COURT: Well, it really is, but we have a funny alignment of parties. In essence, they are defendants and they almost have to come in surrebuttal and that is what we are trying to avoid, I think, is to get this case completed within the normal response and rebuttal.

MR. VEEDER: I think you said it very well, Your Honor. I think this is where we are. I think when I put on our rebuttal, if we are going to have some rebuttal, but I submit, Your Honor, this coming in in advance is something entirely out of my ken.

THE COURT: But you missed my point. My point is, if I accept your analysis of it then I'm going to have to permit him to come back in surrebuttal and I don't want to have to open it up on surrebuttal. I would rather open it up right now and let you attack it on rebuttal, so I'm going to let him continue, within the limits you just told me.

MR. PRICE: Thank you, Your Honor.

THE COURT: All right.

Q (By Mr. Price) Mr. Walton, calling your attention to Exhibit marked EEEE-W, can you state what that is, please. Did you draw that exhibit?

A I did.

Q All right. What does it depict, please.
A I have represented here the amount of trees and brush over the property that I bought and the beaver dams that dammed the creek at different spots on this land. Now, these beaver dams were built up from the year 1948, the summer I was there, until 1953 in which I had a State trapper come in and trap out the beaver and I took ditching powder and blew out almost all of these dams in the creek.
Q Would these beaver dams trap water, surface flow water in No Name Creek?
A Yes. The amount of water that they trapped depended entirely upon their location. For instance, this dam right here was approximately the length of this room and I should say four to five feet high. It formed a lake back here, I would guess in the neighborhood of five acres. This beaver dam was two to three times that length, about 18 inches high. This beaver dam was very similar to this one. This area in here was a swamp. Some places the water was that deep, some places like that, some places just barely covering the ground. All this area through here was covered entirely in cottonwood trees ranging anywhere from this height or that big around, up like that.

Q Would you estimate for the record, state what size of the diameter of the trees was, rather than showing with your hands, can you approximate the diameter of the trees?

A From four inches to ten inches.

Q All right. Why were there beaver dams, the two beaver dams, the last two beaver dams you talked about are not on the No Name Creek. Where was the water coming from for those dams?

A Would you say that again.

MR. MACK: Excuse me. Before you go on, I apologize, but if the record is going to be clear, is that marked?

THE COURT: That is EEEE-W.

MR. MACK: We are in the quads.

MR. VEEDER: Have you offered that?

MR. PRICE: No, I haven't.

Q You prepared this exhibit; is that correct?

A That is correct.

Q And you, in this exhibit, attempted to depict the state of your property when you purchased it; is that correct?

A That is correct.

MR. PRICE: I would offer Exhibit EEEE-W.

MR. SWEENEY: May I look at that, Your

Honor?

THE COURT: You may.

Off the record.

(Off the record at the easel.)

THE COURT: Back on the record.

MR. SWEENEY: Your Honor, one question.

Mr. Walton, did you prepare that just recently?

THE WITNESS: Yes.

MR. SWEENEY: In the last few days; is that it?

THE WITNESS: Yes.

MR. SWEENEY: Well, the Government has no objection as far as Mr. Walton's testimony on this. We fail to see the relevance of what the situation were with the beaver dams in 1948 to any of the issues in the case. I know that an objection based on relevance is not normally favored by the Court, but in this one, I don't really see the relevance of any of that at all.

THE COURT: What is the relevancy.

MR. PRICE: We are trying to depict the consumptive use that was being made, that obviously would have been made on that property in its state when Mr. Walton found it and presumptively if it returned to a state of nature.

THE COURT: Counsel, I am going to let him go into this and use the exhibit, because I'm not certain at the moment as of what date I have to end up testing his rights, if any. It might be the date of acquisition and the conditions then existing. It might go back to treaty days or it might never come into existence. I'm not going to prejudge that. We might just as well have the record.

MR. SWEENEY: Yes, Your Honor.

MR. PRICE: Thank you, Your Honor.

Q Mr. Walton, you have depicted two lengthy beaver dams which are not located on No Name Creek on Exhibit EEEE-W; is that correct?

A That is correct.

Q Where was the water coming from for those dams, for those ponds?

A That was seepage water that arose from three springs in that sump hole or where the sump hole is now.

Q This is water separate and apart from the surface flow of No Name Creek?

A Yes.

Q And does that exhibit depict the extent and areas that were forested, that had trees on the property when you acquired it?

MR. VEEDER: I object to this statement.

There is no statement that the land was in forest at any time.

THE COURT: Restate the question. I think that is right.

Q (By Mr. Price) Does Exhibit EEEE-W depict the areas that were covered by trees when you acquired the property in 1948?

A In this area here?

Q Does the exhibit depict those areas?

A Yes.

Q And what kind of trees were they?

A Did you want me to trace -- ?

Q No, just tell me what the type of trees?

A All of the trees, the trees in all of the property.

Q Can you tell me what type of trees they were?

A Yes. Starting in here, coming around like that was a dense, very dense growth of cottonwoods. That was entirely cottonwood.

Q You have circled an area approximately from where your present sump is located, going in a south-westerly direction toward No Name Creek; is that correct?

A That is correct.

Q All right. Were there other areas that were treed when you obtained the property in 1948?

A Yes. South of the large rock was another dense growth of cottonwoods covering approximately eight acres. It extended from No Name Creek eastward to the road, southward, I'd say a quarter of a mile, and then diagonal across back to the No Name Creek.

Q In a northwesterly direction.

A Yes.

Q Are there any other areas?

A There was another area at the south end of the place along the road extending about a quarter of a mile north and about 200 feet wide which was entirely birch.

Q Any other areas?

A There was another large area north of the house extending northward about 400 yards and about five to six hundred yards wide which is an extremely dense growth of birch.

Q Any other areas?

A About halfway down the place, east of the road, and west of what is the sump, was a large section covering about 12 to 15 acres of pine trees, brush and thorn bushes.

Q Do you have, of your own knowledge, an idea as to how much water consumption was being made by the cottonwood trees, for instance?

MR. VEEDER: I object to this question. This witness is not qualified to respond to such a question. He is not -- absolutely got no qualifications on this point, in the record at least.

MR. PRICE: If I can qualify -- if I can make an offer of proof.

THE COURT: You may try and lay a foundation for the question.

Q (By Mr. Price) Mr. Walton, did you clear those, some of those treed areas in order to farm the land?

A I cleared every one of them.

Q Did you have occasion -- in clearing them, I take it you had to chop the trees down.

A Yes.

Q Did you ever make a personal observation as to what happened when you chopped the trees down in connection with the water?

A I have.

Q What was that observation?

A That observation is very definitely shown in a cottonwood. If you take an axe and just cut through the bark of a cottonwood, you will actually have a stream of water, dripping out of it or running. If you cut the stump or cut a ten inch cottonwood off, the water flows right out.

Q Do you have knowledge about water flow measurements?

A Yes, I have.

Q And based on your knowledge, did you make a determination as to how much water you observed coming out of a cottonwood tree?

MR. SWEENEY: Just a moment, Mr. Walton.

A I actually did not --

THE COURT: Just a moment.

MR. SWEENEY: Excuse me, Mr. Walton. The Government would object to this. If this is directed toward establishing water right, I believe that use, the natural use of trees and so forth is an establishment of a right to use of water. We object to this.

THE COURT: I will sustain the objection.

Q (By Mr. Price) Was it necessary to remove the beaver from the land in order to farm it?

A It was, after about 1951.

Q Are there still beaver on the premises?

A There are.

MR. PRICE: That is all I have. Thank you, Mr. Walton.

THE COURT: Cross-examination?

MR. SWEENEY: No, Your Honor.

THE COURT: For the State?

None for the Government?

Mr. Veeder?

MR. VEEDER: I'm going to ask a few questions, Your Honor.

THE COURT: Excuse me. I thought you shook your head, Mr. Mack.

MR. MACK: I'm sorry. I have no questions.

THE COURT: Thank you.

Mr. Veeder: You may proceed with cross-examination.

MR. VEEDER: I would like to have marked for identification, I think this would be Colville Exhibit No. 40.

THE COURT: What does it purport to be, Mr. Veeder?

MR. VEEDER: It is an aerial photograph in 1936, Your Honor.

May I have just one moment.

THE COURT: You may.

CROSS-EXAMINATION

BY MR. VEEDER:

Q Now, can you hear me, Mr. Walton?

A Yes, sir.

Q You said that the cottonwood trees were ten inches

in diameter?

A I did not.

Q I thought you said that's what they were.

A I said they ranged from four inches to ten inches.

Q In diameter?

A That is right.

Q And then what would be the circumference of those trees?

A Multiply by 3.1416.

Q And they would be -- you are good at math and I'm not. What would that put it to?

A Somewhere in the circumference of 12 inches to 30.

Q So, they would be very good sized trees, would they not?

A That is right.

Q And it would take, have you ever watched cottonwood trees grow?

A How was that, sir?

Q Have you observed the length of time for a cottonwood tree to grow to dimension of 36 inches?

A I'm sorry --

Q I mean circumference.

A I'm sorry. I didn't get the question then.

Q Well, I will just move along on this.

I show you --

MR. VEEDER: May I approach the witness.

Q Have you any idea how long it would take a cottonwood tree to grow to the dimensions you describe?

A Depends on the conditions in which they are grown. If it is swampy conditions, they will grow extremely fast.

Q So, --

A If they are in a dry condition, it will take much longer.

Q Ten or twelve years? To grow to the dimensions that you just referred?

A I should say for flowing stream, ten or twelve years, yes.

Q Now, I show you an aerial photograph.

MR. VEEDER: Counsel, do you want to join me?

MR. PRICE: Could we --

MR. VEEDER: Would you like to have it laid out on your table?

MR. MACK: I certainly would like to see it.

THE COURT: Can't you put it up on the easel?

Q (By Mr. Veeder) Can you orient yourself on this

before we put it up?

A Yes.

Q All right, I will just have them put it up, then, Mr. Walton.

Mr. Walton, are you experienced at all in viewing aerial photographs?

A I have, sir.

Q So, this is nothing new?

A No.

Q And you would be able to identify the property, your property.

A I will.

Q On a normal --

A Yes.

Q -- aerial photograph.

A (Nodding yes.)

MR. MACK: Your Honor, I hope I'm not delaying anything.

MR. VEEDER: Did you want to go and look at it?

MR. MACK: Well, is this going to be offered?

MR. VEEDER: It certainly is.

MR. MACK: Is there going to be any testimony as to who took it and what the scale is

and where it comes from?

THE COURT: You have any reason to question it?

MR. MACK: I have never seen it, so I guess --

MR. VEEDER: Why don't you go ahead and look at it.

THE COURT: You have a right to question.

MR. VEEDER: I might point out, Your Honor, the witness did say he could locate No Name Creek on that.

Your Honor, I regret the delay on this but this -- would it be permissible to have one of my people hold that?

THE COURT: The Bailiff can hold it.

Q (By Mr. Veeder) Now, Mr. Walton, would you orient yourself on this aerial photograph which is marked for identification as Colville Exhibit No. 40. For example, can you locate the Mission on that? Wouldn't this be the Mission right here?

A Yes.

Q And you are sure of that yourself now. You are sure that is the Mission area?

A Yes.

Q And then would you proceed on south and see if you

could locate, yourself, again, because I want you to be sure that you are oriented on that.

A Yes, sir. This would be our northern line right there.

Q I will give you a red pen. Will you just see if that will show up on there, please, sir.

It doesn't show up very well. Have you got that heavy red pen?

THE COURT: Is there a marking pen behind it?

THE BAILIFF: This is blue.

Q (By Mr. Veeder) And that is your northern line?

A Yes.

Q Now, Mr. Walton, and you delineated your southern line?

A Yes, right there.

Q Of all of your property?

A Yes.

Q Doesn't it go further south than that?

A No. I believe this is the granite lip right in here.

Q All right. Now, I'm asking you, do you observe on that aerial photograph the lands that you came onto in 1948? You do see those lands; don't you?

A Which?

Q This is where you came on in 1948?
A Yes.
Q And do you observe where you have your sump now placed? Can you find that?
A Where I have what?
Q The sump. And is that generally where you say the springs were, Mr. Walton?
A I think so.
Q Now, do you observe any beaver dams on this aerial photograph?
A No, you can't see them.
Q They don't appear on this map; do they?
A No.
Q Now, do you see heavy vegetation in there of the kind you described?
A Any what?
Q Vegetation, trees, big trees?
A Yes, I can. I can recognize them.
Q Well, I'm asking you now to look in what we would call the northeast corner of your property that you now are occupying.
A Yes.
Q And do you find large trees there?
A I do, all up through there.
Q Are those trees, Mr. Walton?

A They are, sir.
Q Large cottonwood trees? They are large cottonwood trees on this map?
A They are birch trees. Not pine, they are birch.
Q And they are not cottonwood?
A No. You can look at that map I have drawn over there. That identified as this section in here. Those are birch trees.
Q And you are pointing now to the west side of the --
A I pointed to this section in here.
Q And that is west of the No Name Creek; isn't that right?
A That's right.
Q And --
A And it's west of No Name Creek and also including No Name Creek. No Name Creek runs right like that.
Q Right.
A And there are the trees I pointed out.
Q And I was referring, sir, to the northeast corner of it.
A That's right.

THE COURT: Just a moment. Hold it a minute.

MR. SWEENEY: On behalf of the Government, we would like to interpose an objection. I think

we are going off on an irrelevant discussion and it's becoming a dialogue between Mr. Veeder and Mr. Walton which I don't think is benefitting the rest, nor the record.

THE COURT: I think the observation is well taken.

MR. VEEDER: Well, Your Honor, if I may be heard for just a moment.

We have depicted on this exhibit -- I agree to some degree with Mr. Sweeney's objection, but bear in mind, this went into the record, Your Honor, over Mr. Sweeney's objection, and I am caught in a vise as to whether to let this go unchallenged or not.

Now, looking at EEEE-W --

THE COURT: Well, Counsel, in the first place, that hasn't gone into the record. You are still identifying it.

MR. VEEDER: I thought it had been offered.

THE COURT: No.

MR. VEEDER: Didn't you offer it?

MR. PRICE: I thought I offered it.

MR. SWEENEY: I thought the objection that the Government made as to the relevancy of the water bearing propensity of birch trees and

alder trees and so forth was upheld. I thought that that extended also to the proposed exhibit, that was not entered and --

THE COURT: You asked some questions about it on voir dire, and that was the end of it.

MR. PRICE: But you ruled that you would allow it.

MR. VEEDER: Well, I have been off the sled for some time. I can see that.

MR. PRICE: I will, to speed things up, Your Honor, offer EEEE-W.

MR. VEEDER: EEEE?

THE COURT: Yes.

MR. VEEDER: That's right, it is four E's.

THE COURT: It was not previously offered. You were examining it as to who made it and what was on it, but it has now been offered.

MR. SWEENEY: Well, the Government will restate its original objection to this line of inquiry which automatically would include that particular exhibit.

MR. VEEDER: This may sound strange, but I will join the Government in that objection because I think it is totally irrelevant, but if it is in, I have to respond to it, Your Honor.

THE COURT: The Exhibit will be admitted.

(Defendant, Walton's, Exhibit EEEE-W is admitted.)

THE WITNESS: Your Honor.

MR. PRICE: Mr. Wilson, just a moment.

THE COURT: The Exhibit is admitted.

Now, you may proceed.

MR. VEEDER: Thank you.

THE COURT: 40 has not yet been admitted.

MR. VEEDER: I am just about to offer it.

I do offer it. The witness says he can orient himself on it and I do offer this aerial photograph which has marked up here 1936.

THE COURT: The State asked for voir dire, I believe.

MR. MACK: Well, yes.

THE COURT: On 40?

MR. MACK: Yes, but I don't think I can ask any questions of Mr. Walton that would --

VOIR DIRE EXAMINATION

BY MR. MACK:

Q Mr. Walton, do you know where that photograph came from?

A Yes.

Q Do you?

A Yes, I do.

Q The aerial photograph?

A I have it. Small one?

Q You have a small copy of that?

A I think so.

Q Of the same one?

A It certainly looks like it.

Q And where did you obtain your copy?

A Soil Conservation Service.

Q Do you know who took the photograph?

A No, I don't.

Q Well --

MR. VEEDER: Well, thank you, Mr. Mack.

A It was taken by plane for the Soil Conservation Service.

THE COURT: Well, Counsel, really, I think the only relevant question is the the date of the photograph. Do we have any information as to when this photograph was taken?

MR. VEEDER: The date is up there in the corner, left-hand corner.

THE COURT: All right. Go ahead.

Q (By Mr. Mack) Well, does that photograph also indicate -- and Mr. Veeder has offered it -- does

it also indicate, can you spot Omak Creek on that photograph?

A Omak Creek?

Q Yes, Omak Creek.

MR. VEEDER: Well, this sounds like cross-examination to me now.

MR. MACK: Well, no, I want to know what is on there. I didn't fly the plane.

May I approach. I think we can speed this up.

THE COURT: You may.

Q (By Mr. Mack) Mr. Walton, am I correct that this photograph covers an area that includes Omak Creek and Mission Creek?

A Yes.

Q Well, I don't know if Mr. Veeder is trying to expand the case to cover Mission Creek too.

MR. VEEDER: I didn't expand it at all. I am limiting it strictly to --

THE COURT: Counsel, the only reason this is being offered, at least the only reason I'm going to consider it, he has testified as to the condition of this property in 1948. There is a 1936 aerial photograph that may have some relevance to the condition of the ground 12 years later. I'm not sure about that, but that is the only purpose.

MR. MACK: Well, Your Honor, if it is used just to illustrate Mr. Walton's testimony, as I understand it, then I have no objection, if that's his only purpose.

THE COURT: That is all.

MR. VEEDER: It is not offered to -- it is offered to contradict his testimony.

MR. PRICE: I would not have any objection if we could have the scale of the map. I think that would become relevant in terms of what we are looking at. I assume we didn't have satellites at that time, but it appears to be at some height in terms of what scale we are working with.

THE COURT: Well, Counsel, I think for the purpose, the only purpose for which I will consider it, that is going to become immaterial, because it is all relative to the areas that have been described during the course of the trial. So, I am going to admit the exhibit.

(Colville Exhibit No. 40 is admitted.)

CROSS-EXAMINATION CONTINUED

BY MR. VEEDER:

Q Mr. Walton, can you identify bodies of water on this

aerial photograph? Can you locate bodies of water, and did you point out where the sump was, Mr. Walton? The sump.

A Was right there.

Q Do you find any bodies of water down there, and would you just take your blue and put your initials down there.

THE COURT: Better have him write sump. I won't know a week from now what you're identifying.

MR. PRICE: This is the sump that is there now? I assume it was not there in 1936.

MR. VEEDER: Oh, no, it was not, but I just thought it might help.

Q Have you got it? Do you find bodies of water down there, Mr. Walton, in your observations?

A Because I know where it is, I know what to look for.

Q Good. Bodies of water.

A It's there.

Q And where are those bodies of water? Now, I'm talking about the sump, Mr. Walton.

A That is the sump, right there.

Q Yes, but now I am referring here to where you say there was a beaver dam and body of water.

A There was a body of water down here. This is the

rock. This is the bedrock. That was a beaver dam here and a pond there, about eight acres, five to eight acres.

Q And that is off of No Name Creek?

A No, No Name Creek came by here and it was dammed right there. No Name Creek was dammed, and it backed up from that dam.

Q Up toward the sump, right?

A The sump?

Q Yes.

A Right there.

Q Were there bodies of water below the sump here?

A As I explained, this whole section down to here was a swamp. Some places the water was standing that deep and some places like that. It was grass, hummock, and you could hardly walk through, the ground was so soft.

Q Do you find anything comparable on the aerial photographs?

A I do. From that point there, right on down. All of those little dark spots in there indicate those cottonwood trees.

Q Now, aren't you pointing to the bed of No Name Creek when you are doing that pointing?

A It's what?

Q Aren't you pointing to the bed of No Name Creek?
A Pointing to No Name Creek?
Q Yes.
A No, I'm pointing to a section of land between the road right here. Here is your road coming down. Here is No Name Creek over here. I'm pointing to a section of land between No Name Creek and the road.
Q And you find beaver dams on that?
A Certainly.
Q And you see them, beaver dams, on the 1936 aerial?
A No, you can't see them.

MR. VEEDER: I have no further questions, Your Honor.

THE COURT: All right.

MR. VEEDER: If you can't see them, that's it.

THE COURT: Further cross-examination? Redirect?

MR. SWEENEY: Government has no cross.

THE COURT: You may step down, Mr. Walton. Thank you.

(Witness is excused.)

MR. PRICE: Your Honor, I would like to reserve the right to recall Mr. Hampson, Charlie

Hampson. He is not here at the present time. I would like to reserve the right to call him. I believe I asked him the state of irrigation in my direct examination of him, in the early 1920's. I do not believe that in my examination of him as to the state of irrigation -- (inaudible) -- vicinity of Omak --

THE REPORTER: Mr. Price, I can't hear.

(Exhibits are being taken down from easel.)

THE COURT: While that is going on, he can't get anything you are saying.

Counsel, it may be a good time to take the afternoon recess. Perhaps counsel can reorganize the exhibits during the recess that they are going to use the rest of the afternoon. Court will be in recess 15 minutes.

THE CLERK OF THE COURT: All rise. Court is now at recess for 15 minutes.

(Afternoon recess is taken.)

THE BAILIFF: All rise. Court is reconvened following recess.

THE COURT: Are you back on redirect or calling a new witness?

MR. PRICE: I think I am ready to quit, Your Honor. I have a few housekeeping functions.

THE COURT: Very good.

MR. PRICE: I should comment. That is the biggest smile I have seen on your face for some time when I said I'm going to quit.

THE COURT: Unfortunately, you are only one-fourth.

MR. PRICE: I would like at this time to move for the publication of the deposition of Eri, E-r-i, B. Parker, P-a-r-k-e-r, which was taken on July 21, 1976, in Spokane before a court reporter with Harry Johnson representing the Colville Confederated Tribes. I was representing the Waltons and James B. Crum, U.S. Assistant Attorney was representing the plaintiff, United States of America. The State was notified of the deposition but did not attend.

The Stipulation for the deposition provided that, among other things, it was taken for the preservation of testimony. Mr. Parker has since

died. He was one of the original surveyors on the Colville Reservation when the land was allotted and the individual Indians would ask for allotments, he would participate in actually surveying the property for the individual Indian allotments.

Also, as part of that deposition was an exhibit which I consider a historical document, a map drawn by the Indian agent at that time showing depiction of various allotted tracts, Indian lands, and lands that were out of trust.

MR. SWEENEY: I have no objection.

MR. VEEDER: I have never seen those.

MR. PRICE: Your office was represented by Harry Johnson at your request, Mr. Veeder.

MR. VEEDER: Well, as I say, I still have never seen the deposition and I have never seen the exhibit to which you are referring.

MR. PRICE: Well, that's --

THE COURT: I can't change that, I guess, but if it was taken by stipulation, it is entitled to be made part of the record. Now, we can do one of two things. We can put somebody on the stand and we can read it into the record or if counsel prefers, I will simply read it, but I think it is entitled to be put into the record, if it was

taken on proper notice and stipulation.

MR. VEEDER: Well, I wouldn't want to take the time to have it put into the record, Your Honor. I would just as soon -- would you give me the date on that.

MR. PRICE: July 20, 1976, taken at Rockwood Manor here in Spokane before Mr. Baer, a notary public.

MR. VEEDER: May I just have a moment.

THE COURT: Is that the only copy in existence?

MR. PRICE: I hope not.

MR. MACK: Your Honor, the State has no objection.

MR. PRICE: I am assuming the original has been filed with the Court.

THE COURT: Bailiff, would you check the files on my desk. I don't recall ever seeing this.

MR. PRICE: This is the only copy I happen to have, Your Honor. I would be willing to have the copy identified.

MR. VEEDER: I would like to withdraw it and copy it. It was stipulated to.

THE COURT: Was there any objection to the exhibit at the time of the deposition?

MR. PRICE: There was none, Your Honor.

MR. VEEDER: And this is the exhibit?

MR. PRICE: That is a copy of the exhibit. The original is with the original of the deposition.

THE COURT: It might be in the Clerk's office. I just haven't seen it.

Does counsel desire this to be made a verbatim record or would counsel be willing to stipulate it be made a part of the record and the Court will read it?

MR. VEEDER: It is perfectly all right to have it made a part of the record for Your Honor to consider.

MR. PRICE: That's fine.

MR. MACK: Yes, Your Honor.

MR. SWEENEY: Yes, Your Honor.

THE COURT: All right, the Parker deposition will be admitted. Parties have stipulated this need not be read into the record at this time but the Court will read the deposition.

MR. PRICE: Before the break, Your Honor, I was asking to reserve the right to recall Mr. Charlie Hampson with respect to testimony regarding the irrigation practices in Omak in Okanogan County in the late 1940's and quite honestly my notes

don't reflect to me whether or not I may have gone into that. I do not believe I did. The testimony would be brief. I would like the right to recall him when he is able to arrive.

THE COURT: Is there any objection to permitting reopen?

MR. SWEENEY: The Government has no objection if it is limited to practices in general, as I understand it, for irrigation in Omak and Okanogan Counties, during the 1920's -- is that?

MR. PRICE: 1940's. He testified the first time on the 1920's and I would like to update it to the 1940's.

THE COURT: State?

MR. MACK: No objection.

THE COURT: Tribe?

MR. VEEDER: No.

THE COURT: You may reopen.

MR. PRICE: Thank you, Your Honor. Thank you, Counsel.

Your Honor, as part of the motion that we took up this morning with our offer of proof of waters from Omak Creek, I have also requested in that motion that the Court not consider waters from the upper basin for use for allotments in the lower

basin on the same basis, as I understand, that the Court's ruling does not allow the Waltons to put that evidence on with regard to Omak Creek, there not being a direct hydrologic connection. That may better be left for argument rather than at this point.

THE COURT: I think so, Counsel, because there is some evidence in the record that I don't think the record is entirely undisputed on that point.

MR. PRICE: All right. Last, I would like to ask that on my cross-examination of Mr. Watson, he agreed to provide me with the calculations as to how he arrived at his figure of .145. I believe it was the specific yield figure, and I would ask that those be provided to me while we are here.

THE COURT: Yes, what is that status of that. There was the request.

MR. PRICE: He indicated he had them in his room but not here at the courthouse and I was to receive those and I have never received those and I would like to renew that request and, with that, we would --

MR. VEEDER: Just a moment. You asked

they were, did you not, Mr. Price. I didn't know that you asked that they be delivered to you.

MR. PRICE: I asked -- I reviewed the transcript this morning back in the hotel, but I did ask for it.

MR. VEEDER: You did?

MR. PRICE: Yes.

MR. VEEDER: Well, we will get it for you.

MR. PRICE: Thank you.

THE COURT: They will be furnished then?

MR. VEEDER: Oh, yes.

THE COURT: Very good.

MR. PRICE: Defendant, Walton, will rest, Your Honor. Thank you.

MR. VEEDER: Your Honor, may I raise a point here now.

Throughout this testimony reference has been made to applications by the State -- application by Mr. Walton to the State for the application for appropriation of rights to the use of water.

I have obtained certified copies from the State of Washington of each of these applications that were made by Mr. Walton.

Now, I can wait until the State puts some witness on or I can offer these now so it would be

germane to and part of Mr. Walton's case. I think they are important to this case, and each of the Waltons have testified in regard to them.

Would it be proper, Your Honor? I am asking for direction on this. I would like to make an offer on each one of these and have them go into the record as a total record of the application to appropriate rights to use of water, the acceptance of them, sometimes rejection. They are here and I would like to offer them into the record, if I could.

MR. PRICE: I do not feel it is appropriate for Mr. Veeder to submit exhibits for the purpose of our case, Your Honor.

I would like to view the exhibits and if he wants to offer them as part of his case at the appropriate time, I --

MR. VEEDER: He was free to look at them when I -- they are here now, Mr. Price, if you want to look at them, fine.

THE COURT: You may offer them on rebuttal, then.

MR. VEEDER: Thank you.

THE COURT: Did I understand you rest?

MR. PRICE: Yes, Your Honor.

THE COURT: Does the State have defense?

MISS ECKERT: We do, Your Honor, and just to give some idea to the Court and to fellow counsel in the case, I might briefly outline the people who we expect to call.

First, we will be calling Mr. Peder Grimstad who will briefly testify about certain hydrologic matters, then Mr. Cline, Dr. Maddox, Mr. Wallace, and possibly tomorrow Mr. Kristopolis [phonetic], and that will amount to the testimony the State will present, and at this time we would call Mr. Peder Grimstad as our first witness.

PEDER GRIMSTAD, called as a witness herein, being first duly sworn on oath, testified as follows:

THE CLERK OF THE COURT: Would you please state your full name to the Court.

THE COURT: My name is Peder Grimstad.

THE CLERK OF THE COURT: Thank you.

DIRECT EXAMINATION

BY MISS ECKERT:

Q Mr. Grimstad, where do you presently reside?

A I live in Olympia.

Q And by whom are you presently employed?

A Department of Ecology.

Q What is your job title with the Department of Ecology?

A Section Head of the Water Resources Investigation Section of the Office of Water Programs.

Q And how long have you been employed in that capacity?

A Since the establishment of the Department of Ecology which I believe was in 1972.

Q Prior to your position with the Department of Ecology, can you explain by whom you were employed before 1972.

A I went to work for the Department of Conservation in 1967.

Q Let me interrupt you just a moment. The Department of Conservation, is that the predecessor agency of the Department of Ecology?

A Yes.

Q Excuse me.

A And I worked in water management for approximately one year and then I transferred into the Division of Adjudications. The Department of Conservation had become the Department of Water Resources.

Q Okay.

A I worked in adjudications as a mapping chief for approximately three, three to four years.

Q And prior to your employment with the State of Washington in those capacities, by whom were you employed?

A By Shell Oil Company.

Q And in what capacity?

A As an exploration geologist.

Q And very briefly, what did your duties involve in that regard?

A Initially, exploration in the field for oil, and after that I went to well sitting duties, offshore.

Q And how long, roughly, were you employed by Shell?

A 15 years.

Q And prior to your employment with Shell Oil, were you employed?

A While I was going to school, yes, I was employed by the National Bureau of Standards as a cement chemist.

Q And can you briefly state your educational background, whether you are a graduate from college and, if so, which college and with what degree.

A I graduated from the University of Washington with a Bachelor of Science degree in geology.

Q Okay. Now, turning to your present employment with

the Department of Ecology, can you explain for the Court what your duties entail with the Department of Ecology.

A The Water Resource Investigation Section works with the water management people of the Department of Ecology and advises them in technical problems regarding water quantities, both ground and surface.

Q In the course of your work, have you had the occasion to perform, for example, pump tests throughout Washington State?

A Yes.

Q Incidentally, have you, in the course of your work with the Department of Ecology, been to No Name Creek Valley and the vicinity?

A Yes, I have driven through the area.

Q Have you done any studies of any nature on No Name Creek and the water resources?

A No.

Q Now, in the course of your work with the Department of Ecology, the Water Resources Investigation Section, have you had occasion to become familiar with various techniques of determining quantities or availability of groundwater in locations throughout Washington State?

A Yes.

Q And do you consider yourself to be generally familiar with the various techniques that are used in this field --

A Yes.

Q -- to make those determinations.

Based upon that, Mr. Grimstad, can you briefly explain for a valley such as the No Name Creek Valley what methods would be available to a professional hydrologist, geohydrologist, whatever you call yourself, to determine the available water? Very briefly, what kind of methods could one use, if one wanted to find that out?

A The methodology that I would use?

Q Yes.

A If I were to study the area? I would approach it, I believe, from the inflow-outflow method or water budget method, because there is, there appears to be that type of control there, that is, we have the famous granite lip which gives us control on the outflow from the basin and at least at this time a goodly number of wells which would give us control on the water levels in the water table aquifer.

Q In the course of your preparation for this testimony, have you had the occasion to --

MR. VEEDER: I can't hear, Miss --

MISS ECKERT: Excuse me.

Q In the course of your preparation for appearing today, Mr. Grimstad, have you had the occasion to review the U.S.G.S. study, principally authored by Denny Cline?

A Yes.

Q And in your professional opinion, were the method -- was the methodology employed by the U.S.G.S. as reflected in that report professionally acceptable?

A Yes.

MR. SWEENEY: Just -- I don't believe this is really proper direct testimony. Mr. Grimstad, first of all, stated that he had driven through the area. He is merely providing us with a critique and various methods of doing so which I don't think is proper evidence in chief to establish any relevant facts or even opinions in this case.

THE COURT: Miss Eckert?

MISS ECKERT: Well, Your Honor, I think as we get toward the end of this case, we are all getting wound up in the order of presentation. Perhaps Mr. Grimstad's testimony is more properly characterized as rebuttal. We are trying to save some time and also, quite frankly, to allow him to

take the late plane back home this evening. There has been question as to whether or not the United States Geological Survey methodology as applied to the particular study that they performed was an acceptable methodology and we have here in the testimony by a fellow hydrologist that, in his opinion, it is an acceptable method. That is the only purpose for which it was brought out.

THE COURT: I will overrule the objection. Go ahead.

Q (By Miss Eckert) Mr. Grimstad, is another method which one, a hydrologist, can use to determine availability of water resources -- a groundwater resource in a valley such as the No Name Creek Valley, the flow net method?

A Yes.

Q Have you had occasion to use the flow net method in your work with the State of Washington?

A No, I have never used it.

Q Now, very briefly, are you generally familiar with the definitions aquifer, aquiclude, and aquitard?

A Yes.

Q As they are used by the professional hydrologists.

In general, is the definition of aquifer as you would use it, is that expressed in quantitative

terms?

A Not that I'm aware of.

THE COURT: What was that third one, Counsel?

MISS ECKERT: What was the third one?

THE COURT: What was the third one.

MISS ECKERT: Aquifer, aquiclude and aquitard.

MR. VEEDER: Aquitard?

MISS ECKERT: A-q-u-i-t-a-r-d.

THE COURT: Okay.

MR. VEEDER: Did anyone use that term?

MISS ECKERT: He just did.

THE COURT: He just did.

MR. VEEDER: Something has been added.

THE COURT: Go ahead.

Q (By Miss Eckert) Finally, Mr. Grimstad, have you had any occasion to make comparison of the amounts of water used by Mr. Walton in his diversion of water in comparison to the amount that water would have contributed to Omak Lake had it not been used by Mr. Walton?

A Yes.

MR. VEEDER: I will object to this, Your Honor.

THE COURT: Why?

MR. VEEDER: Well, this man said he made no study in there.

THE COURT: She just asked him that, if he has made any. He hasn't answered it yet.

You may answer.

A I believe I have answered. Yes.

Q And then, can you explain for us, strike that -- excuse me.

Do you know, Mr. Grimstad, how much water Mr. Walton used in 1976?

MR. VEEDER: I object to this, Your Honor. This witness hasn't been here throughout the entire trial; has he?

MISS ECKERT: Counsel, he can answer yes or no and then the next question is where did he get the information.

THE COURT: Let her proceed, Counsel.

A Yes.

Q And, Mr. Grimstad, then, upon what do you base your answer of yes that you do know how much water Mr. Walton used in 1976?

A On the basis of the figures given in Mr. Cline's report.

Q So, you used the Cline report?

A Yes.

Q And using that report, then, what was the figure you came up with for Mr. Walton's water use for 1976?

A 182 acre-feet.

Q Now, can you tell me, then, in comparison to Omak Lake, what the relative contribution of that 100 -- excuse me, I have forgotten your figure.

A 182.

Q -- 182 acre-feet for 1976, how much water that would have contributed to Omak Lake, if you know, and if you do know, would you please state your opinion and upon what it is based.

MR. VEEDER: Well, I renew my objection to this, Your Honor. Certainly there is no factual basis that this witness has stated upon which he can draw his conclusion. He has stated 182 acre-feet in 1976, but I find no predicate whatever as to the quantity of return flow from the 182 acre-feet or where it would go if there was return flow.

THE COURT: Counsel, in what sometimes is termed as the "good old days" when I was in the practice of law, your objection would be well taken, but under the present federal rules of evidence he is permitted to explain, give his opinion, and in

cross-examination you may attack the basis for the opinion.

MR. VEEDER: I understand.

THE COURT: Objection overruled.

MR. VEEDER: I understand the federal rules are new, Your Honor, and I'm trying to live with them.

THE COURT: You may proceed.

MISS ECKERT: Let me try it this way.

Q Mr. Grimstad, do you know the area covered by Lake Omak? Do you know the size of Lake Omak?

A Yes.

Q And how do you know that? From whence does that information come?

A From Mr. Wolcott's book of Lakes of Washington.

Q I hand you what is marked for identification TTT-SW, and ask you if you know what that is.

A Yes. This is a xerox copy of the page in the Water Supply Bulletin 14, Lakes of Washington, Volume 2, Eastern Washington, by Ernest E. Wolcott, Third Edition, Olympia, Washington, 1973.

Q And the second page of that proposed exhibit?

A That is a xerox copy of page 323 of the publication.

Q And what does that page show to you, if anything?

A I gives me the figure that I used in my determination

and that figure is 3,243.9 acres.

Q Now, let me ask you this, Mr. Grimstad, have you had opportunity in the course of your employment with the Department of Ecology to use the Lakes of Washington book before?

A Yes.

Q The Wolcott book.

A Yes.

Q And have you generally found it to be a reliable source of information?

A Yes.

Q And is it the kind of information that, well -- strike that.

Using the surface or the area, then, of Omak Lake, and were you able to draw any comparisons between that and the water used by Mr. Walton in 1976 which you previously testified, 182 acre-feet?

A Yes.

Q And what was your conclusion, your opinion, if you have one?

A The draw down -- if the water had been coming from Omak Lake, the draw down in the water level of the lake would have been .7, .67 inch.

Q Now, for -- that was the 1976 figure; is that correct?

A Correct.
Q Incidentally, is that a measurable kind of draw down, in your opinion?
A No, no, it certainly isn't.
Q Okay. For 1977, do you have an idea -- do you know how much water Mr. Walton used in 1977?
A Yes, from the same source of information, Mr. Cline's report.
Q And what was that amount of water?
A 250 acre-feet.
Q Okay, and then again, comparing it to Omak Lake, did you arrive at any conclusion as to the amount of draw down in Omak Lake?
A Yes.
Q What was that conclusion?
A Nine-tenths of a inch.
Q Again, is that, in your opinion, a measurable?
A No, that is not.
Q And have you, Mr. Grimstad, made any estimation of the evaporation rate from Omak Lake?
A No, I haven't.
Q Do you have any idea of how much water is evaporated from the surface of Omak Lake over the period of a year?
A That information is available. I don't have it.

MISS ECKERT: I have no further questions at this time. Thank you.

THE COURT: Cross-examination?

Mr. Burchette.

MR. BURCHETTE: I just have a couple of questions, Your Honor.

CROSS-EXAMINATION

BY MR. BURCHETTE:

Q You testified that you just drove by the No Name Creek Valley; is that correct?

A Drove through the area; yes.

Q Have you gotten out and walked on the property, either Mr. Walton's property or the Indian property in this Valley?

A On my second visit, I walked a stretch of the stream below the granite lip and I walked in the vicinity of the granite lip.

Q How many times have you been on the property?

A That was it, that one time.

MR. BURCHETTE: I have no further questions, Your Honor.

THE COURT: Mr. Veeder?

MR. VEEDER: I have no questions, Your Honor.

THE COURT: You may step down, Mr. Grimstad.

(Witness is excused.)

MISS ECKERT: Your Honor, if you will excuse the professional untidiness, I would like to offer Exhibit TTT-SW at this time.

THE COURT: That is the lake bulletin?

MISS ECKERT: That is correct.

MR. PRICE: No objection, Your Honor.

MR. VEEDER: I have no objection.

MR. SWEENEY: (Nodding no.)

THE COURT: TTT-SW is admitted.

(State Exhibit TTT-SW is admitted.)

MR. MACK: The next witness for the State would be Mr. Carpenter.

PHILIP J. CARPENTER, called as a witness herein, being first duly sworn on oath, testified as follows:

MR. MACK: Could you give your name please for the Court.

THE WITNESS: My name is Philip J. Carpenter, one "L" in Philip.

. . .

DIRECT EXAMINATION

BY MR. MACK:

Q Who are you employed by, Mr. Carpenter?

A Department of Interior, U.S. Geological Survey.

Q And where are your offices?

A Tacoma, Washington.

Q And what is your title with the Geological Survey?

A Associate District Chief.

Q And what do your duties include?

A I am second in command of the entire operations in the State of Washington and have direct responsibility for the collection and analysis of hydrologic data.

Q How long have you worked for the Survey?

A Since 1958 with two years out for the Army.

Q And where else have you worked for the Survey, and in general what have you done for it?

A I started in Iowa and worked there roughly three years doing stream flow measurements, two years in Iowa doing special studies including low flow investigations and flood frequency investigations, two years in Washington, D.C. acting as a consultant to the Atomic Energy Commission on siting of nuclear reactors, two years in the State of Indiana as chief of a sub-district in charge of basic data

collection and project work, and moving to Tacoma in 1974, present position.

Q And what is your educational background past secondary school?

A I have a Bachelor's degree in agricultural engineering from Iowa State University, major in soil and water conservation and minor in math. Master's degree in water resources engineering from the University of Kansas.

Q And what subjects generally were included in your study for the Master's degree from the University of Kansas?

A It covered the whole range of hydrology from quantitative and qualitative, groundwater, meterology, statistics, water resources engineering.

Q And did you study surface water hydrology?

A Yes, I did.

Q And did you study hydraulics, open channel hydraulics or surface hydrology?

A Yes, I did.

Q Now, Mr. Carpenter, are you familiar with the U.S.G.S. work in the No Name Creek area?

A Yes, I am.

Q And why are you familiar?

A Well, as associate district chief, again, I was

second in command of the operations there, and for the basic data portions I had direct responsibility for those, the collection and analysis of surface water basic data.

Q And when you say you had direct control and supervision, what did that involve?

A Well, the sub-district operating out of Spokane has technicians and professionals who make stream flow measurements and do calculations of discharge records. I'm responsible for the quality of that data and as such I do review that data.

Q And are you familiar with what has been referred to as the Cline report or I believe it is U.S. Exhibit 1?

A I have read the Cline report.

Q Now, are you familiar with the techniques used by the U.S. Geological Survey in making surface measurements in the No Name Creek area?

A Yes.

Q And could you testify as to the reliability of those techniques or the opinion of those techniques in the profession?

A I guess I would answer that from two approaches, one being that since the late 1800's the Geological Survey has had the responsibility for making the

measurements and, as far as I know, those techniques have been accepted by the federal community as well as other communities. We also do work in foreign hydrology where our techniques are used there also.

From a more professional point I would say the Senate Select Committee in 1961 made certain recommendations which caused the Office of Management and Budget to issue Circular A67 which gave to the Department of Interior the responsibility for all data collections in the country for the federal agencies. The Department of Interior in turn created the Office of Water Data Coordination and two advisor committees, one of them a federal committee and one of them a non-federal committee. The federal committee has had the responsibility of publishing formal recommendations for water data acquisition and analysis. That is now in the preliminary draft report and will be out in 1978.

Q Have any of the committees or has the Office of Water Data Coordination commented on the validity of using the U.S.G.S. surface flow measurement techniques?

A The preliminary reports cites as the standard the technical water resources investigation and surface water techniques publications of the Geological

Survey as being those standards to be used.

Q Does the Department of Interior have a representative or more than one representative on the advisory, the federal advisory committee?

A Yes, they do.

Q Yes, and do you know whether the Bureau of Indian Affairs has a representative on that?

A Yes, I do.

Q Do you know who he is?

A I believe it is Mr. Corke.

Q Now, Mr. Carpenter, in your review of the surface flow measurements of No Name Creek and Omak Creek done by the United States Geological Survey --

A Can I --

Q Okay.

A It was Mr. Corke at the time that I had the publication, you know, it could have changed.

Q Okay, thank you.

In reviewing the surface flow measurements for No Name Creek and Omak Creek done by your agency, have you come to an opinion as to whether the proper procedures were used in making those measurements?

A They were.

Q That is your opinion?

A Yes, it is.

Q And you have reviewed the data?

A Yes, I did. On two occasions.

Q Now, Mr. Carpenter, are you familiar with the method of measuring stream flow using a flume?

A Yes, I am.

Q And are there any problems associated with using a flume in making surface stream flow measurements in this area or any other area?

A There are several problems.

Q And could you please explain those and would you need any paper in doing this?

A I can try without paper first and see what happens.

Q Okay.

A And I just -- being as how we are talking about No Name Creek, can I talk about Parshall flumes in specific?

Q Sure, if you prefer that.

A First of all, flumes are not manufactured precisely as the manufacturer says they are and it is very difficult to install them perfectly level and perfectly as prescribed, so, therefore, one must usually rate a Parshall flume by actual discharge measurements or at least you must check the manufacturer's rating on discharge measurement.

There are other problems associated with Parshall flumes in installation and you must channel all of the water through the flume itself and then you must continually watch for growth in the flume and backwater occurring in the tail of the flume.

Q What effect does growth on the flume have?

A If growth in on the bottom of the flume or if there is reeds growing into the flume, it can cause disturbances in the water entering the flume or flowing through the flume and cause errors in the discharge through that flume.

Q Is that more likely to occur in -- strike that.

Where there is such growth, is the data likely to be more suspect for a smaller stream than for a larger stream?

A If the flume is properly rated by discharge measurement, it is not.

Q What is that method wasn't used?

A If you were relying on a manufacturer's rating, there would be some problems. You would not agree with the rating.

Q And the manufacturer's rating, is that provided by the manufacturer in the form of a rating curve?

A Usually in the form of a rating table which is a gauge right down one side and discharge written

in blocks across.

Q And then a curve can be drawn from that?

A A curve can be drawn.

Q Now, you refer to backwater. What is that and how does that occur?

A Backwater occurs from things happening in the channel below the flume such as sand or weeds growing in the channel or limbs from trees growing in the channel which causes the elevation of the water to rise higher than it normally would. When it does that, it causes a water surface profile backing up on the flume and causing you to get improper discharge using a manufacturer's rating.

Q Fine. Have you observed any of the flumes installed on No Name Creek or Omak Creek?

A Yes, I have.

Q And have you observed these phenomena with regard to any of the flumes you have observed?

A The flumes, the two flumes that are through the Walton diversion have no growth, however, I do believe they have had backwater on them at times. The flume at -- and forgive me, because I don't know all of your numbers -- the flume above the diversion has growth on the bottom of it and the flume operated by, I believe the Tribe, has growth

on it and weeds growing in the entrance to it.

Q Where is that, do you know?

A It's at the granite lip. There is also water leaking under that flume, as it one of our flumes also.

Q Now, did the U.S.G.S. use manufacturer's rating curve in coming up with its data?

A It checked the manufacturer's rating curve on all of the flumes and found them to be unsatisfactory.

Q And what did it do?

A It used normal procedures for gauging streams to draw shifts and shift curves, originally ratings and then shift curves to those.

Q And what do you mean by shift curves?

A And I want to make one point clear. I'm not talking about the Indian flume. I'm talking about our own flume and our own rating.

Q What is a shift curve or basically what is done with a shift curve?

A Maybe I will have to go to the diagram now, if I can.

THE COURT: Would the Bailiff help.

A At any site normally being gauged, one normally goes out and makes a series of discharge measurements and gathering the stage and the water discharge at the time. It doesn't make any difference whether

it's a flume or a weir or channel control, the same procedures follow, and all you do is plot the water surface elevation against the discharge and with a series of discharge measurements made you draw the best curve that you can through them and call it a rating curve.

Now, when subsequent measurements are made, you probably will not hit that curve and you will land somewhere else. At that time you can do one of two things. You can make a temporary shift of that measurement or you can draw a shift curve or you can wait until you collect some more discharge measurement. If you find another one here, then you may end up by drawing a shift curve. Essentially what that says, at any given water surface elevation you don't get what you thought you would get off of a rating curve. You would get something less. In this case it would be caused by backwater or whatever.

Q Is it common to get something different than what you would have plotted on a rating curve?

A Yes, it is.

Q And is this an on-going process of all the data collected from time to time in drawing shift curves?

A It is.

Q And did U.S.G.S. employ these procedures in its work

in the No Name Creek area?

A Yes, it did.

MR. MACK: Now, I would like to refer to Colville Exhibit 21-20.

Q Now, referring you to Colville Exhibit 21-20, have you seen that exhibit before?

A Yes, I have.

Q Are you familiar with the terminology used on that exhibit and the techniques used to produce the data for that exhibit?

A I am. I'm not sure I quite understand the right-hand side of the exhibit.

Q Have you had cause to review testimony by Mr. Watson with regard to Exhibit 21-20?

A I have read it very quickly.

Q Now, using, if you want, to illustrate this, using the paper to the right, can you indicate to the Court any problems in measuring the stream flow or measuring velocity and discharge of a cross-section of a stream of the size of No Name Creek.

A Well, there are several problems, the largest problem being the depth is so shallow that close to the bottom and close to the surface you get velocity determinations which are not very accurate.

Q Are there such readings as shown on Colville Exhibit

21-20 which are, in your opinion, too close to the bottom or too close to the top?

A Yes, I would say so.

Q And --

A However, I don't know what was done with this data.

Q I'm just referring to the data shown on the exhibit.

A Correct.

Q And when you say too close to the bottom or too close to the top, what kind of distortion would that give you and how would that affect velocity?

A If one measures -- which it appears they have here -- the velocity of several points on any one vertical and plot that data on a vertical velocity curve, where now I am plotting velocity and stage, and let me divide the stage by the depth, if I might, so I have unitized the data, and this, then at the top would be one. The vertical velocity curve looks something like this. It gets very steep down at the bottom because it is coming close to zero at the bottom, and in shallow depths it probably tends to do this kind of thing because of wind perturbation on the surface.

Q Does the Geological Survey follow any sort of standard in either spacing -- in both spacing the vertical lines and measurements of a stream discharge at a

point like that, and in determining how far down the vertical lines measurements will be taken?

A Yes, they do.

Q And could you explain what the U.S.G.S. does in that regard.

A In one that would be like this, where the depth is less than a foot, we would generally make that measurement with a pygmy meter and we would measure at the six-tenth depth, six-tenths from the surface down to there.

Q Why would you do that?

A Because tests that we have made show that the velocity that we determined at the six-tenth depth is more accurate than taking a combination of several velocities in the vertical for those shallower depths.

Q Did the U.S.G.S. use pygmy meters in its surface measurements here and do what you just described?

A Yes, they do.

Q And how about --

A You also asked --

Q Go ahead.

A You also asked about placement. With a pygmy meter we have one manual that says you can go down to two-tenths between the spacing the verticals. We

generally prescribe three-tenths. That is because of setting the weighting rod on the bottom and disturbing the bottom of the bed.

Q Why would that be a problem?

A If you set the rod on the bottom, you disturb whatever the sand or gravels here so that if you overlap closer than two-tenths of a foot you will get an erroneous depth reading. We are measuring very small amounts of water and these kinds of errors make differences.

Q Can there be problems arising in taking a long amount of time to do a surface flow discharge measurement on a cross-section of stream of this size?

A Yes, it can.

Q And what are those and what amounts of time are you thinking of?

A If we can make instantaneous discharge measurements, everybody would be happy, but that we cannot do, so we like to make them as quickly as possible so that the stage in the water surface does not change while we are making the measurement. Even if the stage doesn't change, there can be translatory waves or other perturbations moving back and forth down the creek which causes the threads of the

velocity to vary while you are making that measurement. If youtake a normal measurement with 25 sections if you could have that many sections as you take on the realm of half an hour to make the measurement.

Q Does anything longer than that give one problems in making measurements?

A Anything longer than an instant gives problems.

Q Now, have you examined the Colville Exhibit 21-20 and does it indicate that 50 velocity measurements were made on the cross-sedtion shown at the top of that exhibit?

A I think I counted something like 41 or 42.

Q And you counted the measurement --

A I have not seen the measurement notes for this measurement. I have counted what appeared to be velocity determinations on this exhibit, and count 41 or 42.

MR. MACK: May I approach the exhibit, Your Honor.

Q And, Mr. Carpenter, when you examined Exhibit 21-20, did you see the notation appearing below the cross-section, 50 velocity measurements and 12 depth measurements.

A I did.

Q Now, Mr. Carpenter, even if all sorts of measurements

were made properly on a cross-section of that size, a stream that size, would there be problems in arriving at a discharge or an accurate discharge figure for the stream?

A Absolutely.

Q And what would those be? Can you just explain those, please.

A There are several errors associated with making discharge measurements. The simplest one is the state of the mind of the man when he made the discharge measurement. That error cannot be quantified very well. The second one is the current meter error and there have been a number of studies done which show that a properly rated current meter will have an error of about one percent. The last error is the method type of error and that goes to how much error is associated with using a six-tenth depth method, or if the depth was deeper, a two and eight-tenths depth method compared to if we had ones we could measure as -- I don't see any vertical where they are taken every tenth, but if you did, compared to what we could do if we took them every tenth. So, there is that error associated. For sixth-tenth depth method that has generally been described as around two percent.

There is another error associated with how well does this velocity determination represent what is happening between here and there and here and there, and how well does the depth measurement describe what is happening between this point and that point with a sufficient number of sections, those errors, there is a formula like four-thirds of a square root of the number of stations that you take or something. Using thousands of measurments, we have done a calculation of accuracy of measurements and we find that two-thirds of the time you put all of these errors together, if you follow the described techniques, you should have an error on the discharge measurement of less than three percent. You would have to add to that the error associated with the state of mind of the hydrographer at the time of making the measurement.

Q Does the very shallowness of this stream give a problem also in measurement?

A Yes, it does.

Q And why is that?

A Anytime you measure close to the bottom of a stream, you have these problems associated with the velocity bouncing off of the bed of the stream. Generally, you should not measure less than three-tenths of

foot from the bottom with a pygmy meter.

Q And with a stream of this depth, is it true that you are always -- well, strike that.

Is it fair to say that you are always close to the bottom of the stream?

A Even when we took six-tenths depth measurements, we were -- I'm sorry. This is in inches. Three-tenths, four inches from the bottom.

Q Now, you are familiar with the U.S.G.S. measurements for Omak Creek discharges?

A Yes, I am.

Q Did the figures for discharge at the points of measurements change from time to time, vary?

A I'm sorry. State that one again.

Q At the particular points of measurement used at Omak Creek, did the figures for discharge vary from day to day or week to week?

A Certainly.

Q Is that an unexpected occurrence or an expected occurrence?

A It is an expected occurrence. The water surface is usually changing constantly. The discharge is usually changing constantly also.

Q And did U.S.G.S. also plot stage discharge curves and shift curves for Omak Creek?

A Yes, they did.

Q Does the variation from day to day or let's say from week to week in a discharge measurement at a particular point indicate to you that the discharge measurements are inaccurate by the fact of that variance?

A Not at all.

Q Now, Mr. Carpenter, would you say that the variance in the discharge figures which the U.S.G.S. did obtain at Omak Creek was due to the limited number of velocity with and depth measurements made by the U.S. Geological Survey at this location. Would you agree with that statement?

A I'm not sure I understand what you mean by variance of discharge and stage. Those two factors can cause a variance in discharge, yes, they can, within the accuracy limits that I just described.

Q But the U.S.G.S. made allowances for the differences as shown in the Omak Creek discharge; correct?

A That is right.

Q And so, as I understand it, well -- .

A We say the discharge measurements made in Omak Creek, each one of them, are correct within five or if we rated the measurement good, ten percent and that stands on itself, from my previous

testimony.

Q Mr. Carpenter, do you have an opinion as to the validity of the stream flow measurement, techniques and plottings as testified to and as shown on Colville Exhibit 21-20?

A Say that again.

Q Referring you to Colville Exhibit 21-20, do you have an opinion as to the validity of the stream flow measurement techniques used in plotting the information on that exhibit?

MR. VEEDER: I ask for clarification, what is meant by validity, I don't -- accuracy?

MR. MACK: I will withdraw the question.

Q Mr. Carpenter, do you have an opinion as to whether the surface flow measurements made by the U.S. Geological Survey and relied on by Mr. Cline are correct and reliable measurements?

A Yes, I do.

Q And what is your opinion?

A They are correct.

Q And have you read testimony critical of the techniques used by Mr. Cline and the U.S. Geological Survey in making those measurements?

A Well, Mr. Cline did not take most of those velocity measurements or those discharge measurements. They

were made by technicians and professionals from our sub-district office.

Q Are you familiar with criticisms made of those techniques and measurements as developed in this trial?

A Yes, I am.

Q And is your opinion, nevertheless, that those are accurate and reliable?

A It is my opinion that they are accurate measurements.

MR. MACK: I don't have any further questions.

THE COURT: Cross-examination.

Mr. Sweeney?

MR. SWEENEY: We have no cross.

THE COURT: Mr. Veeder?

MR. VEEDER: I don't think I have any questions, Your Honor. I don't know what this is all about, but I have no questions.

THE COURT: Mr. Price, do you have any questions?

MR. PRICE: I have none, Your Honor, nothing.

THE COURT: You may step down, Mr. Carpenter. Thank you.

(Witness is excused.)

MR. MACK: Our next witness will be Mr. Cline.

DENZEL R. CLINE, called as a witness herein, having been previously sworn on oath, testified as follows:

THE COURT: Mr. Cline, you are still under oath.

DIRECT EXAMINATION

BY MR. MACK:

Q Now, Mr. Cline, do you have an opinion as to the validity of using a water budget as a tool for analysis in the No Name Creek area?

A Yes, I do.

Q And what is your opinion?

A It is an excellent tool.

Q Have you heard testimony critical of the use of a water budget in the No Name Creek area as developed in this trial?

A Yes, I have.

Q Do you have an opinion in response to that as to whether the use of a water budget by you in the No Name Creek area was a valid use of the water budget?

A Yes, I have an opinion.

Q What is your opinion?

A My opinion still is that it is a very valid tool.

MR. MACK: May I put this exhibit up?

THE COURT: You may.

Is that 25-4?

MR. MACK: Yes.

Q Now, Mr. Cline, calling your attention to Colville Exhibit 25-4 and the comparisons thereon of water budget element figures as developed by the Colville Confederated Tribe and the U.S.G.S., first of all, with regard to the parallel columns and the information shown thereon, are the same periods of time used, to your knowledge, for the representation of all of the elements shown on there?

A No, they are not.

Q What are the differences?

A Well, for example, for the pumpage figure, the water budget, as I used it and as stated on here for April '77 through September '77, gives a total of 971 acre-feet that was pumped. The Colville budget lists a figure of 996 acre-feet. The total that was pumped during the irrigation season was 994 acre-feet and that included pumpage during the month of October which is not during the period of

the water budget.

Q Do you have an opinion then as to whether the Colville figure includes the month of October's discharge figures?

A I do have an opinion.

Q Or some other month which is included in that period.

A Well, it includes the month of October. Also there is about two acre-feet that was pumped for a pump test in December of 1976 that is included in that figure.

Q Now, Mr. Cline, if there are unknown variables represented by -- let me ask you this: Are there unknown variables represented by question marks on Exhibit 25-4 for certain elements as used in the water budget by the Colville Tribe?

A Yes, there are.

Q And do the presence of the unknown variables affect whether a water budget can be then calculated to see if the two sides equal each other?

A Well, it would depend on the magnitude of the variables and whether it would be relevant to calculate the water budget.

Q If one has a question mark on the left-hand side of the budget as well as one on the right-hand side of the budget, can, then, the budget seem to be

in balance or out of balance, or does it make it impossible to determine that?

A When you use question marks on both sides of the equation, then this means you can't balance the equation.

Q Now, referring you to the question mark under the third column that says Colville for -- what is that, is that IL?

A Yes, IL right here has a question mark for the November '76-March '77 water budget, Colville's.

Q Is it true you show zero for IL at that period?

A Yes, I do.

Q And do you have any knowledge as to the range of what that figure for IL could be, keeping in mind your knowledge of the aquifer and the occurrences therein and the period as shown on that exhibit?

A Well, I would say that most probably it is about zero, but if you consider the pumping before the first week of October, pumping -- well, I should say pumping stopped the first week of October and this water budget starts with November, so if you consider that there may have been leakage from before, back for October, there might have been something in the order of two acre-feet involved and if you included back to the month of September,

you might have perhaps another 13 or something of that sort, but in any event I think the maximum would be less than 20 acre-feet for that month.

Q And the range would be somewhere between zero and 20; is that correct?

A Yes.

Q Now, the element OD which -- this isn't a criminal case -- and that stands in this case for Omak Creek Diversion leakage; correct?

A Yes.

Q And for the period that's shown under the last column for Colville April, 1977 to September, 1977 do you have any opinion as to whether one could determine a range for that figure for that period?

A Yes, I do.

Q And what is your opinion?

A That the range for that figure would be somewhere between zero and 64 acre-feet which was the total amount of water that was diverted.

Q And knowing the ranges for IL and OD, could then the remaining element for the Colville figures which is represented by two question marks, V, be calculated within a range?

A Yes, they can.

Q And V represents what? Could you just state it?

A Well, that represents the change in volume in the groundwater reservoir, that is, the volume of water that has been removed from storage or the volume of water that has been added to storage as the water levels recovered.

Q Now, do you see the figure of 89 in the last column for the Colville water budget as representing the element L and NN; do you see that?

A Yes.

Q Do you have an opinion as to whether the figure 89 shown for those elements matches the known stream flow measurement figures which were developed by U.S.G.S. in the area?

A You say do I have an opinion?

Q Yes.

A Yes.

Q What is your opinion?

A That the figures for L for 89 and NN of 89 for the Colville Budget of April, 1977 - September, 1977 is based on their testimony and exhibits giving the discharge flows on No Name Creek, cannot be correct.

Q And why is that?

A Because you have the measurement of the flow at what I call Site N1 or Walton's north line, the

water coming in, and the flow at Walton's diversion which locks these two numbers together, and if you vary the numbers, you vary one, you vary the other, and using their discharge data if you say that the spring flow of No Name Creek of 89 acre-feet is correct, then you would calculate a leakage from No Name Creek at Site N1 down to Site N5 of 123 acre-feet plus there was leakage above No Name Creek of about 17 acre-feet which is the difference of the measurement of the water pumped to the creek and the flow through Site N1 which would give them, using their data, that L should be 140 acre-feet.

Q But that isn't indicated on Exhibit 25-4; is it, the figure you just gave me?

A No, it is not.

Q Now, have you done any calculations considering the ranges of figures which you testified to for the unknown elements as shown in the Colville water budget as to what V would come out to be then in the Colville water budget?

A Yes, I have.

Q Have you done it and could you please show that graphically. Would that be easier than to explain it?

A Well, I think I probably can, maybe I can just do

it verbally.

Q Sure.

A I may have to do it graphically, but using the water budget and a value for the winter budget, for IL, of zero which I say would be more proper since pumpage had stopped sometime before the water budget starts, V would calculate to 60 acre-feet. If you used the maximum figure, it would be 80 acre-feet. Using the -- well, summer budget, April, 1977 - September, 1977 and a value for OD, that is Omak Creek Diversion, how much of that water that was diverted was not used by the crops and soaked into the ground and recharged the groundwater reservoir, and then basing the figure on what the Tribe has indicated is the amount of water that the crops were using as such, we picked a figure of about 8 acre-feet. What I am saying, all I am saying is it could be rain, but anyway what that does is give a volume change then of 800 acre-feet. If you were to increase the 8 acre-feet to, say, 38, you would have a volume change of 770 acre-feet or, in other words, a very small percent change.

Q And that is for which period?

A For the April, '77 to September, '77, Colville water budget.

Q Now, is it true, Mr. Cline, -- do you have an opinion as to whether the V which is the change, either removal or addition to storage for groundwater, as calculated by you for the Tribe's water budget is too small for the winter budget and too large for the summer budget?

A Yes, I do.

Q And what is your opinion?

A My opinion is that the volumes are not correct and that as you stated, the volume change for the V for the winter is too small and the volume V for the summer is too large.

Q Is it correct that the addition, the recharge to the aquifer, generally occurs -- let me strike that -- that there is a net recharge to the aquifer during the winter months and a net discharge from the aquifer during the summer months; is that correct?

A During 1976-77, during the period of this water budget, this is true. During the winter the water levels recovered from pumping from the previous irrigation season and during the summer water was withdrawn during the pumping season.

Q And do you have an opinion that if the Tribe's calculation or the Tribe's figure for V for the winter months is too small and for the summer months

is too large, that there would, consequently, be an error and an under-calculation of recharge and an over-calculation of discharge from the aquifer? Do you have an opinion on that, not for your figures but for the Tribe's?

A Yes, it would make the --

MR. VEEDER: Now, wait a minute. He asked if you had an opinion.

A Yes, I do.

Q What is that opinion. You were about to --

A The figures would be in error for the inflow or recharge to the system.

Q And also for discharge. Are you talking about --

A Well --

Q Are you talking about net inflow?

A I'm not sure I'm following exactly what you are asking. The water budget gives you -- it gives you a completely erroneous water budget.

Q Why is that? Why do you say that?

A Well, maybe I could approach it in a little bit different aspect. If you are going to say that --

MR. VEEDER: I object to this. It has to be a case of questions and answers, Your Honor, and I think he is about to editorialize.

THE COURT: Ask another question.

MR. MACK: I'm sorry.

Q Why do you say there was a problem with the figures ss you calculate for the Tribal water budget?

A Well, the volumes for one is too small and the other is too large. The effect of that would be, for instance, if the volume was too small using the area that was, the volume that was de-watered that I used and the cross-sections as shown by the Tribe, would give a similar figure, the volume, when the water level drops and the water rises in that same zone which is a fairly small zone compared to the whole aquifer, would still be the same area. So, for the winter budget you would have a specific yield on the order of nine percent and for that area below the November, '76 water level which would be the area that was de-watered on beyond what the water level rose in the fall, that is the decline during the summer of '77, you would have a specific yield of about 40 percent.

Now, the difference of specific yield of the materials as the water level rose in the fall of eight percent -- say nine percent -- and then the materials after it dropped below that level and dropped down to the lowest level in the summer of 40 percent, is not possible, both by the geometry

that you have for the bottom and also my examination of materials in the drill holes that were drilled out there, the logs of existing wells, and the response of water levels, the specific yield of the materials in that range where the water level is changing will be very nearly the same, that you should have a specific yield, that essentially does not change for your winter budget and your summer budget.

Q Now, Mr. Cline, in your work in this area, did you examine well logs for wells in the area?

A Yes, I did.

Q And did you examine them for the material shown there as indicated being in the hole that is drilled, underground materials?

A Did I examine the materials as far as from the well?

Q Did you examine the well logs to see what materials were in the area, drilled?

A Yes.

Q And do you have an opinion as to whether the specific yield in this aquifer varies significantly?

A Yes.

Q And what is your opinion?

A My opinion that in the range that the water level

was changing, that the specific yield would vary very little. Essentially, the specific yield would be the same.

Q But aren't there different types of materials in underground materials as shown by the well logs?

A Yes, there is.

Q Does that factor affect your opinion that the specific yield would not vary considerably?

A I'm talking about the overall yield in the aquifer.

Q Yes.

A And looking at particular well logs --

MR. VEEDER: Object, Your Honor. This answer is not responsive to the inquiry presented.

THE COURT: I have to sustain the objection. That isn't what you really asked him.

MR. MACK: Sorry, Your Honor.

Q Let me ask you this, Mr. Cline: Are you familiar with the well, what has been described as Well 8H1?

A Yes.

Q Do data from that well appear in your report?

A Yes.

Q Do you know where they appear?

A Well, several different places.

Q Do you have --

A In several tables and also illustrations.

Q Do you have a table showing water elevation, depth to water elevation inthat well?
A I have two tables that show depth to the water.
Q Did the U.S.G.S. rely on the depth to water data obtained from that well in your analysis for the water budget and various other analysis?
A Yes.
Q And did you have any problems with any of the data obtained for depth readings in that well?
A There was one measurement that was not valid and is so stated in the report.
Q Where is that stated?
A On Page 90.
Q Did you rely on that measurement?
A I did not.
Q Now, Mr. Cline, have you heard testimony about the problems with measuring the water in Colville Exhibit -- Colville Well No. 1?
A Yes, I have.
Q Did the U.S.G.S. measure the depth to water in Colville Well No. 1?
A Yes, it did.
Q Do you know how the U.S.G.S. did that?
A Well, yes, I do.
Q Did more than one person for U.S.G.S. measure the

depth to water in that well?

A Yes.

Q About how many people?

A Well, at least three, maybe four or possibly more.

Q And did they do that at various times?

A Yes.

Q Do you know whether they used the same equipment at all times such as an E tape or did they use different equipment.

A There was different equipment used, steel tape sometimes and electric tape sometimes.

Q Do you have an opinion as to the reason for what has been described as a discrepancy between the water level data obtained by the U.S.G.S. measurements for Colville irrigation well no. 1 and the Tribes' belief as to the depth of that well?

A Yes, I do.

Q What is your opinion?

A You are referring to the testimony of the depth to the bottom of the intake of the pump in Colville well no. 1 and my opinion is that the Tribe does not know where the bottom of the intake of their pump is.

Q Is it your opinion that that is more likely than the fact, to conclude that all of the U.S.G.S.

measurements were wrong to the depth of water for that well?

A Yes.

Q Now, there was some reference also to tables used by you in your report using information from Professor Johnson. How did you use that information? Did you start with it or did you use it to compare your figures?

A I used it to compare my figures.

Q Did you use anything else to compare your figures besides the Johnson figures?

A Yes, I did.

Q What else did you use?

A Well, my own personal knowledge and included into that is knowledge of the types of material in the No Name Valley and response of the wells to pumping and experience in other areas where I have worked.

Q Do you have an opinion as to whether it is advisable to use other things such as your own experience and figures derived by Professor Johnson or Mr. Johnson to compare the figures you calculated?

Do you have an opinion as to the advisability of doing that?

A Yes.

Q What is your opinion?

A That you should use information for various sources to check on the reliability and the reasonableness of the information that you obtained.

Q Did the Johnson figures confirm your opinion as to the reliability of your own figures?

A Yes, they did.

Q Now, Mr. Cline, are you familiar with the Peters observation well?

A Yes, I am.

Q Do you have an opinion as to whether the water level in the Peters observation well correspond to the water levels in other wells in the No Name Creek aquifer?

A Yes, I do.

Q What is your opinion?

A That the water level does correspond some of the time but some of the time the water levels do not correspond at all.

Q Do you have an explanation for the reason that they might not correspond at all sometimes?

A Well, in particular, one period when it did not was in late summer of 1977. That well is shallower than, for instance, 16P1 which is Peters domestic, and 16P2 which is Colville No. 2 or south Indian irrigation well, and also Walton's new irrigation

well, 21C4. Those three wells are approximately the same depth, 16P3, the observation well is shallower. It is tapping a shallower zone, and in late summer with water being pumped down No Name Creek, the water levels in the well, four wells, declined but after a while the water level in 16P3 leveled off and did not decline much any more and at the end of the summer the water level in that well was on the order of 10 feet higher than the water levels in the other three wells. When the pumping in the creek stopped, the water levels in the three deeper wells, after pumping was stopped, they were starting to recover. The water levels were rising. However, in 16P3, the observation well, when the creek stopped flowing, the water level in that well started to drop, so the two were going in opposite trends. Water level in that well dropped for awhile and then it changed slope and then it started to rise again then with the other wells, and the reason for that is because it is a shallower zone. It was receiving recharge from leakage out of No Name Creek and that water was giving then a higher, making the water level in that well higher than the water level in the other wells.

Q Do you have an opinion as to whether there is any structural problem with the Peters observation well?

A I'm not sure I understand your question. That well is not --

MR. VEEDER: Objection. If he doesn't understand the question, I submit he shouldn't have tried to answer it.

THE COURT: Rephrase the question.

Q (By Mr. Mack) Other than the level of the water in the well, how does the Peters observation well differ from the other wells you have described?

A It has a shallower zone than the other wells.

Q Do you have an opinion as to whether the data obtained for depth to water in the Peters observation well should be relied on by a hydrologist in making conclusions as to the behavior of the water table in the No Name Creek aquifer and as to calculating recharge figures?

A Yes, I do.

Q And what is your opinion?

A I would not rely on that well.

Q And do you have an opinion, Mr. Cline, as to the effect of present pumping and pumping future -- and, as a hypothetical, pumping of greater stress in the No Name Creek aquifer on Omak Creek?

A Would you please repeat the question.

Q Do you have an opinion as to the effect that present pumping and future pumping of greater stress has or might have on Omak Creek contribution to the No Name Creek aquifer?

A Yes, I do.

Q What is your opinion?

A My opinion is that as shown in 1977 that the contribution from the aquifer north of Omak Creek was increased because the groundwater divide was shifted farther north increasing the contribution from that area.

Q Is that shown on anything in your report?

A Yes, it is.

Q Where is that shown in your report?

A Well, a couple of places. One is the map which shows locations of the groundwater divide and another is the profiles of the water level in the valley which, that would be like Figure 18, shows the longitudinal groundwater profiles beneath No Name Valley.

Q Do you believe whether the shift which you say is indicated in the data collected by U.S.G.S., shift of the groundwater divide, could be attributable to anything other than the increased pumping last

year in the No Name Creek aquifer?

A Do I have an opinion?

Q Yes.

A Yes.

Q What is your opinion?

A My opinion is that the pumping is what shifted the groundwater divide.

MR. MACK: I have no further questions.

THE COURT: Court will be in recess until 9:30 a.m.

THE BAILIFF: All rise. Court is in recess until 9:30.

(Evening recess is taken.)