BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF BASIN 37	)	**Docket No.**
ADMINISTRATIVE PROCEEDING	)	**AA-WRA-2021-001**
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BEFORE

HEARING OFFICER: GARY SPACKMAN

Date: **June 7, 2021 - 9:01 a.m.**

Location: **Idaho Department of Water Resources**

322 East Front Street

Boise, Idaho

REPORTED BY:

JEFF LaMAR, C.S.R. No. 640

Notary Public

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I N D E X

W I T N E S S E S

I N D E X (Continued)

E X H I B I T S

THE HEARING OFFICER: All right. The appointed hour has arrived. Thanks, everyone, for being here. Great to see everybody in full face. And I hope we're not sponsoring a super spreader here, but I am encouraged. So we will try to accommodate you as best we can today. Let's go on the record.

Are we on, Jeff?

THE COURT REPORTER: Yes.

THE HEARING OFFICER: And are we running, Megan?

MS. JENKINS: Yes.

THE HEARING OFFICER: Okay. Well, this is the time and place for an administrative hearing. And this particular contested case springs out of an administrative proceeding that I initiated pursuant to Idaho Code Section 42-237a.g.

And the focus of this particular hearing is the impacts of pumping within the Bellevue Triangle as shown on a map that was distributed, and groundwater pumping and depletions that may be caused by that pumping on surface water flows of the -- of Silver Creek and its tributaries, both upstream and downstream. I know some people have raised questions about that. That's the scope of the hearing today.

So we need to -- and previously I've defined the order of presentation of testimony. And

the Department witnesses will be on the witness stand today or in the witness chair and will be questioned by Department -- excuse me, deputies attorney general assigned to the Department of Water Resources. So they will be questioned briefly, and certainly not extensively. And then we'll start with examination or cross-examination.

Before we do that -- and we'll talk a little bit about the way in which that examination will proceed -- we have some pending motions today. And maybe before we get to those, we ought to have an introduction of counsel and parties today. And I think that will be helpful for the court reporter. So -- and we'll also introduce Department staff.

So again, I'm Gary Spackman, Director of the Idaho Department of Water Resources. And let's just go in a counterclockwise direction.

Megan.

MS. JENKINS: My name is a Meghan Jenkins. I'm Gary's assistant. And I will be doing part of the recording today, along with the court reporter.

MS. CARTER: Meghan Carter, deputy attorney general for the Department of Water Resources.

MR. VINCENT: I'm Sean Vincent, hydrology section manager at IDWR.

MR. FLETCHER: Kent Fletcher, attorney for Big Wood Canal Company.

MR. HENDRICKS: Chase Hendricks, Big Wood and Little Wood Water Users Association.

MR. RIGBY: Jerry Rigby, Rigby, Andrus & Rigby, also representing Big Wood and Little Wood Water Users Association. And actually, the particular members within their -- that have filed.

MR. BROMLEY: Hi. Chris Bromley, McHugh Bromley. I represent Sun Valley Company, as well as City of Bellevue today. My partner, Candice McHugh, hopefully will be back tomorrow from her out-of-country vacation. Thank you.

MR. SULLIVAN: I'm Greg Sullivan for Spronk Water Engineers. And I'm here for Bellevue, Hailey, Ketchum, and Sun Valley Company.

MR. LAWRENCE: I'm Mike Lawrence with Givens Pursley on behalf of City of Hailey.

MR. BARKER: Albert Barker for the South Valley Ground Water District.

MR. THOMPSON: Travis Thompson, South Valley Ground Water District.

MR. LASKI: Jim Laski for the Galena Ground Water District.

MS. O'LEARY: Heather O'Leary, also for the

Galena Ground Water District.

MR. MORONEY: Owen Moroney, deputy attorney general representing the Idaho Department of Fish and Game.

THE HEARING OFFICER: And then let's start back here just for everybody.

Mr. Arkoosh.

MR. JOHN ARKOOSH: I'm John Arkoosh. I'm president of the Big Wood and Little Wood Water Users Board.

MR. BILL ARKOOSH: Bill Arkoosh.

THE HEARING OFFICER: Thank you.

MR. ROBERTSON: Evan Robertson for the Sun Valley Water and Sewer District, Eccles Window Rock Ranch, LLC.

MR. SEMANKO: Morning. Norm Semanko for Eagle Creek Irrigation Company.

THE HEARING OFFICER: Mr. Simpson.

MR. SIMPSON: Morning, John Simpson for Idaho Power Company.

THE HEARING OFFICER: And then the back row.

MR. SHAW: Dave Shaw with ERO Resources.

MR. O'BANNON: Brian O'Bannon for City of Ketchum.

THE HEARING OFFICER: Thank you.

MR. BLANKENAU: Phil Blankenau, evapotranspiration analyst for IDWR.

THE HEARING OFFICER: Okay. Oh, I'm sorry I missed you, Eric.

MR. MILLER: That's all right. Eric Miller with Yellowstone Earth Science, representing Big Wood and Little Wood Water Users and Big Wood Canal Company.

THE HEARING OFFICER: All right. Now, have we missed anyone?

Okay. We have people listening through Zoom, I think we're connected through Zoom.

MS. CARTER: Yes.

THE HEARING OFFICER: And at least previously I stated that for purposes of presenting testimony today and examining witnesses people needed to be here in person. I wouldn't accommodate any of that questioning and answering by Zoom. But folks are welcome to listen in, but there's not an opportunity to directly participate.

So if there are witnesses who are parties who are listening in today that want to testify, they'll need to be here and coordinate with counsel or with the Hearing Officer or staff.

Now, one of the other points that I want to remind everybody of before we start in is I will

implore you honestly, and I'll actively ask and interrupt if I think that you're not speaking up enough. So if all of you will use your auditorium voices, please, because Jeff needs to hear, the reporter needs to hear, and we need to pick it up on the microphones. We have a couple of microphones here. I think one for the witness and let's see.

MS. JENKINS: There's one on the podium.

THE HEARING OFFICER: One on the podium. So if you are examining, I would ask the attorneys to step to the podium today, if that's okay. I think it will accommodate, then, the recording, as well as being close to the court reporter. And we have enough attorneys in the gallery here that if you're examining from a distance, it will create difficulty.

All right. I am ready to start talking about motions.

Are there any other matters we need to talk about as preliminary matters before we talk about the motions prior to hearing?

Okay. I received three motions in limine. And I'll ask counsel how you want to approach these motions. I received one from a group of attorneys. I also received one from South Valley Ground Water District, and then one from the surface water users.

So how do we want to approach these?

And let me just say that I see some real similarities in all three of these motions. So maybe -- maybe I should -- yes, Mr. Rigby.

MR. RIGBY: Mr. Director, may I address one that I think will then resolve that particular motion?

THE HEARING OFFICER: Okay.

MR. RIGBY: Thank you, Mr. Director. What I'm approaching or addressing is the file -- the filing by South Valley Ground Water District and Galena Ground Water District as to the motion in limine excluding testimony of three of the surface -- senior surface water users that we represent.

Although we believe that the pumping in the Galena -- or the Bellevue Triangle certainly impacts and injures them, in order to facilitate -- rather than argue that issue before the Director, just to say that we were somewhat confused as to just exactly how this would be approached by the Director, trying to interpret what your language said, in order to facilitate moving on with this, we will acknowledge that those three, although they are impacted by the -- or at least we maintain that they're impacted by the groundwater pumping within the Triangle, they do receive their water from the Big Wood. And for that

reason we will acknowledge and remove them from any further testimony before the Director.

THE HEARING OFFICER: Thank you, Mr. Rigby. So your statement, Mr. Rigby, goes to the motion to exclude testimony or exclude three of the individuals who filed an intent to participate?

MR. RIGBY: And perhaps I should name them.

THE HEARING OFFICER: That would be helpful, for the record.

MR. RIGBY: It would be Martin Sabala, Nick Westendorf, and David Hults.

THE HEARING OFFICER: Okay. And so based on your stipulation, Mr. Rigby, and agreement that you have with the -- at least with South Valley and the other attorneys, you're willing to remove them as parties to this matter?

MR. RIGBY: Do I need --

THE HEARING OFFICER: No, you're fine.

MR. RIGBY: Yes, we are.

THE HEARING OFFICER: Okay. Thank you.

So your statement, Mr. Rigby, resolves a certain portion of these motions, but certainly doesn't address the remainder.

How does -- how does counsel want to approach these motions? I'll ask again, with at least

my expression of sentiment that I don't want a lot of oral argument. I've read the motions themselves. One of the reasons that we needed some time this morning is because there was very little time for anyone to respond to the motions.

And so I'm more interested in asking right now whether there is anybody that wants to argue against the motions that have been filed.

MR. FLETCHER: Director.

THE HEARING OFFICER: Yes.

MR. FLETCHER: I suggest that -- we filed ours first, perhaps we could go forward, let the other sides address theirs and respond to ours, and then we could respond if necessary to that.

THE HEARING OFFICER: That's fine, if that's what counsel wants to do. Again, I'll encourage some brevity in the presentations.

MR. FLETCHER: Would you like us to go forward now?

THE HEARING OFFICER: Sure. That would be fine.

MR. FLETCHER: Thank you. Do you still want us to go up to the podium?

THE HEARING OFFICER: Please.

MR. FLETCHER: Because the moved the microphones away.

THE HEARING OFFICER: Well, I think it's right there in front of Mr. Bromley. And I'm not sure why it was moved.

MS. JENKINS: It's -- it's just not working. It was, and then it just turned off. So I'm trying to figure out...

THE HEARING OFFICER: Do you need a moment?

MS. JENKINS: Possibly, yeah.

Sorry, guys.

THE HEARING OFFICER: Let's go off the record just for a minute, Jeff.

(Recess.)

THE HEARING OFFICER: Back on. Thanks, Jeff.

Mr. Fletcher.

MR. FLETCHER: Thank you, your Honor.

We filed a joint motion in limine. It's a pretty simple motion. It's based primarily upon the wording of the Director's notices and orders. Basically, the notice defined the potential area of impact -- or excuse me, potential area of curtailment to be the Bellevue Triangle. That was further defined by subsequent notices and orders. And the pre-hearing order classified those outside the Bellevue Triangle but within Basin 37 as a third-party group.

Pertaining to that group, the Director

stated, "Director reserves the right to limit any testimony or cross-examination that is duplicative, repetitive or irrelevant."

The cities and Sun Valley Company have ID'd fact witnesses to talk about their use of water. They've also identified an expert witness, and they listed a litany of matters that he wants to testify to.

It's our position that the -- this -- first of all, the testimony of the fact witnesses would be irrelevant. It doesn't matter how Sun Valley, Hailey, or the other cities use their water for the purposes of this proceeding, since they are outside the area of curtailment. And secondly, it's our position that the testimony of another witness in this case, South Valley and Galena, have already identified three, would be duplicative and representative.

And even though he may have a different position than the other experts, I don't think the purpose of this hearing is just to have a multitude of experts give their opinions, particularly when their clients have no risk.

Those outside the Bellevue Triangle have no risk of curtailment, and yet they believe they're allowed to come in here and attack the seniors' case for those affected by irrigation within the Bellevue

Triangle.

It's our position the Director has limited this testimony. There are plenty of senior water users that aren't at the table today because of the limitations in the Director's order. We're not bringing them in to testify, and it would be inequitable and unjust to allow people outside the Bellevue Triangle to come forward and testify about the use of water and have their witness testify to whatever he wants to testify to.

So in an attempt to limit the extent of this hearing and to keep the issues focused on what the order in the notices state, we're asking that the Court exclude anyone outside the Bellevue Triangle from calling any witnesses or producing evidence in this action.

Thank you.

THE HEARING OFFICER: Thank you, Mr. Fletcher.

Response, Mr. Bromley, are you the spokesperson?

MR. BROMLEY: I am. Yeah, I am. Thank you, Director.

Chris Bromley on behalf of Sun Valley Company, City of Bellevue, and then also signed on to a joint motion with City of Ketchum and City of Hailey.

I'll be very brief.

We don't know right now, sitting here today, at this point in time and as the hearing goes forward whether anybody, be them seniors or the groundwater districts, may point up valley and say pumping in the upper valley has some effect on Silver Creek and tributaries.

If that happens, we need to be in a position to rebut that testimony. We believe it's outside the scope. We don't think anybody ought to be able to point the finger up valley. That's part of our motion.

The other piece of our motion, though, is whatever happens in this proceeding, we have serious and legitimate concern about being preclusive and binding against our clients in future proceedings. An example of that will be the model is going to be discussed. Probably very well probed, would be my guess. Uncertainty, how efficiencies are modeled. These are things that will be decided, we think, in this proceeding that then may be used against our clients in the future.

So the reason that we filed our motion was to say if in fact this case is limited to pumping in the Triangle and its effects on Silver Creek and

tributaries, then that's correct, we don't have a risk of curtailment.

However, issues like the model, and then we don't know if there's going to be testimony that's going to point the finger up valley to pumping in the upper valley that may have effects on flows downgradient.

So to the extent if that happens, we have to be entitled to put on testimony and evidence through Greg Sullivan, through fact witnesses. So that was the purpose of our motion in limine was to say "Okay, great. If the notice means what it means, then let's have an order saying that, and that it's only for the 2021 irrigation season and that's it." And that could satisfy our interests.

But we have no control over what the other parties are going to do in this proceeding. So that's my response to Mr. Fletcher.

Thank you.

THE HEARING OFFICER: Thank you, Mr. Bromley.

Are there other responses?

MR. THOMPSON: Travis Thompson for the South Valley Ground Water District.

Are we just talking about the seniors' motion now?

THE HEARING OFFICER: Yes.

MR. THOMPSON: Yeah, we would oppose that, I guess, in the sense that if there is evidence and expert testimony to come in that would assist the Director on making that decision, we think it's worth considering. Just because they're not at risk of curtailment for this season doesn't mean they don't have evidence, don't have expert testimony that would be relevant to this proceeding.

So we would oppose that motion.

THE HEARING OFFICER: Okay. Thank you, Mr. Thompson.

Others?

Okay. I think I will reserve ruling on this motion until we hear the rest of them, because I think there are substantial similarities.

So let's see. I have two more, then.

Mr. Barker, maybe yours is the appropriate one to come next. Do you want to present anything regarding your motion in limine?

MR. THOMPSON: I think we took care of that.

MR. BARKER: That was the one that Mr. -- sorry.

THE HEARING OFFICER: Oh, I thought it was more extensive than that. I apologize.

MR. BARKER: So just -- yeah, just briefly, we

did have a second facet to it, but we think the whole thing is moot by the agreement of the Big Wood/Little Wood water user and individuals to withdraw those three names, so we have nothing further to ask.

THE HEARING OFFICER: Okay.

MR. RIGBY: Mr. Director.

THE HEARING OFFICER: Yes.

MR. RIGBY: If I may, Mr. Hendricks reminded me that actually, rather than remove them as parties, they should be in group three, as per their motion as well.

Is that okay?

MR. BARKER: I'm not going to argue against my motion.

MR. RIGBY: Just wondering.

THE HEARING OFFICER: Yeah. Thanks for the clarification. And I should have recognized that their change would just place them in a different group --

MR. RIGBY: Correct.

THE HEARING OFFICER: -- as we had previously identified.

Okay. And then we have a remaining motion.

Mr. Bromley, are you the spokesperson again for the joint motion?

MR. BROMLEY: I can be, Director. And I don't -- excuse me, I don't have anything else to add.

I think I kind of addressed it through comments to Mr. Fletcher. You've read the motions. You understand them. I don't want to take up time arguing something that I know you've read and considered.

So thank you.

THE HEARING OFFICER: Thank you.

Okay. Are there any responses to Mr. Bromley's motion?

Mr. Fletcher.

MR. FLETCHER: Just briefly, part of their motion was to strike part of the staff memos. You know, I hope that this hearing will not exclude testimony about the total water supply to the various people. Obviously, in any hearing the Director wants to know about the total water supply. The staff memo addresses that.

We intend on testifying about a total water supply, but we're not seeking injury to those supplies that are not affected by the Bellevue Triangle, and I think that's what the nature of this hearing is all about, at least that's my understanding of it. That wasn't addressed by Mr. Bromley, but we would definitely oppose striking any of the staff memos. Otherwise, I think we've talked about the other issues they've presented.

Thank you.

THE HEARING OFFICER: Thank you.

MR. BROMLEY: If I might just reply very quickly, Director.

THE HEARING OFFICER: Sure.

MR. BROMLEY: Mr. Fletcher's use of, you know, the phrase "total water supply," that's exactly the concern that we have. It's -- we understood that the notice was limited only to pumping in the Bellevue Triangle. Mr. Fletcher now is talking about -- and this has been our concern -- total water supply, which who knows what that means? That's the concern. That was the reason for the motion in limine.

If we see testimony of this variety going outside of the Triangle, that exceeds the scope of the notice, and we will be objecting. And we would like to have Mr. Sullivan, then, in a position to be able to rebut any testimony that might come in to that point.

Thank you.

THE HEARING OFFICER: Thank you.

All right. So let me rule on the motions in limine or those various motions we've discussed thus far.

So let me pick out the easy one that I think and start from the last argument and then go to

the front end.

So with respect to the proposal to strike out -- and I think it was primarily, if not exclusively, strike out portions of Tim Luke's staff memorandum. I read through and looked at the strikeout proposals, and I can tell you that the strikeouts proposed, in my opinion, are much too broad for me to just collectively throw out.

There are portions of those strikeouts that I think are relevant. And one of those areas I'll just point out is there's a proposal to strike out the whole discussion about the Milner/Gooding Canal and the delivery of water through the Milner/Gooding Canal. And I think that's -- that is very relevant to this matter. And I think, honestly, assists the respondents, as well as those who are senior water right holders.

And so I think it's too comprehensive. I think it's too large. And furthermore, I -- I view Tim Luke's narrative as being similar to a vicinity map, a narrative that explains the basin itself and the hydrology in it and really doesn't draw any conclusions about whether a junior water right holder should be curtailed or not. And so I think it's beneficial in a number of ways.

And so I'll deny the motion to at least strike out Mr. Luke's testimony.

And then in a large sense, I will also deny the motions in limine, all of them, because I want to have the ability to listen to testimony. And I'll allow the attorneys to object freely to the presentation of testimony, if they feel that that testimony is not relevant to the focus of this hearing.

And the focus of this hearing is whether groundwater users within the Bellevue Triangle, as identified, should be curtailed to then supply water to senior water right holders from Silver Creek and its tributaries.

And if it's not relevant to that particular subject, then I will exclude it from testimony. But I don't want at this point to grant a motion to limit testimony that will frustrate the ability of the Director to take testimony that I think is important in reaching a conclusion.

Now, let's see. There was one other -- oh, there was one other point.

Mr. Bromley, I think you were seeking a ruling that this hearing is only focused on the irrigation season in 2021. And I will also deny that particular motion. I think this hearing can have and

facts that are delivered and the ultimate decision can have a bearing on future decisions about a curtailment in the Bellevue Triangle. I don't want to -- I don't want to repeat this exercise next year again.

Okay. Have I missed something?

MR. FLETCHER: Director.

THE HEARING OFFICER: Yeah.

MR. FLETCHER: Just for clarification, they actually proposed strikeouts to all the staff memos, not just Mr. Luke's.

THE HEARING OFFICER: Yeah, I don't -- I don't remember seeing those. But I will -- I will deny their motion to strike --

MR. FLETCHER: Thank you.

THE HEARING OFFICER: -- the staff memorandums.

And certainly if there's information as the witness is examined that the attorneys feel is not relevant, is not pertinent to the subjects that we've identified, then I'll encourage attorneys to object.

Okay. Now, I have some other motions. I think there are three more. Let me collect myself just for a minute.

Maybe the next one we ought to address is the motion from Fish and Game.

And, Mr. Moroney, do you want to argue this

motion?

MR. MORONEY: Good morning. Owen Moroney for the Idaho Department of Fish and Game.

To not take up too much of anyone's time, our motion just really deals with excluding three nonconsumptive Fish and Game fish propagation rights from this proceeding and asking the Director for that relief.

If there are any questions -- do you have any questions?

THE HEARING OFFICER: Well, I have read the motion, and I've read the supporting affidavit. And certainly the water rights state that the use is supposed to be nonconsumptive.

And so I guess I want to ask the other -- the other parties. Do the other parties object to this motion? Is there any objection?

MR. FLETCHER: Director, we just wanted some clarification. It's my understanding that one of the water rights does not state that it's nonconsumptive on its face. And I don't know what the Department's records show concerning whether these are consumptive or not. There's been no evidence addressing it.

So I -- we don't have an objection to the nonconsumptive use, the nonconsumptive rights, to the

extent they're nonconsumptive, being excluded from this proceeding.

THE HEARING OFFICER: And so, Mr. Moroney, based on Mr. Fletcher's statement and based on my own look at the motion and the supporting affidavit, I'm not certain that the use by Fish and Game is nonconsumptive, and consequently I'll deny the motion and ask you to presented evidence regarding the use of water at the fish hatchery.

Okay. All right. I have two more. One is a motion to take official notice pursuant to Rule 602 of the Rules Of Procedure. And this was filed by Laird Stone on behalf of Dean Rogers.

And based on some filings late last week, I understood that perhaps Mr. Stone would not be here today and that Mr. Rogers would be perhaps represented, at least his interests, through your presentation and your representation, Mr. Barker. But I wasn't sure whether you were actually representing Mr. Rogers.

MR. BARKER: Thank you, your Honor -- or, Mr. Director.

We have not had direct communications with Mr. Stone about whether or not he wanted us to argue this motion on his behalf. I think what -- his motion to withdraw said he would rely upon the presentation of

the South Valley, so we don't have any position one way or the other on official notice. I think it might actually be subsumed in Mr. Lawrence and Mr. Bromley's motion for official notice of other records.

But I think he was just asking for notice of Mr. Rogers' rights, which as far as we were concerned, we were not going to put on evidence of every member of the Ground Water District's individual rights.

THE HEARING OFFICER: Okay.

MR. BARKER: So I guess -- I guess I don't have anything to say either in support or against that motion filed by -- on behalf of Mr. Rogers.

THE HEARING OFFICER: Any other comment on this particular motion?

MR. FLETCHER: Your Honor -- excuse me, Mr. Director.

THE HEARING OFFICER: Yes.

MR. FLETCHER: I would just suggest that we wait until he's called and see exactly what he wants to testify to. I think he wants the Department to take notice of measurement records and different things that I believe he has taken himself. But I'm not -- it's not clear to me from what he filed. So I would just suggest you reserve that.

THE HEARING OFFICER: Thank you.

I was confused by the document that came in to me. It actually asked me to take notice of water measurement records of the South Valley Ground Water District. And then there's some tabular information with numbers in it.

I'm assuming that those may be records of Water District 37, although I'm not sure. And so I really don't have the information that's necessary even to rule favorably on the motion. And so I'll deny the motion today, because I think it needs to be -- that evidence needs to come in with some foundational information about where they came from and what those numbers actually mean, whether they're water measurement numbers and data, I just don't know that without going back through the Black Books of the Water District. I can't establish it today. So I'll deny the motion.

Now, Mr. Bromley, I'm to No. 6. If you're -- or if you want to pick on somebody else here. Mr. Lawrence. I have several requests, I guess, for the Director to take official notice of the documents.

MR. LAWRENCE: That's correct, Mr. Director. Thank you.

There really are three categories of

documents that we're requesting the Director take official notice of. The first are agenda notes and minutes from the Advisory Committee meetings for the Big Wood Groundwater Management Area. As you know, this proceeding that we're in right now sprang from those meetings, essentially. And so we believe that those documents are -- are or may be relevant to this proceeding and should be available for the parties. It would be helpful if the parties had access to those and they were admitted into the record.

The second category similarly are agenda, notes, minutes, and other terms from the Modeling Technical Advisory Committee, the Wood River Valley Model Advisory Committee. We expect that the model is going to be, as Mr. Bromley put it, probed quite heavily in this proceeding. We believe that it would be helpful to the parties and the Department if those records were available in the record.

And then finally, the third category are documents, files, backfiles in the Department's records for all of the water rights listed on Tim Luke's Attachment A to his May 17th staff memo. It's fairly commonplace in proceedings that I've been involved with with the Department for the Hearing Officer to take official notice of the Department's own files on water

rights that are relevant to the proceeding.

So that, in a nutshell, is our request for official notice. Thank you.

THE HEARING OFFICER: Thank you, Mr. Lawrence.

Any responses?

Mr. Fletcher.

MR. FLETCHER: We don't really have any objection to the Advisory Committee meeting notes, other than there was some negotiation that took place there -- settlement negotiation. And so I -- I can leave it -- I believe we can leave it up to the Director to sift through that and determine what's relevant to this proceeding.

As far as the agenda notes from the modeling and the backfiles to the water rights, I don't believe we have any objection to those.

THE HEARING OFFICER: Okay. Mr. Rigby.

MR. RIGBY: Mr. Director, only to add to that, again, I wasn't at those. And Director was for -- as I understand it, for the most part, or at least a lot of that. And I, too, am concerned about anything that would have been stated or said in negotiations versus part of the committee assignment.

Other than that, I agree with Kent that as long as the Director recognizes that and sifts through

that which is negotiation versus the assignment of the committee, then I have no objection as well.

THE HEARING OFFICER: Any other commentary?

Mr. Barker.

MR. BARKER: Thank you, Director.

I think one of the things that I'd be concerned about is just a procedural matter. All of this stuff is fairly broad. Certainly if an expert wants to refer to something that was in the modeling meeting minutes, they ought to be -- or the Modeling Technical Advisory Committee minutes, they ought to be able to refer to that.

But if the documents start coming into evidence, it would be nice to have some kind of notice of which one of these documents, this fairly massive group of materials, is going to be actually introduced into evidence that people are going to discuss at the hearing.

And the second thing I'll say about the discussions at the Advisory Committee meeting is these are not 402 settlement discussions. They're simply not protected. And so whatever people said or didn't say about their position is certainly not off the table at all.

THE HEARING OFFICER: Okay. All right. Let me

start from the back end again. And I agree with Mr. Lawrence that the documents, files, and back-files in the Department's records for water rights listed in Attachment A, Tim Luke's staff memorandum, those water right files should be a part of the record. And so the Director will take official notice of those water right files.

The agenda, notes, minutes, and meeting materials in the Wood River Valley Modeling Technical Advisory Committee, I don't even know what those might be, how extensive they are. My -- my inclination is to say if somebody thinks something's important in those, refer to it and bring it forward. So I'll at least deny the motion. And I want some specific reference, I think, as Mr. Barker was asking for so that we know or exactly what it is that people want to bring into the record.

And it's not that those modeling minutes and meeting materials are unimportant. Certainly I -- I think that technical committee and the inputs there from the various people who participate should be important for the record.

Now, the last one, I guess, I want to talk about is the meetings of the Advisory Committee for the Big Wood Groundwater Management Area. And I'm on the

fence on this particular question.

What do the parties want to do?

And I have some disclosure in this I want to be up front about. I attended every one of those meetings. And the reason that I attended them -- I didn't want to, but the reason that I attended those is because the public meeting law requires that either a member of the committee or the agency head attend. And in the middle of the pandemic, we weren't having anybody meet in person. So we were not requiring anybody from the committee to attend in person.

And so as a result, the deputies attorney general and the Department told me that we might be in trouble under the public meetings laws if I did not attend. So I attended those. I honestly don't think there is much in the way of discussion in those meetings about settlement negotiations.

But what do the parties want to do with respect to those notes? Any objections? Anybody?

MR. BARKER: No objection here.

THE HEARING OFFICER: All right. I'll take notice of those, but I'll also view them with a certain level of suspicion. But there was good information that came in.

I'm also, Mr. Rigby, concerned about your

concern, and that is that all of the parties who are participating in this proceeding did not participate in those meetings. And so again, I would encourage if there is something in those documents that people want to present or want to dwell on in this hearing, I'd ask that counsel bring that document forward and offer it as evidence. So that's a soft taking of notice, I'd characterize it as.

Okay. Have we worked through all the motions?

All right. Let's talk briefly about the order of presentation of testimony and the order of examination. So as I mentioned earlier, deputies attorney general for the Department of Water Resources will examine those Department staff members who prepared staff memorandums. And I expect that the examination will be brief and that the entire content of the staff memorandums will not be covered in the examination. You have them in your possession.

And the examination, I think, is more for the purpose of laying a foundation with that witness, and then creating some level of comfort before they're subjected to cross-examination. I find that's helpful in bringing Department staff in the witness chair.

And then I think it would be helpful if we

follow -- unless counsel has another idea, if we follow the order of Mr. Fletcher and Mr. Rigby, you can then examine the witnesses as well. And then I want to wrap around.

And, Mr. Barker, it seems to me that South Valley, as well as Galena to some extent, have the primary interest in this particular matter. And I'd ask you to cross-examine, either you or Mr. Thompson first, and then Galena second.

And then I think we have a couple of other parties. Let me -- well, let's establish that as we go. I don't want to take time.

And then once we finish with group one and group two, then I'll come to group three, and we'll see if you have additional questions. Okay?

And of course group four is excluded from examining. And then we'll go back through and have another round of rebuttal questions after we finish.

Is that acceptable?

Now, that will be today's proceeding. We'll need to consider how to present testimony from surface water users and how that testimony then is presented. I think one of the issues that always comes up, and will come up in this proceeding is -- and I think more as we get into group two, how you want to

present your testimony and whether each of the attorneys wants to protect their own presentation or whether we have a full presentation from a particular witness. And I don't know whether there are some witnesses that might be called twice.

I would prefer, particularly with the expert witnesses, if we could call them to testify and then have them in the chair once and then dismiss them and not call them back. But certainly they could be held in reserve, particularly for rebuttal. But we don't have to resolve that today. Let's think about it.

Mr. Barker, Mr. Laski, Ms. O'Leary, I think that would be your decision primarily. Let's see where it goes. But I want to protect your ability to put on your case and not have it diluted somehow through other examination. So I'll depend on you to tell me how you want to proceed.

Okay. Other questions?

All right. We'll all see how our endurance is.

Ready to call the first witness?

MS. CARTER: Yes.

THE HEARING OFFICER: Ms. Carter.

MS. CARTER: I call Sean Vincent.

THE HEARING OFFICER: If you'll come forward, Mr. Vincent. Raise your right hand.

SEAN VINCENT,
having been called as a witness by the Department and first duly sworn, testified as follows:

THE HEARING OFFICER: Thank you.
Please be seated.

DIRECT EXAMINATION
BY MS. CARTER:
Q. Good morning. Please state your full name and spell it for the record.
A. Sean Vincent. That's S-e-a-n, V-i-n-c-e-n-t.
Q. You are an employee of the Idaho Department of Water Resources; correct?
A. Correct.
Q. What is your current job title?
A. I am the hydrology section manager.
Q. And what are your responsibilities in this position?
A. I manage a group of hydrologists, hydrogeologists, and water resource engineers. We do

data collection, data analysis, surface and groundwater modeling, oftentimes in support of decision-making by the Director and the Idaho Water Resource Board.

A big part of my role is to review the work products of hydrology section staff, including presentations and reports. I from time to time serve as an expert witness for the Department. I've done that for the A & B Irrigation delivery call matter, as well as for the M3 water right application proceeding.

And I manage a number of joint funding agreements. These are essentially contracts between the Department of Water Resources and the U.S. Geological Survey to have the Geological Survey provide technical services. The largest of those are stream gaging agreements, which includes stream gaging services across the state. But there's ten continuous stream gages currently in the Wood River Valley that are part of that agreement, and also the stream gage below Magic Reservoir is a part of that agreement, which is outside of Wood River Valley.

Q. So what specifically are your responsibilities related to water supply data?

A. Well, I follow the water supply, as do most hydrology section staff. I attend water supply committee meetings, which are run by David Hoekema,

who's a member of the hydrology section.

We also do put out reports which status different groundwater management areas and critical groundwater areas across the state looking at water-level trends through time.

Q. How long have you worked in your current position?

A. It will be 16 years at the end of July.

Q. And what did you do prior to working for the Department?

A. I had a brief stint with an environmental consulting firm in Meridian called Kleinfelder where I worked as a project manager on environmental projects.

Prior to that I worked for 15 years with Morrison Knudsen Corporation, which later was bought out by Washington Group International. I started as a quantitative hydrogeologist with them. I did also manage some projects.

One project involved capture zone delineation work, modeling essentially, in support of the source water assessment program, which is the public water supply systems in Idaho.

And then finally I also, towards the end of my tenure, managed the geoscience group at MK, which is similar to my current role here.

Q. Thank you.

What is your college education?

A. I have a bachelor of science in geology and a bachelor of arts in geology, both from the University of Kansas, and a master's in hydrology with a groundwater emphasis from the University of Idaho.

Q. And what professional credentials do you have?

A. I am registered in Idaho as a professional geologist.

Q. Okay. Did you prepare a memo discussing methods of predicting surface water supplies in the Wood River Basin?

A. I did.

MS. CARTER: May I?

THE HEARING OFFICER: Yes.

MS. CARTER: I have copies if anybody needs them.

Q. I have just handed you a memo marked IDWR Exhibit 1.

Is that the memo that you prepared?

A. It is.

Q. And why did you prepare this memo?

A. It was in response to the Director's request for staff memoranda dated May 11, 2021.

Q. And in this memo you describe different methods for predicting surface water supplies.

What were those methods you discussed?

A. I considered three: The Surface Water Supply Index, which is a product from the Natural Resources Conservation Service. I also looked at the predictive model that was developed by Dr. Kendra Kaiser at Boise State University for the Wood River Water Collaborative.

And then finally, I looked at the Northwest River Forecast Center ensemble streamflow prediction model.

Q. And which of those methods did you select for your analysis?

A. I chose the Surface Water Supply Index, or SWSI, as it's sometimes referred.

Q. And why did you select that method?

A. Well, I've outlined reasons in the memorandum. But I guess generally it's designed to look at irrigation water supplies. It's specific to the irrigation season, and it allows hydrologists, water users, water managers to put the projected water supply in an historical context.

Q. And the memo was looking at the upcoming 2021 irrigation season, which we are now in.

What were the predictions for Basin 37?

A. This was as of April 1, the forecast that I looked at, and it was for a -- what I'd call a poor water supply year.

Q. So there was -- the analog years showed a poor water supply year for this year?

A. Yes. Based on the NRCS forecast, the water supply outlook was not good for the 2021 irrigation season.

Q. Okay. And you just mentioned analog years.

What's the purpose of selecting analog years? How do those work?

A. Well, again, I think it's helpful for water users, water managers, hydrologists to be able to put the forecast in an historical context. And the analog years are the years with the closest water supply volumes to the forecast.

MS. CARTER: Okay. Thank you.

Your Honor, I move to admit Exhibit 1 into evidence.

THE HEARING OFFICER: Thank you.

Any objections?

MR. BARKER: No objection.

MR. RIGBY: No.

THE HEARING OFFICER: Okay. The document that's

been marked as IDWR 1 is received into evidence.

(IDWR Exhibit 1 received.)

Q. (BY MS. CARTER): After you wrote your memo were there any updates to the water supply forecast?

A. Yeah. So the NRCS puts out a new SWSI table, I'll call it, monthly. And I used the April forecast, that was the latest one that had been published at the time I authored the memorandum. But since then they've published a May SWSI table. And I believe it was just over this weekend they published a June table as well.

Q. Did you have a chance to review those?

A. I did yesterday look at the June table.

Q. Let's see. I just handed you what is marked as IDWR Exhibit 5.

Could you tell us what that is.

A. So this is the SWSI table for the Big Wood River at Hailey gaging station for the June through September forecast.

Q. And what does that table tell you?

A. Well, in general terms, it tells me that the water supply outlook went from poor to much worse. In fact, it looks like this may be a historically bad year.

Q. Okay. Is there anything else that you

noted on this table when you were reviewing it?

A. If you look, the forecasts are put out for different exceedance forecast values. There's a 10 percent, 30 percent, 50, 70, and 90 percent exceedance forecast. And then the measured historical values are also provided.

And you can see where the different exceedance forecasts relate to the historical years. And when I look at this table, I note that the 50 percent exceedance forecast, which is the most likely, is less than the worst water supply for the June through September time frame going back 30 years to 1991. So it looks like this year is going to be worse than any in the preceding 30 years, at least for the June through September time frame.

MS. CARTER: Thank you.

I move to admit IDWR Exhibit 5 into the record.

MR. RIGBY: No objection.

THE HEARING OFFICER: Parties?

Mr. Bromley?

MR. BROMLEY: No objection.

THE HEARING OFFICER: Lawrence?

MR. LAWRENCE: No objection.

THE HEARING OFFICER: Mr. Laski?

MR. LASKI: No objection.
THE HEARING OFFICER: Mr. Barker?
MR. BARKER: No objection.
THE HEARING OFFICER: Okay.
(IDWR Exhibit 5 received.)
MS. CARTER: Those are all the questions I have for now.
THE HEARING OFFICER: Okay. All right.
And I'm sorry, Mr. Moroney, I did not --
MR. MORONEY: No objection.
THE HEARING OFFICER: Thank you. I'm trying to get all the way around the horn here. I'll get used to it.
Okay. Thank you for that introduction, Ms. Carter.
Mr. Rigby or Mr. Fletcher, one of you.
MR. RIGBY: I'll begin.
THE HEARING OFFICER: Thank you.
MR. RIGBY: Thank you, Mr. Director.

CROSS-EXAMINATION

BY MR. RIGBY:
Q. Good morning. How are you?
A. Good morning.
Q. If you don't mind, let's start with where

you just left off, which is the latest predictions.

According to Exhibit IDWR 5, the most recent June 1 -- or June prediction, or June NRCS prediction, is that what best to call it?

A. I call it the June SWSI table.

Q. Very good. You indicated that the most likely use of it would be the 50 percent exceedance forecast.

Why?

A. That's the most likely outcome. There are a couple of forecasts for the 10 percent and 30 percent exceedance values that are higher than 1994, which is the year with the lowest water supply for June to September time frame. And it -- that's what the NRCS prediction is, that the 50 percent exceedance forecast is less than was observed in 1994 for that time frame. In other words, there's a greater than 50 percent chance that the 2021 volume for that time period will be less than observed in 1994, which was 44,000 acre-feet at the Hailey gage.

Q. And you say that that would be worst in the last 30 years.

Why 30 years? Why pick the 30 years? What's the significance of that?

A. Well, that's typical when looking at water

supplies and historical periods. You go too much further than 30 years, then you start getting changes in irrigation practices and a lot of other things that can affect it. So typically, we look at 30 years historical periods when, for example, looking at snow-water equivalent maps, also the SWSI index. But you can go back further in time.

Q. As a result of the newest forecast by Exhibit IDWR 5, what would you, if you were to re-create your memo, what major significance would it play in an update of your memo?

A. Well, I think that it paints a bleaker water supply outlook than when I wrote my memo and that it would result in the selection of different analog years.

Q. Do you have any in mind? And I realize this is on the fly. We're all trying to catch this up in this time frame. But do you have any in mind?

A. Well, the year with the measured streamflow at the Hailey gage that is most similar to the 50 percent chance exceedance forecast is 1994. So that might be an analog year.

Q. In fact, 1994 has been used.

Was it in your memo or Mr. Luke's or Ms. Sukow's? I recognize one of them dealt with it.

Do you recall?

A. I don't -- I don't recall.

Q. Very good. Again, getting back to the three methodologies that were out there or that potentially could be used, what are some of the weaknesses that you saw in the other two as -- and why you chose the SWSI for this particular one? I recognize one of your reasons was the forecast for the current year; is that correct?

A. Well, I -- I don't know that I would say that the other two options are -- are weak. I guess I would say that the SWSI has really been developed with irrigation water supplies in mind. The way the output of the table has the historical values and the exceedance forecasts are positioned in relationship to those historical values for the preceding 30 years is very convenient. And the Department has used SWSI tables and continues to use SWSI tables. There's a level of comfort there, just familiarity. I think there's widespread acceptance both inside IDWR and outside.

Q. Do you know anyone else that's run the other two and would have a prediction significantly different than what you supplied?

A. We did -- and I think I described this in

the memo -- run the Wood River Water Collaborative Model. It's an R script. And as I mentioned in my deposition, you have to have the right libraries loaded in order to run an R script. And so there's some time spent there and -- but mostly in talking with Dr. Kaiser it sounded like there was still some modifications being made to the model. So we didn't choose that.

The other one, the Northwest River Forecast Center ensemble prediction model, again, it's just not as convenient for my purposes and I'm not as familiar with it. But I don't have anything bad to say about the forecast model.

Q. Do you have any reason to believe that any of the other two runs wouldn't result in a significantly different result than what you came up with in SWSI?

MR. BARKER: Objection. Lack of foundation.

THE HEARING OFFICER: Well, I'll overrule the objection. I think this is a little bit foundational anyway.

Go ahead.

THE WITNESS: The bottom line for me is it's going to be a very bad water supply year in 2021.

Q. (BY MR. RIGBY): In your staff memo -- and

I apologize, I don't have the exhibit number for that.

THE HEARING OFFICER: It's 1.

MR. RIGBY: Is it 1?

THE HEARING OFFICER: 1.

MR. RIGBY: Okay.

Q. In Exhibit 1, page 3, you indicate that -- again, dealing with the SWSI and why it's a better choice for predicting the water supply in the Wood River Valley -- "as well as downstream users that don't have access to the Magic River -- Magic Reservoir but instead divert from Silver Creek and Little Wood."

Is that significant in using the SWSI? Is it a better prediction for those downstream users, in your opinion?

A. Than the alternatives or --

Q. I guess what I'm saying is, did it work for what you were attempting to do?

A. Well, I spoke of this a little bit in my deposition, but when I first -- when the focus first shifted over to the Little Wood and Silver Creek water users, I -- I realized that there wasn't a SWSI for Silver Creek. And so I had to satisfy myself that there was a correlation between the SWSI for the at-Hailey gage and the observed flows in Silver Creek.

And so I did a regression analysis and

looked both at the coefficient of determination and the chart that was -- compared those two things, and saw that there was a strong correlation between them, the flow in Silver Creek during the April through September time frame and the flow at the at-Hailey gage.

Q. So the results that were produced as a result of SWSI, for the purpose of the seniors downstream from -- in Silver Creek and Little Wood, you still maintain that, notwithstanding the new prediction or otherwise, that your analysis is correct; correct?

A. I believe that because the at-Hailey gage is pretty well correlated with the flows in Silver Creek during the irrigation season, the fact that there is a poor water supply year predicted for the at-Hailey gage would extend to Silver Creek. It's not a perfect correlation, but...

Q. Do you know of any other methodology out there or another way of addressing that if it's not perfect? Is there one that's better?

A. I suppose a different model could be developed, one that relied entirely on water levels in wells, for example. But I did not do that.

Q. As far as the modeling itself, and of course the model 1.1, we've heard testimony from others, is it the best science that we have right now?

MR. THOMPSON: Objection. We haven't heard from anybody yet.

MR. RIGBY: You're right.

Q. I'll represent to you that there are those who -- let me just ask you this. Strike that.

Is it the best science we have to deal with for the Wood River Valley at this given time?

MR. BROMLEY: Objection. What is "it"?

MR. RIGBY: The model 1.1.

MR. BARKER: So I think that's a problem, because that's not what Mr. Vincent's talking about. He's talking about the SWSI projections, not the model.

MR. RIGBY: I'm asking him about the model. I'll lay foundation.

Q. Are you familiar with the model 1.1?

A. I am familiar with the Wood River Valley groundwater flow model.

Q. And have you -- what's your familiarity with it?

A. Well, Jennifer Sukow is in the hydrology section, and I manage the hydrology section. And I also facilitate meetings of the Wood River Valley Modeling Technical Advisory Committee.

Q. So is that the extent of your review of the model?

A. I reviewed the reports that have been generated for the model.

Q. Go to your memo, please, page 2, item No. 4, "Method Selection." And it says -- and I hope I'm quoting it correctly -- "The SWSI tables also include an estimate of the adequate water supply volume which can be used to determine if the current year will have a shortage or surplus of irrigation water."

Is that what it says?

A. That's item 4?

Q. Yes.

A. I believe that's what it says, yes.

Q. So has an adequate water supply volume in acre-feet been established for water users in the Little Wood/Silver Creek drainage, to your knowledge?

A. I believe that the adequate water supply volume is for the Wood River Valley. And so that's a slightly different area than we're concerned with in this proceeding.

Q. Larger than what we're dealing with right here?

A. Well, larger and less extensive, both. It's different.

Q. How so?

A. Silver Creek is within the Wood River

Valley, but then we're also concerned about the water as it -- after it's flowed to past Picabo and is outside the Wood River Valley.

Q. So again, to your knowledge, has there been any -- is there any way to establish the -- what that water supply volume being adequate for the Little Wood/Silver Creek drainage for water users?

A. The -- I spoke with Ron Abramovich, who was involved in the development of the adequate water supply volumes when he was with the NRCS. He has since retired. And I asked him about the adequate water supply value for the above-Hailey gage, is how it's referred to.

And he mentioned that he had developed that by discussing the water years with the Water District 37 watermaster, Kevin Lakey, and that he had reviewed data and had conversations with Mr. Lakey, and that they had arrived at this number based on those conversations and his review of gage data. But again, it applies to the Wood River Valley, that volume.

Q. One of the reasons for my inquiry as to this is that again on page 3, your last paragraph talking about the potential analog years for the Wood River Valley, this paragraph, as well as the staff memo, bases conclusions on the availability of 2021

irrigation season on the adequate water supply volume. And that's why I think it's important to know just what, if any, analysis or development of that determination as to definition or data is involved.

A. That's a fair question. In my conversations with Kevin Lakey and Ron Abramovich, I learned that there is essentially an above-Magic adequate water supply volume and a below-Magic adequate water supply volume. And I'm not sure that either of those really captures the area of concern for this proceeding.

Q. Why?

A. Because Silver Creek is the main focus in terms of water supply. And it's -- it heads in the Wood River Valley, but then it flows out of the Wood River Valley. So I'm just not sure that either Ron or Kevin had that area in mind when they developed this adequate water supply volume.

Q. But as far as you know, the two of them are the ones that have, quote, "developed" the adequate water supply for purposes of your addressing it within your memo?

A. It -- yes, I believe there were others. I just remember that Ron mentioned Kevin as being one of the people that he had worked with when developing that

number. And it's intended as a general guideline. It's kind of an inexact number, I think.

MR. RIGBY: Understood. I have no further questions.

Kent.

THE HEARING OFFICER: Thank you, Mr. Rigby.

Mr. Fletcher.

MR. FLETCHER: Thank you. I have very few questions.

CROSS-EXAMINATION

BY MR. FLETCHER:

Q. Based upon your exhibit -- oh, I'm Kent Fletcher, by the way, Mr. Vincent. I represent Big Wood Canal Company.

Based upon your Exhibit 5, is it fair to say there is no analog year meeting the conditions of this year?

A. I would say 1994 is very similar to the 50 percent chance -- well, maybe not very similar. It's similar. If I had to choose one year in the previous 30, it would be 1994. But you're right, 1994 has a higher projected June through September forecast than the measured volume -- or scratch that.

1994 has a higher measured streamflow value

for the period June through September than the 50 percent chance exceedance forecast for 2021. There is still some probability that we will exceed the 1994 measured volume, obviously. And this, I should emphasize, is only for the period June through September. It's not for the entire irrigation season.

Q. And 1994, to reiterate, is the worst year on record in the last 30 years?

A. In the last 30. We do have historical data going back to 1917, which I provided to Tim Luke and got from the NRCS. And there are worse years than 1994 going back that far.

MR. FLETCHER: Thank you.

THE HEARING OFFICER: Thank you, Mr. Fletcher.

Mr. Barker.

MR. BARKER: Thank you, Mr. Director.

CROSS-EXAMINATION

BY MR. BARKER:

Q. Albert Barker on behalf of South Valley Ground Water District.

Sean, how are you? Having fun?

A. Been better. I'm doing all right.

Q. So you came here with some not-so-great news for us this morning; right?

A. That's true.
Q. The -- I want to follow up on something that you just said about -- you just emphasized that this is June to September SWSI forecast, correct, compared to the June to September runoff periods in the previous 30 years?
A. That's correct.
Q. Okay. And so this chart doesn't take into account the water supply that was available in March April and May?
A. Yeah. We're typically focused on April through September. It doesn't include April or May, the flow past the Hailey gage, during that time frame.
Q. And during those periods of time, there was greater flow than was shown on the current 2021 SWSI?
A. There was flow obviously, yes.
Q. Okay. So the adequate water supply that you discussed, we don't have any number for an adequate water supply for the Big Wood -- or sorry, the Little Wood and Silver Creek water users; is that correct?
A. That's correct. I don't.
Q. You mentioned when you first started that you were in charge of the stream gaging or you were at least in charge of the agreements with USGS on stream gaging?

A. That's correct.
Q. And are there stream gages on the Little Wood in addition to the ones that are monitored by the USGS?
A. There is a stream gage at Station 10 and one at Station 54. There are gages upstream from the confluence of Silver Creek as well. There's one at Carrie, and I believe upstream from that even is another gage.
Q. All right. And are those gages within your purview?
A. I believe the USGS gage at Carrie may be sponsored by the Department, but I -- I don't recall.
Q. And do you have any information about the gage at Station 10? Well, let me stop for a second.
Is that gage at Station 10 managed by IDWR?
A. It is currently monitored by a contractor under contract from Water District 37. We have installed equipment here recently, we're trying to improve the gaging that's done at Station 10.
Q. Okay. So why is it necessary to improve the gaging at Station 10? What's wrong with it? What's there now?
A. I'm perhaps not the best person to ask that. I know that Jennifer Sukow has been looking into

the data there.

Q. Okay. But suffice it to say, the Department's not satisfied with the data that they're getting out of the readings from Station 10?

A. There are some concerns, yes.

Q. You mentioned earlier that you found a very strong correlation between flows at Hailey on the Big Wood and flows in Silver Creek?

A. Reasonably strong. I'm not sure what adjective I used, but it's fairly strong.

Q. Maybe you used an adjective.

But you did use the word "strong"; right?

A. Fairly strong.

Q. Okay. And so how you do you identify what it means when you say there's a strong correlation between the flows up above the Triangle at Hailey and the flows in Silver Creek?

A. Well, as I mentioned, I looked at the flow measured at the Sportsman's Access gage in Silver Creek going back in time for the period April through September, and compared that to the flows observed at the at-Hailey gage April through September going back in time. And I plotted those up, and visually I saw a fairly strong correlation. And I did a regression analysis and came up with an R-squared value for

different time frames.

Q. Okay. So can you recall the R-squared value that you found?

A. I remember that for the most recent ten years, the R-squared was above .8. And it was a little bit less than that if you go back 20 years and 30 years. But there's a reasonable correlation indicated by that. It means that the variation is explained, let's say the correlation -- or the coefficient of determination, or R-squared value is .8. It means that 80 percent of the variation is explained by the variation observed at Hailey.

Q. And so the higher the R-squared value -- it can't get above 1.0; right?

A. 1.0 would be perfect.

Q. Okay. So the higher it is, the stronger the correlation; is that how that works?

A. Yes.

Q. And an R-squared value of .6, for example, would be less strong of a correlation?

A. That's -- that's correct.

Q. Okay. Is there a stream gage on Silver Creek at Ragsdale? Are you familiar with that?

A. I am not familiar with it.

Q. Okay. I'm getting past your -- all right.

That's fine.

So both Ms. Carter and Mr. Rigby referred to you providing analysis. And I thought when we talked the other day in your deposition you simply said what you were doing was reporting the analysis that had been provided by NRCS in the SWSI tables and not doing your own analysis of the flows.

Is that right?

A. I believe what I said was that the analysis that I did was to look at the correlation between the at-Hailey gage flows and the flows at Silver Creek. And then based on the observed correlation -- that was my analysis -- I used the NRCS forecast.

Q. So your analysis was to say that the Hailey gage is the best measure of what the SWSI -- or sorry, what the 2021 water year would look like in the Big Wood?

A. That's correct.

Q. Okay. And then you also mentioned that you could go back to earlier years.

Didn't you ask NRCS for SWSI values going back into the '20s and '30s?

A. Back to 1917.

Q. Okay. So did you, for purposes of your memo, consider comparing SWSI values with years outside

of that 30-year period that is in table IDWR Exhibit 5?

A. I didn't feel that that would be necessary, and it's not in keeping with standard practice to go too far beyond 30 years. It can be done. And it's informative to see what the flows were. The gage is long established, but I didn't feel like it was important for my analysis, though.

Q. And Mr. Rigby asked you some questions about the Wood River Valley model 1.1.

You were in charge of the -- or at least supervised the MTAC meetings for that process; correct?

A. That's correct.

Q. Did you have anything to do with the uncertainty analysis that Allan Wylie prepared for that -- or reporting on the uncertainty analysis in model 1.1?

A. I reviewed the report, but the uncertainty analysis was not something I personally participated in, no.

Q. And did you -- did you disagree with his conclusions about any uncertainty report?

A. I did not.

MR. BARKER: Thank you, Mr. Director.

Thank you, Sean.

THE HEARING OFFICER: Thank you.

Galena? Mr. Laski?

MR. LASKI: We have no questions.

THE HEARING OFFICER: No questions?

MR. LASKI: No.

THE HEARING OFFICER: Okay. Group three?

And I will just mention at this point that there are two other individuals in -- well, I'm belated, I guess, in doing this. But there are two other individuals in group one who are not here, I don't think.

And then in group two -- let me just ensure that we're okay.

So, Mr. Robertson, you're representing Sun Valley Water and Sewer District. That would be in group three as well, even though I have it in group two.

MR. ROBERTSON: Yes, sir.

THE HEARING OFFICER: And I think Jim Speck has filed documentation stating that he would rely on others today.

So I think we're into group three now, Mr. Bromley. Sorry for the cleanup, as I look at who's representing whom.

MR. THOMPSON: Mr. Director, can I interrupt?

THE HEARING OFFICER: Yeah.

MR. THOMPSON: Who else is in group one? Sorry. You said --

THE HEARING OFFICER: Okay. I, at least in my list, so there's a large group of users that Jerry Rigby and Joe James represent. I didn't ask Chase.

Chase, are you with the Rigby law firm or are you Joe James?

MR. RIGBY: He's with me, sorry to say.

THE HEARING OFFICER: He's associated with you. That's what I assumed.

And then Kent Fletcher is representing Big Wood Canal Company and in group one. Lawrence Schoen and City of Gooding, Brendan Ash, I don't think he's here today. So that's group one.

Were you wanting more information than that?

MR. THOMPSON: No, that's fine.

THE HEARING OFFICER: Thanks, Travis.

MR. MORONEY: Mr. Director.

THE HEARING OFFICER: Yes.

MR. MORONEY: Just to clarify, Fish and Game's in group two; correct?

THE HEARING OFFICER: That is correct.

So do you have questions? I'm sorry, Mr. Moroney.

MR. MORONEY: No questions for Mr. Vincent.

THE HEARING OFFICER: Oh, and now I'm sorry. This summary I have does not include you, and it should.

Okay. Mr. Bromley.

MR. BROMLEY: Great. Just a few.

CROSS-EXAMINATION

BY MR. BROMLEY:

Q. Hi, Sean.

A. Morning.

Q. Let me just ask a quick question.

Did you say that the SWSI for the Big Wood above Hailey does not predict flows in Silver Creek and tributaries?

A. No, it's not -- the forecast is for flow at the -- at the at-Hailey gage.

Q. And that was the correlation, then, that you were --

A. That's right.

Q. That was the linkage?

A. That's correct.

Q. Okay. Thank you.

Mr. Vincent, are you familiar with the rules for conjunctive management?

A. Somewhat, yes.
Q. Aware that they exist?
A. I am.
Q. And when you put together your staff memo, did you look at all at the Conjunctive Management Rules?
A. Not as part of this, no.
Q. Okay. Thank you.
When you were preparing your staff memo, Sean, did you do any analysis of changes in irrigation practices during the SWSI -- this 30-year period from 1991 to 2021?
A. I did not do that specifically, Mr. Bromley.
Q. And, Mr. Vincent, you were testifying a little bit earlier about the model, the Big Wood model; is that correct?
A. I was asked a question about it. I don't recall specifically what it was.
Q. And that you have some general familiarity with the model?
A. I do. I do.
Q. Are you aware of what the calibration dates were within the model?
A. We updated the model, let's see, in 2019 we

put out version 1.1. And if I'm not mistaken, the calibration period extends through 2014. But Jennifer Sukow would be a better one to ask about that.

Q. I was curious if you recalled when that calibration date started. So it's gone on through 2014. My understanding is that the calibration started in 1995.

A. I believe it was about that time frame. There was a model warm-up period, too, in the first few years. And so the model during that time period isn't actually calibrating to those initial values. So I'm not -- the calibration period is a little different than the total simulation period.

Q. Okay. So if the model was -- if the start date of the calibration was 1995, then you'd agree that the 1994 SWSI that you're looking at predates that period?

A. If that's the case, I would agree with that.

Q. Okay. Thank you.

Have you analyzed the surface water supply that was available in 1994?

A. Only to look at the measured runoff volumes that are reported by the U.S. Geological Survey.

Q. Okay. And so then not diversions by river

users or pumping by groundwater users?

A. I did not do that, no.

MR. BROMLEY: Okay. That's all I have.

THE HEARING OFFICER: Okay.

MR. BROMLEY: Thank you.

THE HEARING OFFICER: Thank you.

Others in group three?

Mr. Simpson, I think I missed you once as we went through. Do you have questions for Mr. Vincent?

MR. SIMPSON: No questions.

THE HEARING OFFICER: Are there others in group three?

Mr. Robertson?

MR. ROBERTSON: No questions.

THE HEARING OFFICER: No questions.

Mr. Semanko?

All right. Let me check my list again. Let's see. Did I pick up -- and I'm not sure my notes are good. I have Brian O'Bannon from the City of Ketchum.

MR. O'BANNON: Yes.

THE HEARING OFFICER: Yes, I thought you were here. Do you have questions?

MR. O'BANNON: No questions.

THE HEARING OFFICER: All right. Thank you, Brian.

All right. Very good. Let's come back around. Redirect.

Ms. Carter.

MS. CARTER: Just one clarification. Did we admit Exhibit 5 into the evidence?

THE HEARING OFFICER: Yeah, I wondered the same thing.

Mr. LaMar, can you tell us, or is there somebody who can tell?

THE COURT REPORTER: Yes, it has.

THE HEARING OFFICER: It's been admitted?

THE COURT REPORTER: It has.

THE HEARING OFFICER: Okay. That's what I thought. Thank you.

MS. CARTER: That's all I have.

THE HEARING OFFICER: Okay. Thank you.

Any other questions within the scope of redirect?

Okay. I have one question for Mr. Vincent.

EXAMINATION

BY THE HEARING OFFICER:

Q. In Exhibit 5 you've been talking about a

streamflow volume. And I'm assuming that you are looking at the column "Streamflow June through September."

Is that correct?

A. Correct.

Q. And will you just, for the record, clarify what the units are there and what those numbers represent.

A. Yes. Those are -- the units is thousand acre-feet at the upper right next to the red "1991 to 2020," just to the right of that. It says "30 years" and then "Units KAF." It stands for thousand acre-feet.

Q. Okay.

A. What was the second part of your question?

Q. Well, I think you've answered the question because I wanted to know not only what it represented, but then what -- so in terms of units, so whether it was acre-feet or whether it was cubic feet per second. And then I wanted to know what the number represented, which is KAF or a thousand acre-feet. So I think you've answered the question.

So these numbers, both the streamflow and streamflow plus reservoir sum, those are both in thousands of acre-feet?

A. That's correct.

THE HEARING OFFICER: Okay. All right. Thank you.

Any other questions for Mr. Vincent?

Thank you, Sean. And you may be excused, subject to possible recall, but I don't think that will happen.

All right. Do we want to take a break for ten minutes? I think our next witness will be in the chair for a while. Let's break for ten.

(Recess.)

THE HEARING OFFICER: Let's go back on the record. We are recording after a short morning break.

Ms. Carter, next witness.

MS. CARTER: Jennifer Sukow.

THE HEARING OFFICER: Ms. Sukow, if you'll come forward, please and raise your right hand.

JENNIFER SUKOW,

having been called as a witness by the Department and first duly sworn, testified as follows:

THE HEARING OFFICER: Thank you. Please be seated.

Ms. Carter, you may examine the witness.

MS. CARTER: Thank you.

DIRECT EXAMINATION

BY MS. CARTER:

Q. Would you please state your full name and spell it for the record.

A. Jennifer Sue Sukow, J-e-n-n-i-f-e-r, S-u-e, S-u-k-o-w.

Q. And you are an employee of the Idaho Department of Water Resources; correct?

A. Correct.

Q. What is your current job title?

A. My job title is Technical Engineer II.

Q. And what are your responsibilities in this position?

A. I work in the hydrology section. And I work primarily with groundwater flow models, the model interaction of groundwater and surface water. I also do other various hydrologic and hydrogeologic analyses that come up from time to time.

Q. And how long have you worked in this position?

A. About 10 years. Or excuse me, 11 years.

Q. And prior to this position what other positions did you hold?

A. I was a senior water engineer with a consulting firm called SPF Water Engineering for about six years prior to this position.

Q. And what did you do in that position?

A. I did design and permitting primarily for public water systems. I designed public-water-supply wells and pumping stations and pressure reducing stations and other appurtenances for the water systems.

Q. And did I ask you how long you were in that position?

A. I don't think you did, but I think I said six years in my previous answer.

Q. That's fine.

A. Sorry.

Q. That's okay. What is your college education?

A. I have a bachelor of science degree from University of North Dakota in environmental geology and technology, and a master's degree in civil engineering from the -- or excuse me, Utah State University.

Q. And what professional credentials do you have?

A. I am registered as a professional engineer with the State of Idaho and the State of Oregon. And I'm registered as a professional geologist with the

State of Idaho.

Q. Okay. Did you prepare a memo discussing predicted hydrologic response in Silver Creek and the Little Wood Rivers?

A. Yes.

Q. Okay. I've just handed you a memo marked IDWR Exhibit 2.

Is this that memo?

A. Yes.

Q. And why did you prepare this memo?

A. I prepared this in response to a request for staff memoranda from the Director.

Q. Okay. Then I'm going to hand you a copy of the Director's scheduling order. On page 5 of the order, there is a mention of a correction to your staff memo and an attached graph.

Do you recognize that correction?

A. Yes.

Q. And what is that correction?

A. In the original staff memo in Figure 14, I pasted the incorrect graph in there. And the correction is the corrected graph.

Q. Okay. Are there any other corrections to your memo that we need to be aware of?

A. I think I also mentioned in here, in the

attachment, that the original memorandum said the well logs were in Attachment A, and they're actually in Attachment C. That was the other correction.

Q. Okay. Thank you.

So regarding the hydrogeology of the Wood River Basins, let's focus on Silver Creek, what is the connection between Silver Creek and its tributaries to the aquifer system?

A. So Silver Creek and its tributaries, their primary source of supply is the Wood River Valley aquifer system. They do get some -- seasonally get some smaller contributions of water from snowmelt runoff or direct infiltration or precipitation, but their headwaters is -- is in the aquifer and it is discharged from the aquifer. They are directly connected to the unconfined aquifer. The confined aquifer, which is also part of the system, is connected to the unconfined aquifer. And so for all practical purposes, they're all connected to Silver Creek.

Q. And how does a low water year affect the aquifer?

A. So there is a number of factors that affect -- well, aquifer water level affects the amount of discharge to Silver Creek, and there's a number of factors that affect aquifer water levels. So there's

multiple sources of aquifer stress that affect water level. Those include incidental recharge of surface water applied in excess of crop water needs and canal seepage. It includes natural recharge from tributary underflow and the infiltration of precipitation. And it includes groundwater withdrawals for irrigation and also natural discharge directly from the aquifer through evapotranspiration in wetlands and riparian areas.

During a year with a low water supply, we tend to have less recharge, both from natural recharge and from canal seepage and incidental irrigation water, plus we have the double whammy of tending to have higher groundwater withdrawals for irrigation, and also maybe potentially higher discharge from wetlands and ET for a hot and dry year.

Q. All right. Let's talk about the groundwater flow model.

What is the purpose of the model?

A. The primary purpose of the model is to be -- serve as a tool to evaluate the interaction of groundwater and surface water, and to that end to serve as a tool for the conjunctive management and conjunctive administration of water in the -- in the model area.

Q. And what information do you get out of the model?

A. Well, and again, the model is -- the calibration of the model is optimized to look at the interaction between groundwater and surface water. The biggest advantages of the model are we can put -- you know, we can put a large amount of available data into the model and then be able to use the model to predict and separate out the impacts of those various types of aquifer stresses that I talked about previously.

So we could separate out the impacts of groundwater pumping on streamflow from the impacts of changes in incidental recharge from irrigation or changes in natural recharge on the streamflow.

Q. And what is the uncertainty of the model?

A. Well, like all groundwater flow models, the model is a simplification of the system, and there is inherently uncertainty in the model predictions. It's also not really possible to put a single number, as far as a plus-or-minus error bar, on -- on the groundwater flow model and all the predictions that it might make.

Allan Wylie did do uncertainty analysis for the most recent version of the model, version 1.1, and looked at the uncertainty associated with five specific predictions. And those are discussed briefly in my

staff memo.

Q. And how does that general uncertainty compare to other groundwater flow models?

A. I could compare it to the Eastern Snake Plain Aquifer model. I just recently published an uncertainty analysis for version 2.2 of the ESPA aquifer model. The numeric uncertainty in the analysis is lower for some predictions that Allan looked at and higher for others. But Allan was also looking at a simulated impact of a ten-month simulation and looking at a prediction from that.

In the ESPA, the ESPA predictive uncertainty analysis, we're looking at mostly steady-state predictions, and then we also looked at some that were a five-year simulation of the impacts of a managed recharge.

So numerically the predictions in the ESPA range -- the uncertainty ranged from very low to up to plus or minus 9 percent. And with the five predictions Allan looked at for this model, they ranged from very low at plus or minus .5 percent to plus or minus 22 percent, but given the shorter time frame, that's actually reasonably good for the model.

MR. RIGBY: I'm sorry, I didn't catch that.

Q. (BY MS. CARTER): He didn't catch your last

couple...

A. I said that it's reasonably good for the short time frame of the simulation.

MR. RIGBY: Thank you. Sorry.

Q. (BY MS. CARTER): And would you say that the Wood River model is the best available science?

A. Yes, I -- I said that in my staff memo, or perhaps I quoted Allan Wylie stating that in the model documentation for the report. Also, his uncertainty analysis documents that it is a better tool than any available analytical methods that we could apply to make such a prediction.

And that's important because it incorporates -- it incorporates -- doing a numerical flow model allows you to incorporate a large number of data, whereas if you use an analytical method, you're doing more of a simplification and using a smaller amount of data.

Q. So in terms of this proceeding, how did you use the model?

A. I did two simulations of curtailment of groundwater pumping, which would -- which is adjusting the model stress or the aquifer stresses to -- or adjusting the model input to ask the question of what would have happened if there hadn't been any

groundwater pumping in a given area over a given time frame. And I used 2002 -- the year 2002 as a baseline dry year for these simulations.

Q. Okay. And why did you use 2002?

A. At the time that I started working on this, we were still using the March 1 SWSI prediction. And 2002 was one of the analog years, the closest year to the 50 percent exceedance at that time.

Q. Okay. Do you by chance know how that compares to what is looking like a much drier year?

A. It is now looking like -- yeah, every SWSI prediction that's come out since then, and there's been an April one, a May one, and a June one, and it has gotten -- the streamflow prediction at Hailey has gotten worse every time. So we're looking at a drier year than 2002 at this point, it's looking like.

Q. And how would that -- do you know how that would affect the model runs, if you were to do them again today?

A. I would expect that the -- the supplemental water use -- supplemental groundwater use in the Triangle would likely be higher than it was in 2002, because for those users that do have surface water supplies, they will likely run out of surface water earlier in the season and -- or a lot of them will,

except for maybe the very most senior ones will run out of water earlier in the season, which would mean they'll pump more groundwater than they did in 2002, most likely.

Q. So you mentioned that you ran two different simulations.

What were they?

A. I did one simulation of curtailing groundwater pumping over the entire model domain, and a second one which simulated curtailment over a reduced area, which includes most of the model area south of Glendale Bridge.

Q. And why did you choose those two areas?

A. In the Director's request for staff memoranda, I was asked to do model simulations for the entire model domain and then to identify areas that had minimal predicted influence on Silver Creek, and run another model simulation that excluded those areas.

Q. And what did you learn from the curtailment runs of the first area?

A. So the curtailment runs of the first area, if we look at Attachment B of the staff memo, that summarizes the results of the simulations that I did.

And just to summarize with respect to Silver Creek, what I learned from the first simulation

is that there is a predicted significant increase in streamflow in Silver Creek at the Sportsman's Access gage if groundwater pumping is curtailed.

Q. And what did you learn from curtailment runs of the second area?

A. So the curtailment run of the second area also shows significant responses in increased streamflow in Silver Creek if groundwater pumping is curtailed, and shows that we could expect to realize about 99 percent of the benefit to increased streamflow in Silver Creek with that reduced area. So it shows that the areas that are in the model domain but outside of that reduced area that I ran in the second set of simulations is indeed minimal.

Q. So how did the results of your curtailment runs relate to the focus of this hearing?

A. Well, they give the predicted response at Silver Creek to curtailing pumping.

MS. CARTER: Thank you.

I move to admit IDWR Exhibit 2 into the record?

THE HEARING OFFICER: Mr. Rigby?

MR. RIGBY: No objection, your Honor.

THE HEARING OFFICER: Mr. Fletcher?

MR. FLETCHER: No.

THE HEARING OFFICER: Mr. Barker or Thompson?
MR. BARKER: No objection.
MR. THOMPSON: No objection.
THE HEARING OFFICER: Mr. Laski?
MR. LASKI: No objection.
THE HEARING OFFICER: Okay. And then group three, Mr. Bromley or Lawrence?
MR. BROMLEY: No objection.
THE HEARING OFFICER: Mr. Simpson?
MR. SIMPSON: None.
THE HEARING OFFICER: And, Mr. O'Bannon, is that correct? No objection.
Okay. Have I asked everybody now?
The document marked as IDWR Exhibit 2 is received into evidence.
(IDWR Exhibit 2 received.)
MS. CARTER: And that is all the questions I have for the witness, your Honor.
THE HEARING OFFICER: Okay. Thank you, Ms. Carter.
Mr. Rigby or Mr. Fletcher.

DIRECT EXAMINATION

BY MR. RIGBY:
Q. Good morning, Ms. Sukow. Jerry Rigby for

the senior water -- surface water users known as the Big Wood/Little Wood Surface Water -- excuse me, Big Wood/Little Wood Water Users Association. It's a long name.

Let me start first of all on -- asking concerning the years that were modeled and used. You indicated that in fact in your 2019 curtailment study you addressed using the year 2007, and in 2021 you've indicated 2002. And then Mr. Vincent just a moment ago or a few minutes ago indicated 2004.

Is there any -- as a result of the Exhibit No. 5, IDWR's Exhibit No. 5 that addresses the current -- if you can look at that, the current prediction.

I guess what I'm asking is, what year would you, if you were modeling it now, what year would you use?

A. Well, so out of the years that are closest to the 50 percent exceedance now, you know, the model -- the model simulation doesn't start -- the model dataset doesn't start until January 1, 1995. So we don't have 1992 or 1994 available to use as baseline years. Based on looking at this now, I would probably use 2001 or 2007.

Q. And why?

A. Just because they're closer to the 50 percent exceedance forecast.

Q. In your report -- obviously you indicated the -- especially in the 2021 report, page 4, paragraph 1, you address that during years of low water supply there's a combination of factors. And obviously some of those factors are precipitation itself. But I want to obviously address the aquifer discharge to the streams issue.

And I guess my question on that one is, you indicated a few moments ago that this year, being a drought year, that another factor that's added to and exacerbated it is the additional pumping that's going on.

Why is that?

A. Because a number of -- in the Triangle, a large percentage of the irrigated area is mixed-source. So they have both surface water and groundwater supplies available to them to irrigate. A lot of those are conditioned as supplemental, and they should be using the surface water first if it's available. But once the surface water runs out, they would understandably turn to their groundwater and -- earlier, and then would likely pump more during the irrigation season.

Q. And according to your modeling, would that also then reduce the flows in the Silver Creek and Little Wood Stream?

A. Yes, the additional groundwater pumping would reduce aquifer head, and that would in turn reduce discharge to Silver Creek and its tributaries.

Q. As to your report in 2021, page 16, Figure 14, if you could turn to that, please. It's titled "Volume of curtailed consumptive use simulated in Sukow (2019)."

A. Yes. And that is the one that's corrected in the schedule.

Q. Understood.

A. Okay.

Q. Were the values represented in this figure used as the basis for your 2021 analysis of the '21 Basin 37 administrative proceeding?

A. I used 2002 as a baseline year, so the 2002 curtailed consumptive use that's shown in corrected Figure 14 was used, except that I should note that this is an annual volume that includes April through October, and we only looked at -- you know, the curtailment runs done in the -- done for this analysis started May 1, June 1, July 1, August 1. So the volumes are lower than the ones that started in April 1

in Figure 14, or corrected Figure 14.

Q. So I'm just trying to determine generally how these values were established.

Is your explanation part of what you just gave?

A. How which values were established?

Q. The values represented in that figure, in Figure 14?

A. These values in Figure 14 were established in the model simulations done for the two -- my 2019 curtailment scenario report.

Q. So the value for Figure 14 for 2002 appears to be approximately 45,000 acre-feet for the entire domain.

Would you agree that that still is applicable?

A. Well, that's -- that's the original Figure 14, which includes the exempt domestic. So it's lower in the corrected Figure 14. It's, I believe, closer to 40,000 acre-feet.

Q. So it's gone down?

A. Well, again, the Figure 14 in the original memo was -- I put the wrong graph in there. That graph includes -- it says its "Volume of curtailed consumptive use," but I put the wrong graph in. And

that includes consumptive use by exempt domestic water users and some groundwater use that's already mitigated by nonuse of surface water and already managed in priority with the surface water.

So the corrected Figure 14 is the actual volume of curtailed consumptive use that was simulated in 2019 and would have been simulated on a monthly basis in this simulation, because I also did not -- I also did not include the exempt domestic or things that were already managed in priority.

Q. As a result of any current further drought, would that impact that further?

A. Well, again, if surface water supplies are lower this summer than they were in 2002, which it looks like they're going to be, you could arguably expect more consumptive use of groundwater if pumping continues throughout the irrigation season.

Q. And therefore, wouldn't you agree that the groundwater pumping in the potential area of curtailment does reduce streamflow discharge in the Little Wood/Silver Creek drainage, even though your numbers may have been modified?

A. Yes, I agree, whatever -- whatever volume of groundwater pumping there is in a given year will reduce the streamflow, yeah, to some extent.

Q. And according to your curtailment -- and you testified a curtailment would significantly increase -- I think your term was significantly increase the volume or the flow?

A. In Silver Creek, yes.

Q. In Silver Creek, sorry.

Back to your memo on page 22, last sentence. This sentence seems to imply that the consumptive use in the area of curtailment to the area south of the Glendale Bridge represents 70 percent of the consumptive use for the entire domain.

Can you explain that, or do you agree with that, continue to agree to that?

A. Yes. Can you tell me where you're --

Q. I'm on page --

A. Oh, bottom of the page.

Q. Sorry. Last sentence, page 22.

A. Yes. So of the consumptive use, the groundwater water use that we estimated with the model -- and this is just from looking at the volume curtailed in Attachment B for the two different runs, so the volume curtailed in the area south of Glendale Bridge is 70 percent of the volume curtailed in the model runs that I did for the entire model domain.

Q. So if it's 70 percent -- and of course, I

was doing the math for 45,000. 70 percent of 45,000 would equate to about 31,500, and of course that would be lower if you go with the 40,000 as opposed to the 45. However, the lower table on B1 of your 2021 staff memo shows a curtailed consumptive use volume of 22,611 for May 1.

And so I'm trying to reconcile at that time what would have been the 8,000 almost 9,000 acre-foot difference.

A. And the difference, again, is that the tables in Attachment B for the May 1 run show the volume that was curtailed from May 1 to September 30th. The volumes shown in corrected Figure 14 is a volume curtailed from April 1 to October 31st. So it's a longer time period. And they had a -- there are some groundwater users that don't have any surface water that, you know, all their irrigation pumping is from groundwater.

So there is -- if there is any irrigation need in April or October, they -- they would be pumping groundwater during that time. So it's just -- the difference is just the time frame. There's more months included in Figure 14 than in Attachment B.

Q. Okay. So in your mind, then, there is no inconsistency there, it's just, as your explanation,

it's a different time frame, as opposed to -- with the two?

A. That's correct.

Q. Okay. Referring again to the Sukow staff memo, page B-3 and B-4.

Would you agree that if the curtailed consumptive use volume for your analysis for 2021 Basin 37 administrative proceeding were higher than 22,611 -- and of course, that's the number that has now been modified -- then your predicted responses for Silver Creek would be proportionally higher? So in other words, take the number, your new adjusted number, and say that -- I mean would it be proportionally higher, regardless of your concluding number?

A. If the -- if the volume of consumptive use of groundwater is higher than what was estimated in this model run, then the response at Silver Creek would be higher than the response predicted by this model run, yes.

Q. And response in what way? Higher or lower in volume? Excuse me. In stream.

A. If the -- if the consumptive use were higher, then the predicted response to curtailing that consumptive use would also be higher.

Q. Very good. Thank you.

In establishing the volume for consumptive use for the analysis for 2021 Basin 37 administrative proceeding, did you consider the volume of historic withdrawals for the 2021 irrigation season, historic withdrawals, the volume of historic withdrawals?

A. I don't understand that question.

Q. I guess let me just ask you, then, what kind of -- what did you use as your source to determine the consumptive use?

A. Consumptive use is -- in the model consumptive use was calculated from irrigation demand, which was calculated from evapotranspiration and precipitation data, irrigated lands delineations, what water rights show about water source; if the water source was only groundwater, then the calculation's pretty simple. If the water source is only surface water, then obviously there's no groundwater consumptive use.

If there's mixed-source, then we had to take into account surface water availability. And we used Water District diversion records for the various canal service areas to determine how much surface water was available, and then we had to make estimates of canal seepage and the irrigation efficiency for the surface water. And then we would have a residual

irrigation demand that was left over that needed to be provided from the groundwater.

Now, in some cases we did have some groundwater pumping data, but for most of the Triangle for most of the model calibration period we had very little groundwater pumping data.

Q. Since the creation of this model, have you seen anything that would argue to you or imply that perhaps your percentage of consumptive use is either too high or too low?

A. I think it's a little bit difficult to compare because the years that had reasonably -- appeared to have reasonably complete pumping data since the Water District started comparing pumping are 2016 through -- well, during the Advisory Committee I looked at 2016 through 2019, and those compared reasonably well to our consumptive use estimates, with the exception of 2012 through 2014, which did appear to look a little bit high compared to those pumping data. But at the same time those pumping data, I believe, are from -- are not from the drier end of the years that we're looking at, you know, so they may not -- the pumping data that we've seen so far may not be that comparable to what we're looking at for this year.

Q. I believe that you've testified that --

well, let me ask you this.

In your analysis of 2021 Basin 37 administrative proceeding in determining that consumptive use, did you consider the volume historical withdrawals for 2020 irrigation season?

A. No.

Q. Okay. And why?

A. I don't -- I didn't have that data, and also I don't have -- in order to do the model simulation, I need to go back to a year where we've developed the entire dataset, because we don't use this model in what we call superposition mode, which means we have to have data for all the other recharge components for this -- for a given time period to be able to run that model. So that's why we're running it with a baseline year that was included in the model simulation period is because we have the entire dataset for everything that's going on in the aquifer for that year. We don't have that for 2020.

Q. Can you describe how you calculated return flows, how they're -- excuse me, how they're calculated within the model itself, if you know?

A. Maybe you should define for me what you mean by "return flow," because that means different things to different people.

Q. Well, within the model is return flows determined or a calculation that's entered into the model itself?

A. Are we talking about a return flow to the stream or a return flow to the aquifer?

Q. Return flow to the stream. I apologize.

A. A return flow to the stream. Where we had known return flows to the stream, they are accounted for in the calculation of aquifer recharge and discharge. The return flows that we have records of are wastewater treatment plant discharge to the river, the fish hatcheries discharge to the creek. I think there may have been a couple others, but there aren't very many known return flows to the streams.

Q. So same question, then, as to the aquifer, which obviously the issue then becomes when it gets into the stream.

A. Well, but what some people call return flow to the aquifer is what I call the net aquifer recharge, so --

Q. Understood.

A. -- we're calculating that from the same -- all the same data we used to calculate the pumping withdrawals, you know, we're also using those surface water diversions, the ET, the precipitation, all that

data to calculate recharge to the aquifer.

Q. And again, that -- how is it being computed? Just by those particular items that you've addressed?

A. How is what being computed?

Q. The recharge to the aquifer.

A. So recharge to the aquifer is computed by -- well, there's natural recharge from tributary underflow; we had a method for computing that. There's infiltration of precipitation; we had a method for computing that. There's the canal seepage and incidental recharge from surface water; there's a method of computing that.

There is -- because it's a three-layer model, we do -- we do model pumping and then model some -- some portion of that is recharge to the aquifer, and then the remaining portion is the consumptive use we look at here.

And we have wetlands discharge -- wetland and riparian area discharge that is calculated again from ET precipitation data, so...

Q. Very good. Again, your Sukow staff memo 2021, page 17, paragraph 2. This paragraph indicates that the effects of the curtailment were simulated with the model for a period of approximately 12 years.

Do you have those 12 years? Were they consecutive? Were they -- what 12 years were used?

A. So the years I had the dataset for. So we started in 2002. The dataset for the model goes through the end of December 2014, so that's the approximately 12 years that I'm talking about.

MR. RIGBY: Very good.

I believe -- I think that's all the questions I have. Oh, wait a minute. No. That's good. Thanks.

MR. FLETCHER: I don't have any questions.

THE HEARING OFFICER: No questions, Mr. Fletcher?

All right. Mr. Barker or Mr. Thompson?

MR. BARKER: Thank you, Mr. Director.

CROSS-EXAMINATION

BY MR. BARKER:

Q. Albert Barker on behalf of the South Valley Ground Water District.

Okay if I call you "Jennifer"?

A. It's okay.

Q. Okay. Jennifer, when you were -- received your assignment in this project, was one of your assignments to determine what the average annual rate

of recharge of the aquifer was?

A. No.

Q. So nothing in what you did here today is a determination of whether or not pumping in the Triangle exceeds the average annual rate of recharge?

A. No.

Q. And the water supply for the Triangle, I think you mentioned primary water supply -- sorry, water supply for Silver Creek, you said the primary water supply was from the Wood River Aquifer; is that right?

A. Yes.

Q. So what's the water supply for the Wood River Aquifer?

A. Well, ultimately snowpack in the Wood River Basin.

Q. Okay. So how does the snowpack in the Wood River Basin get into the aquifer under the Triangle?

A. There is underflow from the aquifer north of the Triangle which comes from tributary underflow and --

Q. So can I just stop you right there.

Is that something that's measured in the model?

A. It's something that's computed in the

model.

Q. Sorry. Computed. All right. And is there a percentage of contribution to that -- of that tributary underflow to the Triangle aquifer?

A. I have not -- I have not calculated that in the model.

Q. Okay.

A. Or extracted that data from the model.

Q. Okay. And so what other sources of water, then, are there for the aquifer in the Triangle?

A. There is seepage of streamflow from the Big Wood River, there is incidental recharge associated with surface water diversions from the Big Wood River to the Triangle, and there is direct infiltration of snowmelt and precipitation.

Q. Okay. And is canal seepage part of the source of water supply for the groundwater in the Triangle?

A. Yes, that would be part of what I'm calling the incidental recharge associated with the surface water diversions.

Q. And we talked about this, I think earlier in your deposition, but is there a calculation of how much water gets into the Wood River Aquifer from canal seepage in the Triangle?

A. I'm sorry. Can you ask that again?
Q. Is there a calculation for output of the model that will tell you how much water supply to the aquifer there is from canal seepage in the Triangle?
A. So there is a calculation for each stress period in the model of how much of the surface water diverted is -- is put into the -- yes, put into aquifer recharge as canal seepage.
Q. And you said "stress period"; is that the word you used --
A. Yes.
Q. -- the phrase you used?
A. Yes.
Q. Okay. What does that mean?
A. A stress period is just a time period in the model. In the case of the Wood River Valley Model, it's a month.
Q. And do you know today what those -- what that contribution is?
A. It's in the data files, but I have not extracted that or summarized it.
Q. So there was a little bit of a conversation that you had with Mr. Rigby about assuming that there would be additional pumping in the Triangle in 2021 compared to your model run year of 2020; right?

A. I did not do a model run of 2020.
Q. I'm sorry. 2000 -- I am sorry. I had my numbers transposed there. I'm a little dyslexic.
A. Yes.
Q. 2002, not 2020.
A. Yes.
Q. Okay. And so you said it might be something you could assume that there would be more pumping this year because the surface water wouldn't be on as long; is that right?
A. Yes.
Q. Do you know if pumping is taking place right now?
A. I do not.
Q. Do you have any understanding of what that additional amount of pumping might be?
A. For the -- if we go back to look at 2002 where we have the ET data and -- and the -- we could go back at that and look and say, well, if they ran out of surface water earlier to meet that same routine, they would need X amount of additional pumping.
Q. And that's not something that you've done?
A. That is not something that I did.
Q. And so I'm going to use the word "speculate."

But you're just speculating that there may be more pumping this year than there was in 2002?

A. Yes. I mean there -- they could -- they could voluntarily choose to reduce their ET and then not have additional pumping. I mean that could happen.

Q. So do you know what changes have been made in irrigation practices in the Triangle between 2002 and 2021?

A. No.

Q. And so have there been some that could have changed the amount of pumping that would be extracted in 2021 compared to 2002?

A. Well, if they increased their efficiency, that might change the amount of pumping, but it would not reduce the amount of consumptive use. So the impact would therefore be the same.

Q. Okay. So what consumptive use did you presume in 2002?

A. The consumptive use was calculated from the actual METRIC evapotranspiration data and precipitation data.

Q. And that was -- you used an 85 percent efficiency?

A. No. The 85 percent efficiency was not used in the model simulations.

Q. Okay. So is there a figure that could be back-calculated or that has been back-calculated to show what the efficiency was in 2002?

A. The only efficiency that's used is the surface water efficiency that was used to calculate the groundwater demand. And then the irrigate -- the irrigation efficiency for that, each entity, was also applied to the groundwater.

Q. Okay. And so what's an irrigation entity in the model?

A. It's an area over which diversions and consumptive use are aggravated.

Q. And is it -- for example, there's a District 45, Wood River Valley Irrigation District 45 irrigation district, is there a consumptive use characterized over -- or sorry, used for that entire irrigation district?

A. So if -- yes. For areas that have one diversion heading that serves an entire area, we only have the data for what they divert from the river, so we have to aggregate over that area.

Q. And do you know what the surface efficiencies were calculated at for the Wood River Valley Irrigation District 45?

A. Not off the top of my head, no.

Q. Do you know what the surface-water irrigation efficiencies were generally in the model?

A. They generally ranged from -- the calibration bounds were 50 percent to 90 percent, I believe.

Q. All right. And based upon what factors were they calibrated to those different percentages?

A. They're -- the calibration can come up with any number in that allowable range, and it's trying to make a best fit to all of the observations that it's trying to match. So those would be aquifer head and reach gains in the streams.

Q. Okay. So I'm sorry, I may have lost you. I thought you were calculating efficiencies for the surface water deliveries.

A. Yes.

Q. So what does aquifer head have to do with the efficiencies of the surface water deliveries?

A. So the efficiency of the surface water deliveries is used to calculate the infiltration of -- the infiltration of the recharge of excess surface water delivered to irrigation fields, and it's used to calculate the groundwater demand and the pumping. So what the model sees are those aquifer stresses that we calculate from that surface water efficiency. It

applies those stresses within the model, and then tries to match, as best it can, the aquifer head observations and the stream reach gain observations.

And it's doing -- during calibration doing an iterative process, and it goes back, and trial and error adjusts that range of efficiency and determines whether or not it has an effect. And if it does, it will adjust it accordingly.

Q. And so this model calibration you're talking about, that is -- that was done with data between 2010 and 2014; right?

A. No, that's not correct.

Q. The update for 1.1 wasn't done?

A. 1.1 included data from January of 1995 through December of 2014.

Q. Okay. And the initial model stopped at 2010?

A. Correct.

Q. So 1.1 added information between 2010 and 2014?

A. That's correct.

Q. And it's true that there's no significant information in this model calibration about the amount of pumping that took place in the Triangle between 2000 -- or between 1995 and 2014, no actual data?

A. Well, I wouldn't say there's no information. I mean there's -- there's some measured data, first off. We did have measured data for about, over the entire model domain, I think about 20 percent of the groundwater diversions.

Q. I'm talking about the diversions in the Triangle.

A. And in the Triangle we have measured diversions for some of the wells as well.

Q. You have very few measured diversions for wells in the Triangle in the model calibration?

A. That -- yes, but I wouldn't say there's no information.

Q. I didn't say --

A. We have the information from the evapotranspiration and precipitation. We know there was irrigation demand. We know there's some limit on the surface water supply. So there is some information.

Q. I don't think I said "no information." I said there's no measured pumping levels, pumping from the pumps in the Triangle, with the exception of a very small number of wells for that entire model calibration period?

A. With the exception of the exchange wells

and a few others, there are not measured -- there are not measured pumping volumes for most of the calibration.

Q. And those exchange wells and a few others, what's the total amount of volume of pumping that you have for those?

A. I -- I'm not sure off the top of my head. Some of the exchange wells are fairly large, so it's not --

Q. But compared to the overall amount of pumping in the Triangle.

A. It's relatively small.

Q. Thank you.

So do you have water-level readings, actual water-level readings from groundwater levels in the Triangle that is included in the model calibration?

A. Yes.

Q. Okay. Where did you get those?

A. Some of them are from U.S. Geological Survey, some of them were measured by IDWR staff, some were measured by the Nature Conservancy.

And sorry, did you just ask in the Triangle?

Q. In the Triangle.

A. Yeah.

Q. Yeah. So in the Triangle isn't it the case that you -- that the modelers would like to see significantly more water-level data in order to confirm the model?

A. That was the case as of the 2010 calibration. But one of the purposes of doing the recalibration that's in version 1.1 was to include data collected between 2011 and 2014, which did include a significant expansion of the IDWR water-level monitoring network.

Q. So but isn't it true that one of the recommendations of the 1.1 model run was to increase the amount of information for water-level data and pumping data in the Triangle?

A. I believe the recommendation was to continue the level of monitoring that had been -- the increased level of monitoring that had been expanded prior to the calibration of 1.1.

Q. Okay. And that would be in the model report?

A. Yes.

Q. And as we discussed before, I think the model report recognized that there were significant data gaps in the information available in the Triangle?

A. I believe we discussed that was the wording

Allan used in his report and that I disagree with that characterization.

Q. You disagree with that characterization?

A. [No audible response.]

Q. Today?

A. I think I disagreed with it in my deposition as well.

Q. Did you disagree with Allan at the time he wrote his report in 2019?

A. I don't recall that I focused very much on his wording. I agree with the recommendations to continue that monitoring, and we have been continuing that monitoring.

Q. So the answer is no, you did not tell Allan Wylie that there were not significant data gaps in the 1.1 model?

A. I honestly don't recall. That was a couple years ago.

Q. Okay. And there's nothing in his report that suggests that you did tell him that; right?

A. No.

Q. And on page 2 of your memo, staff report -- you got that? You say here that "Wylie" -- in the second full paragraph about two-thirds of the way down, "Wylie concluded there had been a long-term groundwater

level decline since '68 but water-level trends appear to be stabilized since the formation of the BWRGWMA in 1991."

So would you agree that, that the water-level trends have stabilized since 1991?

A. I agree that the overall trend has stabilized since 1991.

Q. Okay. And that is because of what? To what do you attribute that stabilization?

A. One possibility is that it's because the groundwater management area formation basically put a stop to approval of new groundwater uses for consumptive use. So groundwater pumping has continued but at a similar level averaged year over year. I mean we expect that it's higher in low water supply years and less in good water supply years for the surface water. But overall it averages out to be about the same, whereas prior to 1991 consumptive use of groundwater would have been -- or was, you know, increasing as new water rights continued to be approved.

Q. And as water rights -- new water rights stopped being approved, except -- well, let me back up a step.

Is it true that there is no new water

rights for groundwater since 1991?

A. My understanding is that there should not be new consumptive use of groundwater. So there might be new water rights for nonconsumptive uses or new water rights if they are mitigated somehow.

Q. Okay. So how does -- how do you know as a modeler whether those new rights have been mitigated?

A. Well, that's a -- that's a water right condition.

Q. It doesn't factor into your calculation -- your running of the model, whether or not those new rights are adequately mitigated or not?

A. I don't think that's really -- I mean it -- in the model it would be -- it would be reflected in the recorded surface water diversions that we use in the model. But I don't need to know about it directly, because I'm using the diversion -- surface water diversion data.

Q. And I think you said that some -- when we talked last at your deposition, you didn't know whether or not the source of the mitigation water was from Big Wood or from Silver Creek for these new wells?

A. I -- I'm not sure. I'd have to go back and look at the data.

Q. And so to the extent that there was

mitigation from the Big Wood River, that would -- what effect would that have on the groundwater in the Triangle, if you mitigated from a right -- for a right by using surface water out of -- or by not using surface water in the Big Wood and pumping out of the ground, what effect would that have on the groundwater?

A. Well, I mean the idea with water rights that are able to be mitigated that way is that the well is so close to the river that its -- its -- that its depletions are actually coming directly from the river within a short period of time.

Q. And --

A. And so really in the scheme of the -- you know, the regional aquifer, there's not -- there shouldn't be an impact on the aquifer, basically.

Q. And you didn't analyze the wells with mitigation to determine if that was in fact the case?

A. I did not personally do that, no.

Q. On page 4 of your staff report you discuss these four wells that you use to compare groundwater trends with Silver Creek trends.

And I think you identified that there were two of them that were of primary interest to you in trying to determine that correlation; right?

A. I -- I determined there were two of them

that had sufficient records of measurement between 1995 and 2014, which is the same time period we have the reach gains calculated for the model dataset.

Q. So there's only four wells in the entire Triangle that have data that goes back to 1995?

A. Well, there may be some others that have a small number of data points that -- that go back that far. I'm not sure.

Q. And then of the four, you discarded two of them, the Stalker Creek and the Picabo wells, because there was insufficient data between '95 and 2012, it looks like; right?

A. Well, I didn't do the correlation with them.

Q. And you didn't do the correlation with them because?

A. Because there's not a -- I didn't think there were enough records of measurement during the same time period as I had in the Silver Creek reach gain.

Q. Okay. And then you did a correlation between groundwater levels in those two wells.

If I look at Silver Creek on Figure 9 on page 9, that's your R-squared values --

A. Yes.

Q. -- right?

And so explain to me what the R-squared value of .64 for this -- which well is the one in purple. Is that the Stalker Creek well? No, that's the Baseline well, right, the unconfined aquifer well?

A. It's the -- yeah, that's the Baseline well.

Q. Okay. And then the other well, that's over by Willow Creek?

A. The other well is the Heart Rock Ranch well.

Q. Okay. I want to ask this question now, and I'm going to follow up with this other topic a little later, but did you have do a response function analysis on the Heart Rock Ranch well?

A. Yes, I did response functions for all of the model cells that had irrigation PODs in them. I did points of diversions in them.

Q. Okay. Do you remember what the response function was for the Heart Rock Ranch well?

A. I believe it was, for the confined aquifer represented by layer three, I believe it was between 20 and 30 percent, somewhere in there.

Q. 20 and 30 percent?

A. Yeah. And that's the amount that accrues to Silver Creek between May 1 and September 30th. So

there would be additional water that would accrue to Silver Creek later in time.

Q. So Mr. Vincent testified today that the streamflows response function were at .8 between the Hailey gage readings and the Silver Creek readings at Sportsman's.

And that's a higher confidence level or a higher correlation than what you've got in these two well numbers; right?

A. Well, Sean didn't testify about response functions.

Q. I'm not asking you about response functions.

A. I thought you said "response functions." Sorry.

Q. I'm asking you about the R-squared values. He said that he did a correlation between the flows at Hailey --

A. Right.

Q. -- and the discharge at Silver Creek.

A. Yes.

Q. And you did the same thing. You did an R-squared value between the depth to water in these two wells?

A. Yes.

Q. He found a higher correlation between the flows at Hailey than you found in these two wells; right?

A. That may be true.

Q. And is there a reason for that?

A. Well --

Q. If -- go ahead.

A. Discharge in Silver Creek is related to aquifer water levels. It's also related to the discharge in Hailey. It's all related.

Q. And did you do -- attempt a correlation between the deliveries at the 45 or the Baseline canals and the flows at Silver Creek?

A. There are a number of irrigation diversions in the Triangle. There's no reason I would have focused on one particular diversion, so no.

Q. No. Even though the 45 is by far the largest in the Triangle?

A. Well, it's represented in the -- the diversions in the District 45 and all of the other surface water diversions are represented in the model. So in the model you're incorporating all of that data, not just the District 45. So there's no reason to look at District 45 in the model.

Q. So is it true that the groundwater levels

that you've got from these two wells are represented in the model?

A. Yes, they are.

Q. Okay. So it's important to represent those -- that correlation here, but not the other correlations that I just discussed, the 45 deliveries and the Hailey gage deliveries?

A. That was the decision I made when I wrote the memo, yes.

Q. And you decided not to include other correlations but just these groundwater levels?

A. I did not consider doing any other correlations.

Q. So turn over to page 15 of your report. And you addressed this a little bit with Ms. Carter earlier in your testimony, at the beginning of your testimony, about how there's uncertainty in all groundwater model predictions. And you said here in your memo that you have predictive uncertainty of .054 [sic] to plus or minus 22 percent in the target reach.

So the .54 percent uncertainty represents what kind of information?

A. I -- can you rephrase that? I'm not sure what you're asking.

Q. So what does .54 percent uncertainty mean

in respect --

A. It means that a 95 percent confidence -- that the uncertainty analysis that Allan did indicates that a 95 percent confidence interval the prediction could be .54 percent higher or lower than the predicted value.

Q. Okay. And this prediction is at a location, your memo says, north of Hailey; right?

A. Yes.

Q. And you -- can you explain why that uncertainty at the area north of Hailey is less than a percent?

A. The predictive uncertainty at the location north of Hailey -- and the target reach there is the Big Wood River above Hailey is inherently lower to begin with because of the geometry of the aquifer and the -- it's a relatively narrow valley at that point. And the location of the cell we applied the stress in is fairly close to the river, and there aren't other outlets for the water very -- in close proximity to that -- the location we applied the stress.

Q. Okay. And then there are three locations in the Triangle south of Bellevue that were included in this uncertainty analysis?

A. That's correct.

Q. And you got between 15-and-a-half plus or minus to 22-and-a-half plus or minus uncertainty at those locations.

So the uncertainty percentages, they mean it's uncertain as to where the water goes, how long it takes to get there, and how much? Does uncertainty bring in all those factors?

A. Yes.

Q. Okay. And so it's higher in the area south of Bellevue.

Why is that?

A. Again, because of the geometry of the aquifer and the outlets for water storage, so the -- the uncertainty based on that is higher to begin with than it is in the narrow valley to the north. So in other words, as Allan would put it, if you were doing an analytical solution, your analytical solution in the Triangle would have a much higher uncertainty than your analytical solution in the narrow valley to the north.

And even though doing the numerical model allows you to lower that uncertainty to something less than what you would have with an analytical solution, it still is, you know, likely going to be higher in the Triangle no matter how much data you're able to put into the model because of that geometry of the system.

Q. Is there something in your staff memo where you recommend how to deal with this uncertainty?
A. No.
Q. Does the Department have any guidelines on how it should deal with model uncertainty?
A. Not -- not specific guidelines. There have been previous -- previous administrative proceedings involving -- involving the ESPA model that have dealt with that subject.
Q. Yeah. I thought you said -- and maybe it's here in your memo. But I thought you said that as we -- that this uncertainty prediction for the location south of Bellevue was 22 percent, but it would be higher in -- in looking at the three-month time period you're looking at here in this curtailment run than it would be for the ten-month period that Allan Wylie ran it for his uncertainty analysis; is that right?
A. I said that it may be higher.
Q. And is there any way to -- for you to know how much higher?
A. We would have to do another uncertainty analysis specific to the prediction we're looking at here, and unfortunately that's -- it's not something we're able to do in the limited time frame that we have for this proceeding.

Q. So how long would it take you to do that uncertainty analysis for a shortened period of time, given the fact you've already got an uncertainty analysis for a ten-month period?

A. I -- I'm not sure.

Q. Is that something you could do?

A. If given enough time, yes.

Q. On page 16 of your memo, you're referring here to the curtailments in 2007 and 2012 simulation.

But that's for that curtailment over the entire model period from '99 to 2014?

A. I'm sorry. Can you ask that again?

Q. Yeah. That was a terrible question.

So the curtailment scenario you ran in 2019 was for that entire model period of '99 to 2014?

A. I did three simulations --

Q. Okay.

A. -- in the 2019 report. That was one of them.

Q. Okay. And then the other two were what?

A. The effects of curtailing groundwater use for a single irrigation season during the water year of 2007, and then also a single irrigation season during 2012.

Q. Okay. And so what was the -- what was the

different outcomes of those three model simulations?

A. So the continuous curtailment simulation from 1995 through 2014 shows the effects of -- the cumulative effects of groundwater use year to year. So it shows, you know, if you curtail for one year, you have some -- some water still remaining in aquifer storage at the beginning of next irrigation season. So when you curtail the next irrigation season, you're building from a little bit higher baseline, and it creates a cumulative effect.

And looking at the 1995 to 2014, it shows you -- it gives you a prediction of what that cumulative effect is and how much impact that has. Looking at just a single year shows you what the response would be if you just, you know, start now and go forward for one year.

Q. And so if you have a 2017 water year, that's going to skew the analysis, because it's such a big water year, of the long-term effects?

A. Well, and that's another thing the 1995 through 2014 simulation can help you look at. We don't have 2017 in that dataset, but we did have other very wet water years in that dataset.

So for example, on the SWSI 1995 had a June through September flow that was greater than 2017, and

that is in the model simulation. And then '97 -- 1997 and 1998 and 2011, for example, are also wet years. And yes, you will have different -- different predicted impacts in those years than in the dry years.

Q. So when you did your task to compare curtailment runs in 20 -- sorry, curtailment runs for 2021 in this proceeding, you chose 2002 as your comparable year; right?

A. That's what I used as a baseline year.

Q. Okay. And then what you found is you did curtailments for four different time steps, May 1, June 1, July 1, and August 1?

A. Four different starting dates for the curtailment, yes.

Q. Okay. And those time steps are done on a monthly basis; right?

A. Well --

Q. So let me ask the question better.

A. Okay.

Q. Or try to ask the question better.

So the model would give you an output as of the end of the month of May if you started on May 1?

A. Well, the model will give you whatever output you ask it for, but I like -- I collected the output at the end of the month.

Q. So when you run your model, it doesn't tell you -- let's just use the July 1 time date.

It's not going to tell you how much water will accrue to the stream on July 1 with a curtailment?

A. You could run it that way, but I would recommend against that because it was calibrated to monthly -- with monthly stress periods.

Q. So what your report tells us is that if you curtail on July 1 that this will be the cumulative effect over the course of the month --

A. Correct.

Q. -- right?

And not necessarily what happens as that -- what kind of curve there is in terms of what additional flows accrue during what period of time?

A. That's correct.

Q. And so one of the things you found when you did the model runs was that there was a significant portion, two-thirds of the curtailed water, that stayed in the aquifer after October 1st; right?

A. That's correct.

Q. And that's with a -- if we're curtailing just in the Triangle, that's with a plus or minus 22 percent -- well, plus or minus 22 percent, so it could be as much as 80 percent of the water would stay

in the aquifer on October 1; right?

A. Yeah. The volume remaining in the aquifer October 1 could be -- the uncertainty goes both ways. It could be more; it could be less.

Q. And I think you said that there's some kind of Department experience in how to deal with those efficiencies -- those predictive error -- or not predictive errors, but the predictive uncertainty?

A. I said -- I think I said there's been some -- may be some direction in previous proceedings.

Q. Do you know what that is?

A. That's kind of getting into the legal -- maybe the legal burdens of proof, which is a bit out of my area.

Q. So the answer is you don't know what those guidance are?

A. I not -- I can't really speak to that, no.

Q. I think you said earlier in response to some questions from Ms. Carter that the aquifer uncertainty calculations in the ESPAM 2.2 were somewhere between minimal and 9 percent?

A. Yes, for a steady state or five-year analysis.

Q. And you think that -- for a steady-state analysis.

So what kind of model is this?
A. This is a transient analysis.
Q. Okay. So do transient analyses tend to have higher uncertainty factors?
A. Yes. And in the -- in the ESPAM there were some steady-state and there were some transient analyses for a five-year time frame. And the transient analyses had somewhat higher uncertainty than the steady-state analyses.
Q. And so I thought you said that because the time period was longer in the ESPAM model compared to the ten-month period that Allan Wylie used it, those numbers were comparable, the 22 percent and the 9 percent?
A. I don't know if they're comparable. But I was just saying that I thought 22 percent was -- was probably a reasonable expectation for a shorter time period.
Q. Okay. And then as we get even shorter into the three-month time period, that expectation of the uncertainty would go up?
A. Probably.
Q. And no one's asked you to make that determination of what that uncertainty would be for the time period that we're dealing with here?

A. No.
Q. So let's talk about the model, the boundaries for your area of simulated curtailment. First let's discuss the southwest around Willow Creek. We're looking at pages 22 and 23.
A. Yes.
Q. So tell me how you adjusted the model boundary in the southwest around Willow Creek? What did you do?
A. I used the modeled extent of the confined aquifer in that area.
Q. So anything in the unconfined aquifer was excluded, anything in the confined aquifer was included?
A. Yes.
Q. And you made that decision because what?
A. Because pumping in the unconfined aquifer in the Willow Creek drainage area does not have a significant impact on Silver Creek. Pumping in the unconfined aquifer in that area primarily impacts discharge to Willow Creek and the Wood River below the dry bed.
Q. Okay. And so is there a response function for the wells in this confined aquifer in the southwest corner that you looked at?

A. Yes.
Q. And what was that?
A. Again, I think it was in the range of 20 to 30 percent.
Q. On your map you've got some -- a number of wells to the west of the dry bed below the boundary line?
A. Yes.
Q. Are those included in the curtailment area, or not?
A. In the area south of Glendale Bridge?
Q. Yes.
A. The ones to the left of the orange line are not included.
Q. The ones to the -- so there's -- I see one -- oh, there's a couple. All right. So those are not included.
Why are they not included?
A. Because the model does not extend the confined aquifer to that location.
Q. Okay. But if I am going up above the area where the model extent of the confined aquifer is, there's a dry beds area that's highlighted in yellow, there are -- I don't know -- a dozen or so well points or points of diversion that are located west of the dry

beds and outside the confined aquifer?

A. Yes.

Q. So are those in the area of potential curtailment?

A. Yes.

Q. Okay. So how did you decide to include those in the area of potential curtailment?

A. So again, I looked at and provided transient response functions for layer one of the model and layer three of the model for every location that had an irrigation point of diversion from groundwater.

And in the unconfined aquifer there are significant impacts to Silver Creek if you are -- unless you are in the area that's basically contained within the Willow Creek drainage area in the Big Wood below the dry bed. So unless you're right in that area, there is a significant impact.

So it was based on that analysis of the response function that helped guide where the areas that -- that had a minimal impact on Silver Creek were.

Q. So did you select the response function that was -- you thought was enough for there to be a significant impact on Silver Creek?

A. Not explicitly.

Q. So how did you decide that these areas to

the west had a response function high enough to include them?

A. Well, in the northern boundary I used the -- the beginning of the dry bed at Glendale Bridge to draw the northern boundary. So it was not based explicitly on a response function cutoff.

On the southwest, the ones I've excluded on the southwest and the southeast are very, very low response functions, and they jump to a very, very low response function in the confined aquifer as soon as you move into that Willow Creek drainage area and the lower -- you know, the Big Wood River below Heart Rock Ranch drainage area.

Q. So what I was trying to ask you about was the area west of the dry beds and inside the model boundary and south of the boundary that's drawn here.

A. Uh-huh.

Q. And so if what I'm trying to understand is how those wells were sorted to include -- to be included in the potential area of curtailment?

A. Well, I didn't do a direct cutoff based on a response function percentage, but I can see from the response functions that if I -- if I excluded those, I would not have -- if I had started excluding things that had that level of response function, I would not

be achieving the 99 percent volume of response at Silver Creek.

Q. Okay. So south of the line there's no -- there's no response function cutoff that you used to decide whether a well should be or shouldn't be included?

A. Well, once you get -- I mean as you get south of the line, the response functions -- I'm not sure what your question is.

Q. So they vary -- the response functions can vary anywhere from a percent all the way to 60 percent, 70 percent.

So what -- did you look at those response functions and say these wells are included and these wells are not, or did you just say everything below the line, with the exception of Willow Creek, is included?

A. Well, I looked at the response functions, and they are -- and there aren't -- it's not like if you go -- until you get down into Willow Creek or down by Picabo your response functions aren't going down. I mean it's not like I have a -- it's not like I have some point down here in the middle where their response function is suddenly 1 percent when everything else around it is higher. I'm not sure what your...

Q. So what was the response function that you

thought was sufficient to include a well in the area of curtailment?

A. Again, I didn't set a number. I looked at what could be excluded. And the ones that are excluded in the southwest and the southeast I believe are -- they're very low. I believe they're around a percent or less.

Q. So what is it about the geology in the southeast around Picabo that leads you to exclude some of those wells to the -- in the area of Picabo?

A. Well, down -- so the Silver Creek and its tributaries are directly hydraulically connected to the aquifer upstream of the Sportsman's Access gage. Below the Sportsman's Access gage Silver Creek becomes perched above the aquifer. And, you know, if you're still -- you could be downstream of Sportsman's Access gage and still have impacts on Silver Creek, but at some point you get far enough away into that perched aquifer that your impacts become pretty minimal. And that's what's happening down in the vicinity of Picabo. Their impacts are primarily to -- it's not that they don't have impacts, but the impacts of the pumping primarily reduce aquifer outflow to the Eastern Snake Plain Aquifer.

Q. So that line you drew just to the west of

Picabo is further east than where the modeled extent of the confined aquifer is? So I'll try to ask the question again.

Is there a response function that you used to draw that line?

A. No. Again, on the -- the only place there's that significant difference between the unconfined -- or that distinction between the confined and unconfined aquifer is in the immediate drainage area of Willow Creek and the Big Wood River below Heart Rock Ranch, because that's the area where pumping in the unconfined primarily impacts Willow Creek and the Big Wood River below the dry bed. Everywhere else -- everywhere else -- well, except for the southeast, then it primarily impacts groundwater flow to the ESPA, and that's why that's excluded.

Q. And so what I'm trying to understand is how you drew that orange line just to the west of Picabo.

What factors did you use to determine that wells on one side of the line were going to be curtailed and wells on the other side of the line were not?

A. Well, you can see there's quite a bit of distance between wells there, but the -- I drew the line to include these wells that have very low response

functions to Silver Creek. So they're -- they're zero to 1 percent, I believe, if I recall correctly.

Q. And is this map on Figure 17, does that include every well in the Triangle?

A. It includes all of the irrigation and municipal points of diversion.

Q. But not the domestic? That's the only thing that's excluded?

A. It doesn't include the domestic, and I don't believe it shows the fish propagation wells either.

Q. On page 23 of your memo you say that you're going to -- your simulated curtailment south of Glendale would affect water supply for 23,000 acres of land; is that right?

A. Yes, approximately.

Q. Okay. And that's determined based upon what information?

A. Well, that's determined -- I determined that from the model files. And that information was based on a combination of water right places of use and the water source, and also the irrigated lands delineation that I used with the curtailment scenario.

Q. And were you asked to determine what the -- let me rephrase this.

Did you know what the impact of curtailing those 23,000 acres of land would be starting on July 1?

A. No.

Q. Have you looked at the irrigation places of use and the crop mix to determine whether or not that would have an adverse effect on the ability to grow crops in that area?

A. I have not been asked to look at the effects of the curtailment.

Q. And have you been asked to look at the benefits that would flow to the downstream water users as a result of this curtailment?

A. Only to the extent that it's to predict the volume of water that would -- but nothing other than that.

Q. And you don't know how many acres would benefit from this?

A. No.

Q. Or what their crop needs are?

A. No.

Q. So turn to page 26. The second full paragraph I think you -- hold on a second. Let me ask you to look at the third paragraph. You say that the seepage losses between Sportsman's Access gage above Picabo and Station 10 are between 20 to 37 percent of

the inflow?

Do you see you report that?

A. Yes.

Q. What's that number? What are those calculations based on?

A. They are based on the USGS streamflow measurements at the Sportsman's Access gage, Water District 37 records of the Little Wood River at Station 10 gage, and Water District 37 records of 30 diversions from Silver Creek that occur between those locations and two inflows to Silver Creek that occur between those two locations.

Q. Who did these calculations or these estimates?

A. I did the calculations.

Q. Okay. And how do you get a range of 20 to 37 percent? Does that just depend on the year?

A. Well, I actually did them by -- I did the average monthly, used average monthly data. So there's a different value for each month.

Q. So is it you got greater losses with less flow or greater losses with greater flow?

A. You might note in my report that there's -- I think there's a lot of uncertainty in these measurements. But in this case percentagewise we got a

lower percentage loss with lower flows.

Q. Okay. And so the 20 to 37, what months does that -- what months do those -- does that range stretch over?

A. May 2020 through August 2020.

Q. And so which -- does it go -- which way does it go? Is May 20 percent and August 37 percent?

A. From Table 3 on page 28 of the report, August is 20 percent, May is 36 percent.

Q. Okay. And I think Sean directed us to you to -- for some questions about the Department's concerns about the gage at Station 10.

Do you have -- do you know of any Department concerns about the accuracy of the gage at Station 10?

A. A little bit. And I'm not sure -- are you referring to our gage or are you referring to the watermaster's gage.

Q. So I don't know. Are there two different gages at the same location?

A. There are two different sensors at this location, yes.

Q. Okay. So is there a difference between the Department's numbers and the watermaster's numbers?

A. Well, that's not really the concern at this

point. The main concern at this point is that there have not been -- there haven't been -- I think the main concern is that there haven't been adequate -- an adequate number of manual measurements made to calibrate the rating curve.

And there are also, my understanding, some concerns about the different sensors. And the Department's sensor, we originally put that sensor in because we wanted to get wintertime data to collect seepage measurements for input into the Eastern Snake Plain Aquifer model.

The sensor that was put in there was put out in the stream. We've had a lot of problems with it freezing, and we're not getting the data for the winter, which is really what we wanted for the ESPA model, and is something that would have been helpful to see here to be able to look at seepage rates without having the uncertainty associated with all those -- with those, you know, 32 diversions and inflows to the -- to the reach.

But unfortunately -- and the Department has been -- we have a staff member who's been working with Kevin Lakey's consultant to try and improve our gaging there. And he has just recently started making -- he's making periodic or much closer together manual

measurements there, and he's going to be making them this winter to improve the rating curve particularly for low flows.

Q. So do you know if there's a difference between what the Water District's ratings or measurements show and what the Department's measurements show? Are they both consistent with one another?

A. Well, up until just this last -- our staff had not been making manual measurements. We had been using the Water District's manual measurements and their rating curve to apply to our sensor.

And again, the main issue was that they haven't been making as many manual measurements as we would like to have. So we're starting doing that with our own staff.

Q. And you also, then, report that there's losses between Sportsman's Access and downstream of the bridge, the 93 bridge, on page 29 of your memo.

THE HEARING OFFICER: Could I ask you to speak up as you question, Mr. Barker.

MR. BARKER: I'll do my best.

THE HEARING OFFICER: As well as Ms. Sukow.

MR. BARKER: We both can just whisper and -- sorry.

Q. So my question is, on page 29 there's a reference to seepage losses between Sportsman's Access and the bridge. And there's a figure of between 7 and 15 cfs.

Do you see that?

A. That is -- where is it on the page here? Oh, okay. There I am just quoting from one of the meeting minutes of the Big Wood River Groundwater Management Area Advisory Committee, where, as far as I'm concerned, this is anecdotal. I have not seen any of the measurement data that support this.

But the comment was made in that meeting that seepage losses in the vicinity of the Highway 95 bridge have been identified by water users as a concern, and that somebody claimed that Water District 37 has measured losses in the range of 7 to 15 cfs.

I requested data from Kevin Lakey. He did provide me coordinates of the location that he's measuring above the bridge and then further downstream at the Ragsdale site, which is below a few other diversions, but -- and I requested that he send me the measurement data from that, but he has not sent that to me as of the date of this memo or as of today.

MR. BARKER: Mr. Director, I have a couple of

exhibits that I would like to share with the witness, if I may.

Or do you want to take a short --

THE HEARING OFFICER: We're well into the lunch hour. How much longer, Mr. Barker? Do you want to wait and come back?

MR. BARKER: We could take a quick break, a lunch break, if that's okay with you.

THE HEARING OFFICER: Everybody else?

MR. BARKER: Take a half an hour or more.

THE HEARING OFFICER: Is this an appropriate time?

Okay. Let's come back at two o'clock.

(Lunch recess.)

THE HEARING OFFICER: On the record. We're back on the record after the lunch recess.

Mr. Barker, you may continue to examine Ms. Sukow.

MR. BARKER: Thank you, Mr. Director.

Q. I hope everybody had a chance to catch their breath, particularly you, Jennifer. Thank you for your time this morning and afternoon.

Would you pull out your staff report, please, and look at page 21. Do you have that -- if I've got the right page, the predicted responses and

curtailment within the entire model boundary?

A. Yes.

Q. That's the right one? Okay. So what I want you to do is look at the heading "Big Wood Above Dry Bed."

And that refers to a response at what location on the river? Is that Glenwood Bridge? Is that somewhere further upstream? Where is that measured?

A. It's Glendale Bridge.

Q. And that's a modeled response; right?

A. Yes.

Q. And you've got -- if you did a curtailment, you would have somewhere -- you'd have 10-and-a-half cfs in the river on a daily basis in July, 15.8 in August, 14.0 in September; right?

A. That would be the monthly average.

Q. Okay. The monthly average. But -- so we talked in your deposition about this idea that if there's water available in the river to be diverted into the Triangle by the canal system, that that water would allow the surface water rights to stay on longer; right?

A. Correct.

Q. So if there were this much additional water

at Glendale Bridge, there would be the ability to divert that much water either into the 45 or the Baseline canal systems?

A. Well, not necessarily. There's other canals, and they might have -- you know, there's canals that go to Poverty Flats. There's other canals that might have more senior rights that might get that water.

Q. And you didn't look at what those senior rights might be and where that water might be used if it were available in the river; right?

A. I did not.

Q. Okay. And if water is diverted into those canals, it would allow the surface water to stay on longer; right?

A. Correct.

Q. And that would also mean, in contrast to what you said earlier about turning wells on earlier, those wells might be able to stay off longer?

A. Well, in the curtailment scenario, those wells in the Triangle are already curtailed, so there's no effect.

Q. If there's additional surface water available to the water users, that would allow them to keep their wells off -- or not turn their wells on as

soon; right?

A. Well --

Q. Forget about the curtailment. Just as a general proposition?

A. If -- so you if curtail above Glendale Bridge and not with below Glendale Bridge and not in the Triangle, then yes.

Q. Okay. And when we talked, you -- there's also the ability to provide canal seepage from water that is diverted into the Triangle; right? That adds water to the source, to the groundwater, to the aquifer?

A. If there is more water diverted into the Triangle, yes, there would be more canal seepage.

Q. And if there's more canal seepage, there's more water in the aquifer?

A. Temporarily, yes.

Q. Okay. And -- but your temporary answer is always the case, right, whether it's canal seepage or any other source of water to the aquifer? There's nothing --

A. Yes. Any other stress there, yes.

Q. Okay. And so when we talked, I asked you -- at your deposition I asked you if you had any information about what those canal seepage rates were,

and you referred me to Appendix G to the 2010 USGS report.

Do you remember that?

A. Yes.

Q. Okay. And I didn't -- I didn't make an exhibit or copies for everybody, but I just want to read you a statement, and then I can show you this statement in the Appendix G. It says, "Large seepage losses. 60 percent are assigned to the District and Baseline bypass canal systems, based on Brockway and Grover 1978, and Merritt 1997."

And do you want to see if I accurately portrayed that?

A. I think I can take your word on that.

Q. Well, here.

A. If you'd like, I can look at it.

Q. Here. Just take a look. Yeah, you can look at it.

So is that 60 percent conveyance loss or seepage loss part of what is included in the model?

A. Yes. For the model calibration, there is a 60 percent loss on those two canal systems. There's other canal systems that have different seepage rates.

Q. And you didn't -- you didn't change those numbers for the 45 and the Baseline bypass -- or bypass

for the 2014 model calibration; right?

A. No, we did not.

Q. Okay. Don't worry. It's not as bad as it looks. You have a binder with a yellow paper on the spine and on the front page. You have that? If you would turn to Exhibits 13 --

A. Uh-oh.

Q. Oh, did that fall apart?

A. This thing's going to be a mess. I'll get it.

Q. You got it?

A. No, no, no. I'll get it.

Q. Okay. Exhibit 13. I don't know whether you've ever seen this presentation that Greg Tesch made to the water users in January of last year.

A. Not that I recall.

Q. Okay. Turn to -- let's see. It doesn't have page numbers on it. So just turn until you get to the Big Wood.

Do you see there's a hydrograph for the Big Wood?

A. Yes.

Q. Okay. Have you ever seen those hydrographs before?

A. I don't specifically recall.

Q. Okay. Well, if you don't remember them, then we'll pass over.

Turn to Exhibit 14.

Do you have Exhibit 14 in front of you?

A. Yes.

Q. And this is the final report on the version 1.1 of the Wood River Valley Aquifer System Model; right?

A. Yes.

Q. And you're an author of this report?

A. I am listed as a co-author. I'm not the primary author.

Q. Okay. So what does a co-author mean?

A. In this case it means that Allan wanted to put our names on this report because we, myself and the other two co-authors, provided quite a bit of support in developing version 1.1 of the model, and then we also provided review of the report.

Q. Okay. Turn to page 26, the conclusion page.

Are you there?

A. Yes.

Q. So the last paragraph on that page -- and I'll read this -- "Despite these enhancements our understanding of the WRV Aquifer System remains

imperfect and more work needs to be done. Several significant gaps in data or in the understanding of the underlying hydrologic system have become apparent during this project."

Did I read that correct?

A. Yes.

Q. Okay. And it says this is based on "our understanding."

So that would be the understanding of the authors of the report?

A. That's what it says, is "our."

Q. Okay.

A. I don't know who he is referring to specifically.

Q. Okay. And you'd agree that your understanding of the aquifer system remains imperfect?

A. Yes.

Q. And you would agree that more work needs to be done?

A. I would agree that the model can be improved with additional data collection and incorporating that additional data into the model.

Q. But it doesn't say it would be nice to do.

It says, "more work needs to be done"; right?

A. That's what he says.
Q. Okay. And you didn't -- again, you didn't disagree with that?
A. I -- I don't think I would have worded it that way.
Q. Well, you had the chance when you reviewed the report, didn't you?
A. Just because I made a review comment does not mean that the primary author would be required to incorporate it into the report.
Q. Okay.
A. He doesn't need my -- every co-author's permission for every comment he makes in his report.
Q. So are you telling me you made a comment to ask him to change that?
A. I'm telling you I don't recall.
Q. Okay. And he also says in your report that "Several significant gaps in data have become apparent."
And so those gaps in data are information about the water levels in the wells in Wood River Valley; is that right? That's one of them?
A. Well, primarily a lot of these he was -- I know he was really concerned about not having enough data in the tributaries in the Valley north of Hailey.

And so that -- one of his comments is that he wanted to install more -- or install transducers in tributary valley wells to the extent possible.

Q. Okay. So where --

A. And he started doing seepage surveys to look at the interaction between Trail Creek and Warm Springs Creek, which aren't directly explicitly modeled.

Q. So where are the observation wells that are referred to in (g)?

A. In (g)?

Q. Subpart (g).

A. Those are throughout the model area, and he had established the expanded monitoring network. He's just recommending that we continue monitoring that expanded network.

Q. Right. But you had only information that was up to 2014, so you didn't have very much information from any of these 45 observation wells at the time?

A. We only had a few years' worth of data. And I agree that the model could be improved if it were recalibrated in the future with more years of data from those wells.

Q. Okay. And so what are the significant gaps

in understanding of the hydrologic system that became apparent during the project?

A. Again, the things I remember Allan being particularly concerned about with version 1.1 was the lack of explicitly representing aquifer interaction with Trail Creek and possibly Warm Springs Creek, and with not being able to have enough measurements to better represent the tributary valleys in the upper end of the model.

Q. And that's not all that's listed in this additional future work that's necessary, is it?

A. Well, again, it's -- it's -- I think it's what's listed that's new. The other things he listed are to continue the monitoring that had already been begun.

Q. Yeah. I don't want to beat a dead horse, but he does say, and you agree as a co-author, that more work needs to be done, including finding out information about those water levels?

A. What I said is that incorporating additional water-level data into another recalibration of the model would improve it.

Q. Okay.

A. Allan also says in the next paragraph that "It's the best available tool for evaluating

interaction between groundwater and surface water in the Wood River Valley," and concludes that "calibration statistics indicate a good fit to observed data, providing confidence that the updated model provides an acceptable representation of the hydrologic system in the Wood River Valley."

Q. Okay. And you didn't have observed data from most of the groundwater wells at the time in 2014?

A. I don't think that's true. I think we had observed data from 2012 through 2014 for many of them.

Q. I thought you told me earlier today that only a very small number of wells in the Triangle you had observed data for for pumping?

A. For -- he's not talking about pumping. He's talking about the observation wells. He's talking about the model and the measurements.

Q. I'm talking about the pumping wells. You had very little information about wells -- water pumping and water-level data from the wells that were pumping in the valley because --

A. He's --

Q. -- that information had not been included in the update.

A. He's talking about observed water levels, not pumping data. Pumping data is not an observation

in the model. It is an input to the model.

Q. Okay. And you didn't have that information for the wells in the Triangle; yes or no?

A. Yes. I already answered that.

Q. Okay. Thank you.

Turn to Exhibit 15, please.

Do you recognize Exhibit -- oh, wait a minute. I'm sorry. I needed to do two things.

I would move the introduction of Exhibit 14.

MR. BROMLEY: Point of clarification, Director.

THE HEARING OFFICER: Mr. Bromley.

MR. BROMLEY: If we might just make sure that -- these are the South Valley Ground Water District exhibits that you're talking about No. 14 -- we've already been using numbers. So I'm just wanting to make sure on the record when somebody goes back to read the transcript that we all know which exhibits, Al, you're talking about.

These are your exhibits; correct?

MR. BARKER: Yes.

MR. BROMLEY: So I don't have them in front of us, Al. You've just been using numbers. I'm just wanting to make sure the record is clear as to what we're looking at.

MR. BARKER: Okay. Well, we shared all the exhibits with everybody, Chris, and so --

MR. BROMLEY: Al, that's not what I'm saying. I'm saying --

MR. BARKER: Okay. Fine. Fine. South Valley Ground Water District/Galena Ground Water District Exhibit No. 14, we move the admission of that exhibit.

THE HEARING OFFICER: Any objections?

MR. RIGBY: No objection.

MR. FLETCHER: No.

MR. BROMLEY: None.

MR. LASKI: No.

MR. MORONEY: No objection.

THE HEARING OFFICER: Any objections from the gallery?

Mr. Robertson?

MR. ROBERTSON: No, none.

THE HEARING OFFICER: And Mr. O'Bannon?

MR. O'BANNON: None, Director.

MR. BARKER: Okay.

THE HEARING OFFICER: Okay. The document that's been marked -- let me try, SVGWD space GGWD Exhibit 14 is received into evidence.

(SVGWD GGWD Exhibit 14 received.)

MR. BARKER: Thank you, Mr. Director.

Q. So, Ms. Sukow, would you turn to SVGWD GGWD Exhibit 15, please.

Got that?

A. Yes.

Q. Okay. And then I'm asking you to look at page 15 of that exhibit. Okay. And then if you look under Table 3 at the top of the page, there's some -- a description of the -- or a narrative that talks about the Mann-Kendall analysis for Wood River Valley wells.

Have you seen this before?

A. Yes.

Q. Okay. So I'm going to try and interpret this, and you can tell me where I get it wrong.

So what it appears to me to be saying is that since 1991 that the factors under this Mann-Kendall statistical analysis show that all of the factors are positive indicating rising groundwater levels in the -- in the Wood River Groundwater Management Area Aquifer; is that right?

A. Well, they're all positive, but most of them are not statistically significant.

Q. Okay. So the language of the narrative says, "These factors are all positive, indicating rising groundwater levels. However p is only statistically significant at the 95 percent confidence

level interval for the April data."

Isn't that what it says?

A. That's what it says.

Q. Okay. And so it also says that the April groundwater increase is about 0.18 feet per year.

Is that consistent with your -- the information that you have about the groundwater levels in the area, in the groundwater management area?

A. I have not done a separate analysis apart from what Allan did. I've just read what Allan did.

Q. So -- and that's -- that is over a 30-year period since 1991?

A. Not quite. This report was published in --

Q. 2019.

A. -- 2019. So it would be a few years less than 30 years.

Q. Right. So if I do math right, I don't know if he included 2019 data, but if he did, it would be 28 years?

A. If he did, it would be -- well, he may not have had data for all of the years, but the total time period -- the total time span would be about that.

Q. Okay. So that's a little bit more than 2 inches rise a year over that time period?

A. Yeah, that's about right.

Q. So that's almost like a 5-foot increase over 28 to 30 years?
A. For --
Q. For April.
A. For just April.
Q. All right. At the beginning of the irrigation season; right?
A. I haven't done the math, but that sounds about right.
MR. RIGBY: Okay. So, Mr. Director, I move the admission of SVGWD GGWD Exhibit 15.
THE HEARING OFFICER: Any objections?
Mr. Fletcher?
MR. FLETCHER: No objection.
THE HEARING OFFICER: Mr. Rigby?
MR. RIGBY: No.
THE HEARING OFFICER: Mr. Laski?
MR. LASKI: No.
THE HEARING OFFICER: Mr. Bromley?
MR. BROMLEY: No.
THE HEARING OFFICER: Mr. Simpson?
MR. SIMPSON: No.
THE HEARING OFFICER: Mr. Robertson?
MR. ROBERTSON: No.
THE HEARING OFFICER: Mr. Semanko?

MR. SEMANKO: No.

MR. MORONEY: No.

THE HEARING OFFICER: I got to pick you out from behind the witness. I'm sorry. No objection from Fish and Game. No objection from anyone.

The document marked as South Valley and Galena Exhibit 15 is received into evidence.

(SVGWD GGWD Exhibit 15 received.)

Q. (BY MR. BARKER): Would you next turn to Exhibit 16, please.

So, Jennifer, this is the uncertainty analysis that Allan Wylie performed on version 1.1 that we talked about earlier; is that correct?

A. Yes.

Q. And just for the record, SVGWD GGWD Exhibit 16; right?

A. [No audible response.]

Q. And you're familiar with this uncertainty analysis report?

A. Yes.

Q. So when an uncertainty analysis is done, is it -- what types of uncertainty are considered in the analysis? Is it simply probability uncertainty, or is there more to it than that?

A. It's calibration parameter uncertainty.

Q. Okay.
A. So it's looking at to what extent the model could have been similarly well calibrated to match the observation data with different values for the unknown parameters that it adjusts and how -- and then looking at how much difference that would make in the result for a specific prediction.
Q. So were you involved at all in assisting Mr. Wylie in doing this uncertainty analysis?
A. No.
Q. Or looking at the different parameters that he looked at to determine what levels of uncertainty there are?
A. No.
Q. Did -- does this report explain the -- let's see if I can ask this question right. You probably will tell me I'm not asking it right.
But with the different types of uncertainties, do they all flow into the predictive uncertainty, or is there a different uncertainty, for example, on the model boundary that should be identified and said we're concerned about our uncertainty at the model boundary of plus or minus 10 percent?
A. I don't understand what you're asking

there.

Q. Okay. What I'm asking is, you said that there are other types of uncertainty rather than predictive uncertainty.

And what I'm asking is, is the uncertainty analysis, should it have identified the levels of uncertainty at those other types of areas where there were uncertainty, rather than just in predictive uncertainty?

A. Well, other types of uncertainty, like, you know, involving questions of whether -- whether the -- we had constructed the model differently. For example, if Trail Creek were explicitly represented as being hydraulically connected to the aquifer, and would that -- would that or would that not have any impact on model predictions is not something that you can numerically assign a number to. So it's not really possible to include that in this type of quantitative predictive uncertainty analysis.

Q. Okay. So the three -- the five examples that we used -- sorry. Go ahead.

The five locations that were used to evaluate uncertainty were from three areas in the Triangle and two areas up above.

Do you have any understanding as to how

those were selected?

A. In a vague sense. I mean he was trying to explore the predictive uncertainty in different areas of the model domain.

Q. So go to page 6. And I want to call your attention to Table 1.

Have you seen this table before?

A. Yes.

Q. And so you were talking about comparing an analytical model with the calibrated model and how much better off the calibrated model is than the analytical model, and I think you've explained that earlier. But what I want to ask or draw your attention to is the difference between the calibrated model and the Wood River 1.0, which I guess was the original model.

Do you see that difference?

A. Yes.

Q. So it dropped in the Silver Creek above Sportsman's from 25 and 26 to 22 percent?

A. Yes.

Q. And the Hailey-Stanton Crossing dropped either 21 or 11 percent -- or 21 to 15 or 11 to 11.

So is there -- would you have expected to see greater decline -- well, let me say this right.

Would you have expected to see this number

drop on Wood River No. 1 from 25 to 22 after the calibration has been done?

A. Well, the uncalibrated was 51 percent.

Q. No, no, no. I'm not talking about uncalibrated.

A. Yeah.

Q. I'm talking about the difference between what the model predicted when it was 2010, and then after 2014 when it was calibrated with additional data.

A. Well, I didn't go into this with any expectations. I just saw the results after Allan completed the analysis. So I think it shows what it shows, and I'm not -- I'm not really -- I didn't have any expectations.

Q. I'm sorry?

A. I didn't have any expectations.

Q. Okay. Were you surprised that the numbers weren't greater, the differences weren't greater?

A. Again, I didn't have any expectation. So no, I wasn't surprised one way or the other.

MR. BARKER: So, Mr. Director, I move the exhibit -- or move the admission of SVGWD GGWD Exhibit 16.

THE HEARING OFFICER: Mr. Fletcher?

MR. FLETCHER: No objection.

THE HEARING OFFICER: Mr. Rigby?
MR. RIGBY: No objection.
THE HEARING OFFICER: Mr. Laski?
MR. LASKI: No objection.
THE HEARING OFFICER: Mr. Moroney?
MR. MORONEY: No objection.
THE HEARING OFFICER: Mr. Bromley?
MR. BROMLEY: No.
THE HEARING OFFICER: Mr. Lawrence?
MR. LAWRENCE: No objection.
THE HEARING OFFICER: And, Mr. Simpson?
MR. SIMPSON: No objection.
THE HEARING OFFICER: Mr. Robertson?
MR. ROBERTSON: No, sir.
THE HEARING OFFICER: Mr. Semanko?
MR. SEMANKO: None.
THE HEARING OFFICER: Mr. O'Bannon?
MR. O'BANNON: No objection.
THE HEARING OFFICER: Great. The document marked as Exhibit No. 16 -- I'm sorry, South Valley and Galena Exhibit 16 is received into evidence to the extent that any of us understand it.
(SVGWD GGWD Exhibit 16 received.)
Q. (BY MR. BARKER): So we're almost -- well, I say "we." We are almost done. You're probably not.

Sorry about that. I have one more area I wanted to talk to you about.

And that was when we -- when we went through your deposition, you indicated you didn't remember when you first started work on this process. And before I go into that, one of the things that we talked about earlier this afternoon was if you were to try and do a new predictive uncertainty analysis on the three-month period as opposed to a ten-month period, you said it could be done.

Do you have any understanding of how long it would take for you or somebody else to do that?

A. Well, you know, really if you want to do a predictive uncertainty analysis specific for the prediction we're making here, you should look at, you know, a three month or five month, whichever one you're looking at, you know, you should look at that time period. And we should also look at the stress applied in the curtailment scenario. So that would be the pumping stress for either the entire model domain or the area south of Glendale Bridge.

And I did put a little bit of thought into whether or not that was something I could do in a short amount of time. And looking into it, really I think the most efficient way to do that would be to convert

the model to MODFLOW 6 first so you could use a separate .wel file, because one of the things that's difficult about doing that is that every iteration that it does when it tests the change, that a change in a parameter makes, it rewrites the .wel -- the baseline .wel file, and it also needs to rewrite the .wel file with the curtailment. And that's not a -- that's not a trivial task, because there's so many model cells. And it's a lot more difficult to run with this model than with, for example, the ESPA model, which we can run in superposition because we can just build a separate, static .wel file for the -- for the scenario part of it.

So I -- it would either require doing that or requiring a lot of coding to automate a rebuilding the scenario .wel file. And that's not something I have the capability to do in a short amount of time. And I think we'd be looking at something on the order of months to look at that.

Q. Okay. So backing up to where I started just a minute ago, on the question of when you began to have -- to start your work on this project, you said I could find that information out from the files that you provided. It's not in your report, but in the files that were made available as part of our request for

information.

A. There are supporting files in there. And it would -- somebody who knows which -- you know, which ones are the results of the models would need to look at it, but you could tell from that, yes.

Q. Okay. Well, I can't -- I can't assert that I'm one of those people. But we did find some e-mails from you that we did not mark as exhibits, but we would like to ask you about.

And I would propose that we add this as our next exhibit, Exhibit 35.

MR. THOMPSON: 36.

MR. BARKER: 36. And let me just show you this set of e-mails.

THE HEARING OFFICER: These have been marked?

MR. BARKER: They have not. They have not been previously marked.

THE HEARING OFFICER: Do we have a set of stickers for marking?

MR. BARKER: I don't know. I didn't bring one. I hope somebody else has a sticker we could borrow.

MS. CARTER: I forgot them. I'll go grab them.

MR. BARKER: Do you need one, Jeff? Do you have a sticker?

THE COURT REPORTER: It's going to be different

than your other stickers, but yeah.

MR. BARKER: That's okay.

THE HEARING OFFICER: Oh, so Jeff actually brought some.

THE COURT REPORTER: I got all kinds of stickers.

THE HEARING OFFICER: I should have asked him.

MR. BARKER: I don't know if I could put SVGWD --

THE HEARING OFFICER: Yeah, is there enough room for the acronyms on those?

THE COURT REPORTER: Probably not.

MR. BARKER: But I will use the same one, I promise.

We're going to mark this as Exhibit 36; is that right?

(SVGWD GGWD Exhibit 36 marked.)

MR. RIGBY: Mr. Director, I just want to comment that this has not been produced to us until now, fully recognizing that all of us have been in a mad dash to get our exhibits to each other. I just want to know that the same leeway would be given to all sides when and if that becomes an issue.

THE HEARING OFFICER: And I was anticipating an objection.

MR. BARKER: Well, I will say that this was part of the information that was produced by the Department in response to the request for materials. So it's not like we hid it. It came from the Department.

MR. RIGBY: I understand that.

THE HEARING OFFICER: All you want is due consideration?

MR. RIGBY: I want due consideration.

MR. BARKER: You got it.

THE HEARING OFFICER: All right. We got the official blue. So we got two markings, I guess. All right.

Q. (BY MR. BARKER): Okay. So if you would turn to the second page. This is an e-mail from you to the Director and several other people in the Department about Wood River water administration, March 24, 2021.

And in this you are responding and saying that you "could generate response functions aka depletion functions with the model."

So what were you looking for to -- what was the reason that you were looking to generate response functions from the model and what were you going to look at?

A. I was asked if I could generate response functions from the model.

Q. And do you know why, what you were going to use -- what you would use them for?

A. I knew it was -- I knew it was related to this -- the previous e-mail, which was asking about the possibility of initiating conjunctive water administration in the Wood River Basin during the irrigation season of 2021.

Q. Okay. So "response functions" and "depletion functions" you're using interchangeably in this e-mail?

A. Yes.

Q. And so if I understand what this means is you're able to model the response of a particular point of diversion in the model?

A. A response function commonly is used to talk about, yeah, modeling the response at a specific reach to a stress in a specific model cell.

Q. And so it would tell you from if -- if a well was curtailed what -- which way the water would go? Would it go to the Big Wood? Would it go to Silver Creek?

A. It will tell you, if you apply a stress in a model cell, to which river reaches the impact will propagate.

Q. So what were you looking at doing in terms

of response functions? Were you going to model the entire basin? Were you going to pick certain wells out? What were you planning on doing with this response back to the Director?

A. Well, my e-mail is in response to the previous e-mail in which the question was asked, "Is there a possibility of establishing a trim line that would separate groundwater diversions primarily affecting the Big Wood River flows from groundwater diversions primarily affecting Silver Creek?"

Q. Okay. So how were you going to use response functions to establish a trim line?

A. Well, again, I looked at the response functions. And the extent I ended up using them is discussed in my staff memo. And I did also provide those response function files. So I don't really have anything new to add there.

Q. Okay. So you offer in item No. 1 under this to run a few test cells to get a preliminary idea how big a difference you're looking at.

Did you do that?

A. I did.

Q. Okay. And what areas did you select for test cells?

A. They were a sampling of the cells that are

in the version -- so the version that I sent out with the supporting files has all the cells. The test cells were just a smaller sampling of those that I ran first just to get an idea what they were going to look like.

Q. So I'm not sure I understood your explanation.

But were there a few test cells selected in particular geographic locations that you were going to run the depletion analysis on?

A. I spread them out over the area, over the Triangle.

Q. Did you go --

A. Over the Triangle.

Q. Just in the Triangle?

A. Yeah. I mean I went north of what we're now considering the area of potential curtailment, but I did not go very far north of the Triangle.

Q. Up to Bellevue?

A. I'd have to look at the map that's in the supporting files.

Q. So go up to your e-mail above this dated April 1st. And on the second page of this exhibit there's a statement in the first full paragraph that starts "As expected."

Do you see that?

It says -- well, I'll just read it, "As expected, the confining unit has a significant effect, and there are significant differences in the depletion to Silver Creek from pumping in the confined and unconfined aquifers."

Is that an accurate statement --

A. Yes.

Q. -- in your view, after having run the model?

A. Yes.

Q. Okay. And what are those significant differences in depletions?

A. In the -- as I discussed in my staff memo, in the southwest area we have significant contribution or significant impacts to Silver Creek from pumping in the confined aquifer, but within the Willow Creek drainage area, pumping in the unconfined aquifer would not have significant impacts to Silver Creek. The impacts are largely to the Willow Creek and the Big Wood below the dry bed.

Q. Okay. So this doesn't mean -- you're just talking here about Willow Creek and the confined aquifer there, you're not talking about two wells side by side, one in the confined aquifer and one in the unconfined aquifer somewhere in the middle of the

Triangle?

A. If you're -- if you're further east in the Triangle, there are still differences between the percentage of the impacts that propagate to Silver Creek within the, for example, the July 1 curtailment, within the three-month time period.

And I guess for the response functions, I ran May 1 through September 30th. So those are the percentages that are in the response function.

So there are places further east where both the unconfined and confined aquifers, most of their response propagates to Silver Creek, but the amount that remains in storage at the -- as of October 1st is greater in one aquifer than the other.

Q. And that greater is in the confined aquifer; right?

A. I think that depends on the location. And I think there's some locations on the edge where it may actually be the opposite.

Q. Are there --

A. But you'd have to look at each individual location.

Q. Did you do that?

A. I did at one time. I don't recall every -- I don't have them all committed to memory.

Q. Did you run a scenario where you could tease out the differences between the impacts of the wells in the confined aquifer and the wells in the unconfined aquifer?

A. Not other than the response functions. I did not do a larger scenario in that manner.

Q. So the next sentence in the paragraph below that where we were just looking at says you "can discuss timing of model predictions and how you'd like the model results to be evaluated."

What were you referring to there?

A. I think, again, at the time I was asked if -- if there was a possibility of looking at response functions and looking at the idea of, you know, delineating an area that -- that impacted Silver Creek and areas that didn't. And that's -- it was a pretty -- I think a somewhat vague assignment at the time. And I was just saying that we could discuss further what -- I was looking for further direction on any other analysis that they wanted.

Q. So are your questions about timing of model predictions mean timing of the dates of curtailment which you ultimately did, or does it refer to something else?

A. Oh, I see what you're -- so it was about,

yes, the -- what time frame they might want to be included in a curtailment scenario.

Q. Okay. And did you discuss with anyone at the Department about running a curtailment scenario that was limited to the unconfined aquifer to see what the results there would be?

A. No, I did not.

Q. And in the paragraph at the top of the page that begins on the page before, there's another discussion of uncertainty that we've talked about at some length today.

And I don't want to rehash that, but I do want to ask you, since you brought up to the Department the uncertainty in model predictions, was there some discussion about how you or someone else in the Department would handle the impact of that uncertainty in the model predictions?

A. Well, you know, my opinion on the model uncertainty is that while we acknowledge that there's model uncertainty, the best prediction we have is the model prediction.

Q. Okay.

A. We acknowledge there's some uncertainty. In my opinion as a scientist, I think it would be best to use the model prediction. I think from a legal

perspective there are other perspectives on uncertainty and who should -- if a party is going to benefit from uncertainty, which party that should be. And that's beyond my -- you know, my opinion. My opinion would be to use the most likely value or the best prediction we have, which I believe is the model prediction.

Q. The model plus or minus 22 percent on either side?

A. Well, you know, that predictive uncertainty analysis is based on a normal distribution, which is a bell-shaped curve. So in a normal distribution you're going way out into the tails to get to 95 percent. So your most likely value is still closer to your central prediction.

Q. Okay. So I want to go back to the question I asked you before you wanted to tell me about your view of model uncertainty.

My question was, did you have discussions with anyone in the Department about how the Department was going to handle model uncertainty in this proceeding?

A. No.

Q. Yeah. Thank you.

Okay. Now, just one more area. Can you take that purple book -- oh, wait a minute.

I would like to offer into evidence SVGWD GGWD 36.

THE HEARING OFFICER: Mr. Fletcher?

MR. FLETCHER: No objection.

THE HEARING OFFICER: Mr. Rigby?

MR. RIGBY: No objection.

THE HEARING OFFICER: Mr. Laski?

MR. LASKI: No objection.

THE HEARING OFFICER: And then the same crowd -- oh, Mr. Moroney?

MR. MORONEY: No objection.

MR. BROMLEY: No objection.

THE HEARING OFFICER: Mr. Bromley?

Mr. Lawrence?

Mr. Simpson?

Mr. Robertson?

MR. SIMPSON: No.

MR. ROBERTSON: No.

THE HEARING OFFICER: Mr. Semanko?

MR. SEMANKO: No.

THE HEARING OFFICER: Mr. O'Bannon.

MR. O'BANNON: No.

THE HEARING OFFICER: Thank you.

The document marked as -- and this is combined or just South Valley?

MR. BARKER: Well, I put both on the --
THE HEARING OFFICER: Okay. My label isn't correct.
MR. BARKER: -- label.
MS. CARTER: Sorry.
THE HEARING OFFICER: Well, let's figure out which one is the actual exhibit.
MR. BARKER: Here. Let's use this one.
MR. FLETCHER: I thought the order said to put the attorney's name on there.
THE HEARING OFFICER: I think that's true.
MR. BARKER: There's too many attorneys.
THE HEARING OFFICER: Is that an objection, Mr. Fletcher?
MR. BARKER: Can't fit all of those on there either.
MR. FLETCHER: What's that?
THE HEARING OFFICER: Is that an objection?
MR. FLETCHER: No. Just a comment.
MR. BARKER: You would have to have stickers this big [indicating].
THE HEARING OFFICER: I'll grant you due consideration.
(SVGWD GGWD Exhibit 36 received.)
MR. FLETCHER: Mr. Barker has a point, there's a

lot of attorneys on that side, so it would be hard to get all those names on there.

Q. (BY MR. BARKER): So I put in front of you what is identified as the Picabo Livestock exhibits. And this is a report that was prepared by Dr. Chuck Brockway in 2017.

And I don't know, have you seen this report before?

A. Yes, I have.

Q. Okay. So would you turn to page 5. And right above where there's a conclusion, Dr. Brockway says that "The Big Wood model was not modified to reflect the actual nature of separation between layer and -- layer two and layer three, as this would require a significant effort to rework a section of the model."

Do you agree with that statement?

A. This report is referring to version 1 -- or the -- excuse me, the USGS original version of the model that was published in 2016. This report was written before the model was recalibrated and the -- to the extent that I would agree with their statements in here, Allan Wylie did revise the calibration of the confining unit in version 1.1 of the model to correct the deficiencies that were identified in this report, and it is no longer applicable to the current model.

Q. Okay. So you said to the extent you agree it was modified.

So tell me to what extent you don't agree and how it was not modified.

A. I'm not sure specifically. It's been awhile since I've looked at it. But Allan recalibrated the model to be consistent with -- with Moreland's 1977 USGS delineation of the extent of the confined aquifer and the confining unit, and it does extend considerably further east than it did in this report.

If I recall correctly, I think they may imply in this report that the confining layer should have extended even further east. And I -- I -- if they did, I would disagree with that.

Q. Okay. And I think the ultimate conclusion of Dr. Brockway is that these three Picabo wells that are identified -- Picabo Livestock wells that are identified do not have an impact on flows in Silver Creek because they are -- obtain their water from the basalt layer below and they are cased into the basalt layer so they don't pick up the water from the layers above them.

And do you agree or disagree with that conclusion?

A. I disagree with their conclusion, because

their conclusion was just based on that the vertical -- or the hydraulic conductivity of layer two was too high in the first version of the model in the vicinity of those wells, and they therefore assumed that the impact would also -- would be two orders of magnitude less because the conductivity was two orders of magnitude too high. And that was not a valid assumption. So the recalibrated model does represent that much lower vertical hydraulic conductivity in layer two and still shows that there's an impact to Silver Creek.

And the flaw in their reasoning there is that they're assuming that the only way for pumping in the confined aquifer to impact the unconfined aquifer, and hence Silver Creek, is through transmission directly vertically through the confining unit.

And that logic is flawed because the confining layer has a limited extent, and these wells are relatively close to the edge of it. And they -- their impacts propagate upgradient to where the confined layer peters out and the unconfined aquifer's connected directly to the confined aquifer.

So that's -- that's why even though we've recalibrated the model to address their concerns about having too high a conductance in layer two in that area, you still do see the impacts to Silver Creek.

Q. Did you do a response function analysis on these wells?
A. Yes, I did.
Q. What was the number that you found when you -- that was just recently; right?
A. That was back in April sometime apparently, March or April.
Q. Do you remember what the --
A. I don't remember that. We'd have to look in the files --
Q. Was it --
A. -- for the specific POD.
Q. -- more than 1 percent?
A. Oh, yes.
Q. More than 10 percent?
A. I think so.
Q. More than 25 percent?
A. I don't think so.
MR. BARKER: Jennifer, thank you. You've been more than patient with me today.
No further questions of the witness.
THE HEARING OFFICER: All right. Thank you, Mr. Barker.
Mr. Laski or Ms. O'Leary, you're next.
///

CROSS-EXAMINATION

BY MS. O'LEARY:

Q. Good afternoon, Ms. Sukow. My name's Heather O'Leary. I am one of the attorneys for the Galena Ground Water District, and I just have a few questions for you this afternoon.

Mr. Barker asked you some questions about the curtailment area identified in the memo that you submitted to the Department earlier this year.

Do you recall that?

A. Yes.

Q. Okay. My understanding is that the curtailment area identified in Figure 17 in your memorandum is different than the curtailment area that was originally identified in the Department's notice, that May 4th, 2021 Notice of Administrative Proceeding.

Would you agree with that?

A. Yes.

Q. For instance, one of the changes would be that the northern boundary line for the proposed curtailment area was adjusted; right?

A. Yes.

Q. Can you explain to me why that boundary line was changed.

A. I explained in my staff memo the rationale

for the boundary that I used. I was not involved in drawing that other boundary, so I can't explain to you why that was drawn where it was.

Q. Okay. And can you explain the rationale for the reason why you drew the northern boundary line in your Figure 17?

A. Yes. It was drawn at the location of the model cell where Glendale Bridge crosses the Big Wood River, which is the start of the dry bed, which is a hydrologic feature where the riverbed is perched above the aquifer.

Q. And what significance does that have?

A. The significance of that is that -- and this isn't absolute, but north of that line groundwater or aquifer stresses tend to -- the impact of aquifer stresses tends to propagate to the Big Wood River above the dry bed, whereas south of that line they tend to propagate more to Silver Creek or the Big Wood River below the dry bed.

Q. And is that conclusion based on research that you've conducted?

A. That conclusion is based on -- it's based primarily on model simulations.

MS. O'LEARY: May I approach, Director?

THE HEARING OFFICER: Sure.

Q. (BY MS. O'LEARY): Ms. Sukow, I'm going to hand you -- I do believe you have this in your binder, but for simplicity purposes, I'll represent this is Exhibit 18 of the South Valley Ground Water District and Galena Ground Water District's joint exhibits.

If you could just take a look at that map. And I want to direct your attention to that northern boundary line. And I'm just wondering, if you look at two of the water rights specifically in the middle, 37-2557T and 37-2557D.

Do you see those two?

A. Uh-huh, yes.

Q. Can you explain to me if you performed any type of analysis to determine the different impacts that either of those water rights may have.

A. I did run -- as I mentioned earlier, I did run transient response functions for layer one and layer three for all of the cells in the Triangle that have irrigation points of diversion, so those would have been included in that group.

Q. Correct. And I understand that.

A. Yeah.

Q. I'm just wondering if there was a difference between these two particular cells that has any significance as to why one was included and one was

excluded from the proposed curtailment area. They look like they're right next to each other.

A. They are very close. You know, the one that's further south has a slightly higher response to Silver Creek. But they -- the line -- I didn't draw that line by looking at those response functions. I drew the line at the model cell that includes Glendale Bridge, and I drew a -- I just included all the model cells in that row and went south from there. So that's how the line was drawn.

Q. Do you recall what the difference in the response function was between these two particular cells?

A. No.

MS. O'LEARY: Director, I'd like to move to have our South Valley Ground Water District and Galena Ground Water District Exhibit 18 admitted.

THE HEARING OFFICER: And this is the map that she's referring to?

MS. O'LEARY: Yes.

THE HEARING OFFICER: Okay. Any objection, Mr. Fletcher?

MR. FLETCHER: No.

THE HEARING OFFICER: Mr. Rigby?

MR. RIGBY: No.

THE HEARING OFFICER: Mr. Barker?
MR. BARKER: No objection.
THE HEARING OFFICER: And Mr. Bromley and Mr. Lawrence?
MR. BROMLEY: No.
MR. LAWRENCE: None.
THE HEARING OFFICER: Mr. Simpson?
MR. SIMPSON: No.
THE HEARING OFFICER: Mr. Moroney?
MR. MORONEY: No.
THE HEARING OFFICER: All right. Mr. Robertson?
MR. ROBERTSON: No, sir.
THE HEARING OFFICER: Mr. Semanko?
MR. SEMANKO: No.
THE HEARING OFFICER: Mr. O'Bannon?
MR. O'BANNON: No.
THE HEARING OFFICER: All right. The document marked as -- is this a combined, then, South Valley and Galena exhibit?
MS. O'LEARY: Yes, Director.
THE HEARING OFFICER: Numbered?
MS. O'LEARY: 18.
THE HEARING OFFICER: No. 18 is received into evidence.
(SVGWD GGWD Exhibit 18 received.)

Q. (BY MS. O'LEARY): Ms. Sukow, I believe that you testified earlier today through questioning from Mr. Barker that you performed two simulations on the model; is that correct?

A. I performed simulations for two different areas. There are actually four simulations for each. Sorry.

Q. Thank you for the clarification, yes.

A. Yes.

Q. You also mentioned a 99 percent benefit in streamflow under that second simulated area; is that right?

A. Yes.

Q. Okay. Were you instructed to look for a 99 percent benefit?

A. Not specifically.

Q. Can you elaborate on what you mean by "not specifically."

A. I was asked to -- I was asked to delineate areas that had minimal impact on Silver Creek, and run a scenario without -- you know, that excluded those areas. And I was not given any specific numeric direction. And I decided that -- that approximately 99 percent was a good result, so that was what I did.

Q. And good in comparison to what?

A. Again, I wasn't given much direction, and that's -- that was the way I chose to look at it. So obviously, you know, you could run different areas and come up with a lower percentage than that, or you could try to get closer to 100 percent. That was just what I -- what I decided to run with the -- with the little direction I had.

Q. I'd like to direct your attention back, I believe you have this in the binder -- or actually, this is what Mr. Barker just had admitted as Exhibit 36. It's the South Valley Ground Water District and Galena Ground Water District Exhibit 36. I believe it's that top piece of paper.

A. Oh, the e-mail, uh-huh.

Q. The e-mail. The first page, that last sentence in the first paragraph -- this is from an e-mail from you to Mr. Spackman and Mr. Baxter, dated April 5th, 2021.

Do you see that?

A. Yes.

Q. Okay. The last sentence of the first paragraph reads, "For what it's worth, curtailing just within South Valley GWD boundaries would yield about 98 percent of the total in-season depletions to Silver Creek."

Do you see that there?

A. Yes.

Q. We talked about your adjustment or your particular choosing of where to put that northern boundary line for the proposed curtailment area.

Was your particular placement of that boundary line impacted at all by the goal of achieving a 99 percent benefit, as opposed to the original 98 percent yield that you mentioned in your April 5th e-mail?

A. Well, the April 5th e-mail was not -- achieving 98 percent wasn't a goal. That was just I -- at one point I had looked at, you know, whether or not the South Valley Ground Water District boundary would lend itself to, you know, being a -- a reasonable boundary to use in a modeling scenario, because it's already, you know, an administrative boundary for the groundwater district. So it seemed like that would be convenient.

Unfortunately, after I reviewed where the boundary was drawn, it's very hard to justify, from a modeling and hydrogeologic standpoint, using the groundwater district boundary because of the shape of the groundwater district boundary and because it includes -- South Valley Ground Water District includes

a couple of outages from Galena Ground Water District that are, you know, separate shapes. So they're not -- there's parts of the South Valley Ground Water District that are not contiguous with the rest of it. So that made it pretty hard to try to justify that that made any sense at all from a modeling or scientific standpoint.

Q. Okay. So you didn't run any simulations, then, is it accurate to say, of just the South Valley Ground Water District boundary area?

A. I did back in early April, it looks like, is when I did that. And then I threw it out because I didn't think I could -- that I could justify using that from a scientific standpoint.

Q. Can you turn to the second-to-last page of this document. It's labeled as page 3. This is an e-mail from Gary Spackman to you, amongst other Department staff, and it's dated Wednesday, March 24, 2021.

Are you with me?

A. Yes.

Q. Okay. The last sentence in this particular e-mail says, "Also Tim, can we identify just those water users who do not hold any AFRD No. 2 storage?" And I understand that this sentence is prefaced towards

Tim, I'm assuming Tim Luke, but I'm just wondering if you attempted to do any type of analysis as requested in this sentence here?

A. No, I did not review anything about the water users, with or without AFRD No. 2 storage.

Q. You've testified about various items regarding response functions within the proposed curtailment area today.

And I believe that you testified -- correct me if I'm wrong -- that you calculated the response functions for each well within the curtailment area; is that correct?

A. For each model cell that had an irrigation POD, I did a response function for both layer one and layer three.

Q. Okay.

A. If they were -- if both those layers were present.

Q. And that information was included in the .shp files that you produced; is that correct?

A. It was included in the supporting files.

Q. Okay.

A. And there are .shp files within that, yes.

Q. Okay. You might have already touched on this, and if you did, I apologize if I missed it, but

what time frame were the response functions in that data? Was it a three-month response function?

A. No. Those were, I believe, a five-month, May 1 to September 30th.

Q. Okay. So that -- those response functions weren't the total response to river reaches over the entire model time period, then?

A. No, they were just -- they were just what would accrue at the end of five months, so that there's still a significant amount of water left in aquifer storage, and there would be additional increases in reach gains to Silver Creek that occur after October 1.

Q. And when you're saying that you did the response function for each model cell, do you know which of those cells are connected to Galena Ground Water members versus South Valley Ground Water members?

A. I -- no. I just did them based on where there were irrigation water right points of diversion. I did not look at which groundwater district they were in, and I don't have any idea who's actually a member or not a member either.

Q. Okay. Did you perform any type of analysis on whether the response function decreases the further north you are in the Bellevue Triangle?

A. The -- there is a response function .shp

file in the supporting files. And yes, generally speaking, the response to Silver Creek decreases -- you're talking about north of -- maybe I should back up and -- you're talking about at the north boundary or...

Q. Well, within the Bellevue Triangle.

A. Oh, okay.

Q. You start at the southern end of and move your way north.

A. Oh, okay.

Q. I'm staying within the curtailment area.

My question is, is the further north you go in that proposed curtailment area, does the response function decrease?

A. Not if you -- if you start at the south boundary, it gets more complicated than that, because there's -- you know, depending on where you are on the south end, it varies, and then you'll end up with a place where it's increasing as you go north and then starts decreasing in kind of a general sense, so...

Q. Do you know where that decrease starts? Is there any geographic landmark that you could reference?

A. I don't know what you -- well, I mean the -- the decrease occurs over a large area, so I'm not sure what exactly you're referring to there.

Q. Sure. And maybe if you want to look at

that Exhibit 18 -- our Exhibit 18 --

A. Which is this [indicating]?

Q. -- on the front top of that table that we were looking at earlier.

A. Okay.

Q. Just for point of reference, this grouping of water rights within the curtailment area, just below that northern boundary line, do you recall what the response functions were for any of those particular groundwater rights?

A. Not off the top of my head. But in this area they are generally decreasing as you go northward.

Q. And so that means that these -- the less response function, the less of an impact these rights would have on Silver Creek; is that correct?

A. Well, within the five-month time frame. So we haven't looked at what would happen if we ran it out longer. You know, some of them as you go further north, you have more water retained in storage. But then you also have more impacts to the Big Wood River above the dry bed. But within the -- within the time period of looking at May 1st and what accrues through September 30th, the ones that are further north have less impact to Silver Creek.

Q. Okay. You were asked about gages at

Station 10 earlier today, and I believe you said that there were two gages; is that correct?

A. There are -- my understanding is there are two sensors there currently, yes.

Q. Okay.

A. Well, actually, there's three now, because our staff just installed a new one last -- last week, I think.

Q. Okay.

A. So...

Q. So you have the new Department.

And then what are the other two sensors?

A. There's the old Department one, which I think we're -- ultimately the plan is to abandon that, but it does have a temperature sensor that I think we're planning to leave in there.

And then the other one is owned -- or the other one is operated by Water District 37's contractor. And I -- it's a different type of sensor, and I don't recall the details on that.

Q. Okay. Now, correct me if I'm wrong. I thought you testified that you had some concerns with those sensors, and that one of the concerns you had was that there were not adequate manual measurements to calibrate; is that correct?

A. That's correct.
Q. Okay. So is it accurate to say that those sensors are not calibrated, then?
A. Well, it's not that the sensors aren't calibrated. It's that the sensors sense stage in the river, so the height of the water. And then you need manual measurements to develop what they call a rating curve, which is basically an equation that says well, if I have this height of water, this stage, how much flow do I have. And since this is a rated section, we're doing that by making frequent manual measurements that you have a flow, and then you develop a relationship between the flow and the stage.
And you have to have -- you know, the more manual measurements you have, the better you're able to quantify that relationship. And my understanding is, particularly at low flows, there haven't been very many manual measurements made at the Station 10 location.
Q. Okay. And that's why you're saying that there's an inadequate amount of -- to calibrate?
A. Yeah. I guess, you know, I'm calling the rated section the calibration, yes.
Q. Okay. And my question is -- and maybe I took a roundabout way of getting there, but what I'm trying to figure out is, is it standard for the

Department to rely upon uncalibrated measurements?

A. No. And I think I expressed in my staff memo that I felt that the attempt to calculate seepage losses between Sportsman's Access and Station 10 was -- I think the terminology I used was frustrated by the -- by, you know, measurement uncertainty at the -- particularly at the Station 10 gage location.

Q. Okay. But we are relying on those measurements for this proceeding; is that not right?

A. I -- I am not -- I'm not sure what will be relied on, I guess, out of that data. But that was the best estimate I could come up with of seepage losses with the data that was available.

Q. Okay. I mean there's no other data that's been presented; right?

A. Right, yeah.

MS. O'LEARY: Okay. Director, those are all the questions I have.

Thank you.

THE HEARING OFFICER: Thank you, Ms. O'Leary.

Mr. Moroney, you may question Ms. Sukow.

CROSS-EXAMINATION

BY MR. MORONEY:

Q. Good afternoon, Ms. Sukow. I'm Owen

Moroney, here representing the Idaho Department of Fish and Game.

I wanted to start with some questions about your staff memo, IDWR Exhibit 2.

Did the curtailment scenario you conducted in that memo consider only consumptive groundwater rights?

A. Yes.

Q. So curtailment of nonconsumptive rights was specifically excluded from your analysis; correct?

A. That's correct.

Q. So in that memo, when I go to page 16, it talks about only analyzing consumptive rights, it doesn't mention nonconsumptive rights.

But the import of that should be that we're not considering nonconsumptive rights; correct?

A. Correct.

Q. Are you generally familiar with the Idaho Department of Fish and Game's fish production rights at Hayspur Hatchery?

A. I am somewhat familiar with them.

Q. In your curtailment scenario, did you specifically omit analyzing those nonconsumptive, those rights, those fish production rights?

A. So in the Baseline run for the curtailment

scenario, which is the same as the model calibration run, they are included, so there's pumping -- there's groundwater pumping, and then there is return flow to the creek that's included in the -- in the reach gain calculations that offsets that. And we're assuming that the same amount that's pumped is returned to the creek.

And if they're truly nonconsumptive, then there really is no impact in the curtailment scenario. So no, they're not -- they're not modeled as being curtailed.

Q. Okay. So thank you.

In general, when water is short and the Department makes priority cuts, are nonconsumptive priority rights included in those cuts?

A. I'm not the best person to ask that question.

Q. All right. I understand that.

A. I don't usually -- yeah.

Q. So now turning to Fish and Game's specific rights. I wanted to have you look at a couple of Fish and Game's exhibits. They're in the black binders behind the Director.

THE HEARING OFFICER: Well, I have several black binders.

MR. MORONEY: I think all three of them, actually.

MS. CARTER: They're separate.

Q. (BY MR. MORONEY): So you just said that you're generally familiar with Fish and Game's fish production rights at Hayspur Hatchery; correct?

A. Yes.

Q. If I have you turn to Exhibit 4, you should see Water Right 37-08271.

Could you take a look at this right and let me know if it's consumptive or nonconsumptive on the face of the right.

A. It says, "Use shall be nonconsumptive."

MR. MORONEY: I move to admit IDFG Exhibit 4 into the record, Director.

THE HEARING OFFICER: Okay. Mr. Moroney, I'm looking at this particular document, and at least the label in the lower-right corner says IDFG 0239.

Is that a page number?

MR. MORONEY: That was our Bates numbers for the exhibit. But I guess I'm referring to it by the tabs, which should be tab No. 4.

THE HEARING OFFICER: Well, the document needs to be marked, it seems to me, as Exhibit 4, IDFG Exhibit 4. Do we have a label?

And while we're preparing the label, it will be marked as Exhibit 4.

(IDFG Exhibit 4 marked.)

THE HEARING OFFICER: Mr. Fletcher, any objection?

MR. FLETCHER: No, your Honor.

THE HEARING OFFICER: Mr. Rigby?

MR. RIGBY: No, your Honor.

THE HEARING OFFICER: Mr. Barker or Mr. Thompson?

MR. THOMPSON: No.

THE HEARING OFFICER: Mr. Laski or O'Leary?

MR. LASKI: No.

THE HEARING OFFICER: Mr. Bromley?

MR. BROMLEY: No.

THE HEARING OFFICER: Mr. Lawrence?

MR. LAWRENCE: No.

THE HEARING OFFICER: Mr. Simpson?

Mr. Robertson?

MR. ROBERTSON: Well, my client's here now seeing me in action while I've been sitting here all day, and he thinks I ought to object to something. But I'm not taking his advice. I have no objection.

THE HEARING OFFICER: Mr. Semanko?

MR. SEMANKO: None.

THE HEARING OFFICER: Mr. O'Bannon, if he's still here? There he is.

Mr. Robertson, since your client is now here, I want to call you out for not appearing in proper attire today, along with the rest of us. And we'll deal with some level of sanctions.

MR. ROBERTSON: I didn't want to put him to shame, my client, that is, so I did not dress.

THE HEARING OFFICER: All right. The document marked as IDFG No. 4 is received into evidence.

(IDFG Exhibit 4 received.)

THE HEARING OFFICER: Mr. Moroney.

Q. (BY MR. MORONEY): All right. Ms. Sukow, next turning to the second of Fish and Game's three groundwater rights at Hayspur. I have it tabbed as Exhibit 6. It is Water Right No. 37-08331, Bates numbered IDFG 0318.

Could you look at that right and tell me whether it is consumptive or nonconsumptive on the face of the right?

A. Yes. There is a condition that says, "Shall be nonconsumptive."

MR. MORONEY: Director, could I move that IDFG Exhibit 6 be admitted to the record.

THE HEARING OFFICER: We'll mark it as

Exhibit 6.

(IDFG Exhibit 6 marked.)

THE HEARING OFFICER: Mr. Fletcher?

MR. FLETCHER: No objection.

THE HEARING OFFICER: Mr. Rigby?

MR. RIGBY: No objection.

THE HEARING OFFICER: How about -- how about just saying does anybody object? Let's move.

MR. RIGBY: Much better.

THE HEARING OFFICER: Does anybody object? I've learned your names.

All right. The document marked as Exhibit 6 received into evidence.

(IDFG Exhibit 6 received.)

THE HEARING OFFICER: Mr. Moroney.

Q. (BY MR. MORONEY): All right, Ms. Sukow. Showing you the final, the third of Fish and Game's groundwater rights at Hayspur Hatchery. I have it marked as IDFG Exhibit 2. It's on Bates stamp page IDFG 0118. The Water Right No. is 37-07038. So this right I'm not going to ask you whether it has a nonconsumptive use condition on its face, because it doesn't.

But if I was to represent to you that this right is commingled with the other two rights and used

in the same fish hatchery in the exact same way, would you say it would be fair to say -- to assume that it should also be labeled as nonconsumptive?

A. Yes, that was the assumption I made for the -- for processing the model calibration inputs.

Q. So you specifically considered this right as nonconsumptive in modeling curtailment?

A. Yeah, for modeling purposes. The only purpose of use listed on it is fish propagation.

MR. MORONEY: All right, Director. Those are all my questions for Ms. Sukow.

THE HEARING OFFICER: So do you wish to offer --

MR. MORONEY: Oh --

THE HEARING OFFICER: -- the exhibit?

MR. MORONEY: -- yes.

I move to admit IDFG Exhibit 2 into the record.

THE HEARING OFFICER: Okay. It is so marked.

(IDFG Exhibit 2 marked.)

THE HEARING OFFICER: Does anyone object to this water right or this document representing a Fish and Game water right into the record?

Hearing none, it's received into evidence. Thank you.

(IDFG Exhibit 2 received.)

THE HEARING OFFICER: Thank you, Mr. Moroney.

Now, we have -- we have now concluded the cross-examination by group two, and we're ready to start in with group three.

Is it an appropriate time for an afternoon break, or should I wait until the start of the swing shift because we're behind?

THE WITNESS: I could really use a bathroom break, for what it's worth.

THE HEARING OFFICER: All right. Let's break now for ten minutes. Come back at approximately quarter to, a little after.

(Recess.)

THE HEARING OFFICER: Let's go back on the record. We're back recording after the afternoon break.

And based on our conversation, Mr. Lawrence, you may examine Ms. Sukow, please.

MR. LAWRENCE: Thank you, Mr. Director.

CROSS-EXAMINATION

BY MR. LAWRENCE:

Q. Good afternoon, Ms. Sukow. My name is Mike Lawrence. I'm an attorney for the City of Hailey. Thank you for hanging in there with everybody this

afternoon. I know it's been long, and I'll try to be brief.

Ms. Sukow, in your dialogue with Mr. Barker earlier, to characterize or paraphrase what you said, would it be fair to say that if you had more time that you could refine or update the analysis in your May 17th staff memo?

A. I think he was asking me specifically about Allan Wylie's predictive uncertainty analysis. So no, I wasn't talking about the analysis I did in my staff memo.

Q. If I recall correctly, Mr. Barker asked you if you could conduct an uncertainty analysis for your specific curtailment runs described in your memo.

Do I recall that correctly?

A. Yes.

Q. And I recall you testifying that if you had a few months, perhaps, you could do that?

A. Yes.

Q. And is it also correct that you have not updated your analysis with any new information based on Mr. Vincent's SWSI testimony that he gave this morning, that there was a new SWSI update for June; is that correct?

A. That's correct.

Q. And how long would it take for you to update your model runs to find different analog years based on the updated SWSI?

A. That would not take very long. We could do a different analog year. And that analysis could be done in a day.

Q. Have you been asked to do that?

A. No.

Q. Ms. Sukow, I'd like to turn to your Figure 14, which is on page 16 of your staff memo. And I recognize that Figure 14 in the memo itself is not the correct version and that there is a different version attached to the Director's pre-hearing order and scheduling order.

Is that correct?

A. That's correct.

Q. Ms. Sukow, do you have a copy of the updated table, Figure 14, in front of you?

A. Yes.

Q. Ms. Sukow, first, I noticed a difference between the Figure 14 in your memo -- well, several differences, but one that stuck out between it and the one attached to the Director's order, and there's a dot -- a legend that says, quote, "Simulated increase in recharge" in the updated Figure 14.

Can you describe with a "Simulated increase in recharge" means.

A. Well, a simulated curtailed consumptive use is equivalent to simulating an increase in net recharge.

Q. Okay. So is it safe to say that simulated increase in recharge is the same as the volume of curtailed consumptive use?

A. Yes.

Q. Okay. Thank you.

Sticking with Figure 14 briefly, I would like to point your attention to the updated SWSI information that was entered into the record as the Department's Exhibit 5, IDWR 5. And I was wondering, Ms. Sukow -- and I'll represent to you that the years 2012 and 2014 on your Figure 14, and when you look at IDWR 5, those years have higher SWSIs than the 2002 year that you used.

Do you recognize that?

A. That is correct.

Q. However, on your Figure 14 there's a higher volume of curtailed consumptive use in 22 -- 2012 and 2014, than in 2002, even though, based on the SWSI, they should have had greater surface water supplies; is that an accurate characterization?

A. That is true.

Q. Can you explain why there's higher consumptive use volume for those years in your Figure 14 than for Figure 2002 even though they evidently were supposed to have better surface water supplies.

A. I can explain some possible reasons that that might have occurred. There -- you know, there could have been changes in irrigation practices. There could have been -- also, you know, there's the water supply side, which the SWSI predicts, but SWSI doesn't predict the water demand side, which is partly driven by -- I mean it's partly driven by crops people grow, but it's also partly driven by the weather during the summer and how much evapotranspiration demand there is.

So -- so you might have -- you might have years that have the same water supply, but one of them might have a higher irrigation demand because -- either because of the weather or because of the type of crops people are growing.

Another difference between those years is the type of data we had for evapotranspiration. And that was one of the reasons I wanted to use -- I liked using 2002 as a baseline year was that we do have METRIC evapotranspiration data for 2002, which is what

we generally consider to be the best, most refined of the evapotranspiration data sources we have.

2012 and -- well, 2014 we had ET derive -- evapotranspiration derived from NDVI, the Normalized Difference Vegetation Index, which is considered to be good but not as good as METRIC.

And 2012, if I recall correctly, involved some more -- might have involved some more interpolation methods to estimate the evapotranspiration. So the datasets might also come into play there on what the model computed the consumptive use was.

Q. You mentioned that a factor may be the irrigation practices, different irrigation practices between the years?

A. That could be, yes.

Q. Have you examined those irrigation practices and the differences between 2002, 2012, and 2014?

A. Not directly. To the extent that they -- you know, to the extent that they impact the diversions and -- the surface water diversions and the evapotranspiration data, that is hopefully reflected in our dataset. But I have not inspected that at a different level.

Q. Have you compared the irrigation practices during those years with irrigation practices in 2021?
A. No.
Q. And you mentioned differences in water demand perhaps being a factor as to why those years have different volumes of consumptive use on your Figure 14; is that correct?
A. That's a possibility, yes.
Q. And have you analyzed the differences in water demand between those years?
A. No, I have not, not other than is reflected in our evap- -- I mean that is probably what our evapotranspiration dataset is -- is showing. But other than -- other than processing those data, no.
Q. And have you analyzed those years versus water demands in 2021?
A. No.
Q. You mentioned that 2002 used METRIC data; is that correct?
A. Yes.
Q. And there is some level of uncertainty with METRIC data, isn't that correct?
A. Yes.
Q. Do you have any idea what level of uncertainty the METRIC data has?

A. I don't have a specific number for that, no.
Q. And you also mentioned the NDVI, it also has some uncertainty?
A. Yes.
Q. And any idea of the level of uncertainty?
A. No.
Q. Ms. Sukow, did you analyze whether water resulting from curtailment of groundwater rights would be available for diversion at the points of diversion of any specific senior water rights?
A. No.
Q. And if -- would the model tell you that if you asked it?
A. The model only tells you what accrues to the -- the increase in reach gains above Sportsman's Access. No, it does not tell you about conveyance downstream or which surface water rights are next in priority.
Q. Turning to the model uncertainty, I know that's been discussed a lot today, and I believe you testified that the Wylie report concluded that in the Bellevue Triangle we're looking at plus or minus 22 percent uncertainty; is that correct?
A. That is correct for the specific locations

he analyzed.

Q. And those locations -- that uncertainty analysis is based on two points within the Bellevue Triangle; is that correct?

A. There was a third point that I think I would have characterized as also being in the Bellevue Triangle.

Q. Whether it's two or three points in the Bellevue Triangle, are those -- those are called stress points, I believe? Is that how you'd characterize them?

A. They are the point at which he applied stress in his simulation, yes.

Q. Would the relatively -- sorry, uncertainty analysis conducted at those points correspond to all other points within the Bellevue Triangle?

A. No. Each prediction is specific to that individual prediction.

Q. So we know, based on two or three points in or near the Bellevue Triangle, uncertainty of 22 percent plus or minus at those specific points?

A. Well, there were two points that were plus or minus 22 percent and one that was plus or minus, I believe, 15 percent.

Q. And those values are -- relate only to

those specific points and not everywhere within the Bellevue Triangle; correct?

A. Correct.

Q. And do we know what the uncertainty is at every other point within the Bellevue Triangle?

A. No.

Q. You mentioned that the difference between Mr. Wylie's analysis that there's 22 percent plus or minus predictive uncertainty is based on the ten-month -- ten-month dataset or a ten-month model run -- I don't know how you say it -- but you did only a three-month simulation; is that correct?

A. For the curtailment scenarios beginning July 1st, yes, those are a three-month simulation.

Q. And your three-month simulation you said may have higher uncertainty than plus or minus 22 percent?

A. It may.

Q. Okay. And just to clarify, does that mean the information in your Tables 1 and 2 in your memo where you lay out your simulations for full model curtailment and also the curtailment in the smaller area, that means that those values in those tables can be off by 22 percent or more; is that correct?

A. With a 95 percent confidence interval,

which actually is a fairly high bar, yes.

Q. So you're 95 percent confident that those figures are within 22 percent plus or minus?

A. Again, we can't necessarily apply that 22 percent to that prediction, because those are for the specific predictions Allan ran. But if they were, yeah, that would be what we were saying.

Q. I understand. Earlier you and Mr. Barker were talking about seepage losses between Sportsman's Access gage and Little Wood River gage Station No. 10, and I believe your report states that those may range from 20 percent to 37 percent of the inflow to the reach; is that right?

A. Yes.

Q. So I understand, then, does that mean that up to 30 percent of the water entering that reach from curtailing groundwater pumping might be lost to seepage and never be available for diversion by surface water users?

A. Well, that depends on where the surface water users are, because some of them are -- some of the surface water users on Silver Creek are upstream of where those losses occur. So up until Sportsman's Access it's gaining, between Sportsman's Access and Highway 20 the measurements we've collected during

model development suggest that there's not any significant loss in that reach. The measured gains and losses have been less than the measurement error of the streamflow measurements.

So -- so based on the information available, and we all think the losses are occurring somewhere between Highway 20 and Station 10. So water users that are upstream of those losses might have all of that available to them. Water users that are further down, to deliver water to them might incur up to that, you know, 30-ish percent loss rate.

Q. So depending where a point of diversion is along that reach, there may be losses of up to 37 percent before it reaches that point of diversion?

A. There may be, yes, if they're down Station 10 or below.

Q. And therefore, say an acre-foot of groundwater pumping or consumptive use curtailed to supply that right, would be diminished by 37 percent, perhaps up to 37 percent, before it made it to one of those points of diversion?

A. The amount of water that accrues to the Silver Creek reach gain could be reduced by up to 37 percent before it reaches the downstream water user.

Q. Ms. Sukow, did your analysis look at how

groundwater pumping inside or outside the potential area of curtailment affects any particular water rights?

A. I didn't -- I looked at reach gains not specific water rights.

Q. So you have not analyzed -- I think I've already asked this, perhaps -- whether groundwater pumping -- water resulting from curtailed groundwater pumping would benefit any particular senior water right?

A. No.

Q. So is it fair to say that you did not analyze actual or material injury to any particular water rights?

A. It's fair to say that.

Q. Did you analyze whether in 2021 any water rights will use water efficiently and without waste?

A. No.

Q. Did you analyze the amount of water that actually will be available in 2021 and the source from which a water right is diverted?

A. No.

Q. Did you analyze the effort or expense of the holder of a water right to divert water from their source in 2021?

A. No.
Q. Did you analyze whether the exercise of junior-priority groundwater rights, individually or collectively, affects the quantity and timing of water available to any particular senior-priority surface or ground water right in 2021?
A. I analyzed whether they collectively affected the amount of water available in the river reach, but not to specific water right, senior water rights.
Q. And did you analyze whether the exercise of a junior-priority groundwater right, individually or collectively, will affect the cost of exercising any particular senior surface or groundwater right?
A. No.
Q. Did you analyze for the 2021 irrigation season the rate of diversion compared to the acreage of lands served by any senior-priority irrigation rights?
A. No.
Q. Or for the '21 -- 2021 irrigation season, did you analyze the volume of water diverted by any senior-priority irrigation right?
A. No.
Q. And same for the 2021 irrigation season, did you analyze the system diversion or conveyance

efficiency of any senior-priority irrigation rights?
A. No.
Q. And again, have you analyzed the method of irrigation water application by any senior-priority water rights?
A. No.
Q. Did you for the 2021 irrigation season analyze the amount of water being diverted and used compared to the water rights?
A. I'm sorry. Repeat that.
Q. For the 2021 irrigation season, did you compare the amount of water being -- actually being diverted and used compared to the water rights?
A. No.
Q. And did you analyze the existence of water measuring and recording devices?
A. No.
Q. And for this 2021 irrigation season, did you analyze the extent to which a senior-priority water right could be met with the user's existing facilities and water supplies by employing reasonable diversion conveyance efficiency and conservation practices?
A. No.
Q. And finally, for the 2021 irrigation seasonal, did you analyze the extent to which the

requirements of senior-priority surface water rights could be met using alternate reasonable means of diversion or alternate points of diversion?

A. No.

MR. LAWRENCE: That's all my questions. Appreciate it. Thank you, Ms. Sukow.

THE HEARING OFFICER: Thank you, Mr. Lawrence.

Mr. Simpson, do you have questions?

MR. SIMPSON: No questions.

THE HEARING OFFICER: Mr. Robertson?

MR. ROBERTSON: No.

THE HEARING OFFICER: Mr. Semanko?

MR. SEMANKO: No.

THE HEARING OFFICER: Mr. O'Bannon?

MR. O'BANNON: No.

THE HEARING OFFICER: Redirect.

Ms. Carter?

MS. CARTER: I have nothing.

THE HEARING OFFICER: Nothing on redirect.

Now, this brings us, I guess, to a particular juncture. These were Department witnesses. And I suppose Ms. Sukow could be subject to being recalled, Mr. Fletcher, Mr. Rigby or others. So we could either allow some redirect of her if you have a desire or -- now or we could wait.

What's your preference?

MR. RIGBY: I just have a few.

THE HEARING OFFICER: Mr. Fletcher, do you have questions?

MR. FLETCHER: I don't think so.

THE HEARING OFFICER: All right. Let's go one more round. Let's try -- let's try combining if we can to get through this witness.

Mr. --

MR. RIGBY: Combining?

THE HEARING OFFICER: Well, what I'm saying is that we could separate and she could be recalled.

MR. RIGBY: Got it.

THE HEARING OFFICER: But let's combine it all together, if we can.

So, Mr. Rigby, redirect.

MR. RIGBY: Thank you, Mr. Director.

REDIRECT EXAMINATION

BY MR. RIGBY:

Q. Ms. Sukow, a great number of questions have been asked of you concerning the uncertainty of the model and an uncertainty analysis; correct?

A. Correct.

Q. My question to you is, there's clearly

uncertainty with all models; correct?
A. Correct.
Q. And therefore, in fact when we talk about the uncertainty, whatever percentage that might be, it's a plus or minus; correct?
A. Correct.
Q. Meaning that it could actually be more impactful to the flows in the river than what you've predicted, as well as less impactful; correct?
A. Correct.
Q. I can skip all that.
Furthermore, it's -- the question was asked of you of more work to be done.
Isn't that, again, very true of every model you've worked with?
A. Yes.
Q. Models are an ever-evolving system and process, are they not?
A. Yes.
Q. There's also the question asked of you, stabilization of the aquifer from '91 by Mr. Barker.
Do you recall that line of questioning?
A. Yes.
Q. Well, isn't it correct to say by that stabilization, that that stabilization took into

account the junior pumping that has occurred, and if it were conjunctive management, would be out of priority, meaning that they are pumping and impacting the seniors?

A. Yes. I mean the -- the stabilization of the water levels does not in any way mean that there is not an impact of the junior groundwater pumping.

Q. Thank you. That was going to be my next question.

So in other words, that really isn't relevant to the issue we have before us, is it?

A. It's not -- it's not relevant to predicting the hydrologic response in Silver Creek to a curtailment of groundwater use. That's -- you know, that's what we designed the model to do, and clearly the model shows there is an impact, even though the model is using water level -- those water-level data, you know, from that same time period, so yeah.

Q. And again, getting back only because there's been so much -- so many questions concerning uncertainties and percentages and everything else, I believe your testimony was, especially this particular year and because of the drought, and this is the year we're focusing on, that the curtailment would cause significant increase in flows say at the Sportsman

Access; correct?

A. That is what the model predicts, yes.

Q. And therefore, even though -- just assume for a moment we add some more percentages to the uncertainty, doesn't the fact that this particular year, with this particular drought, cause you to feel even more secure in saying that it will in fact and indeed impact the flows significantly?

A. Yes.

Q. So again, for another year or for a long-term issue to be resolved, the model needs to be worked on, the model needs to be -- there needs to be more input? For this particular purpose that's why I ask this question. Is that correct? I mean do you understand it the same way?

A. I guess I'm not sure what the question is.

Q. Yeah, you're right. That was a -- I didn't -- I was making a statement or I was testifying.

The fact that for this particular year and this particular drought that we're involved with, then this -- the percentages of what you could narrow in the future by adding to the model, by improving the model doesn't change the outcome of a significant impact to the river?

A. I mean I guess my -- you know, my point on

that about the comment that more work needs to be done, it -- we can certainly improve a future version of the model by recalibrating with additional data that we've been collecting since 2014. But I think Allan's conclusion -- and I would agree with it -- is that the current model is -- is the best available tool we have to make a prediction for this year, and that it is good enough to use for that purpose.

Q. And therefore, a curtailment based upon the model, in your estimation, if that were done, do you think that would be justified?

MR. BARKER: Objection. Calls for a legal conclusion. She hasn't had any ability to testify about injury or anything other than what the impact of curtailment would have on the flows in Silver Creek.

THE HEARING OFFICER: Sustained.

Q. (BY MR. RIGBY): Concerning the lack of the manual measurements for the Station 10 that you testified to, are there ranges of flow that are more representative than others, and are the majority of flows anticipated to occur in these ranges? Do you understand the question? So if there -- because you don't have the manual measurements for Station 10, would there be different ranges within those flows that would be more representative and be able to be better

for your analysis, and would most of those flows that would be representative occur in those other ranges?

A. I don't think so. My personal opinion is I think the data -- the dataset is pretty poor at this point.

Q. Pretty part?

A. Pretty poor.

Q. Pretty poor.

A. The dataset.

Q. Okay. So your analysis to date, though, is based upon, again, what? Because you don't have the actual physical measurements.

A. Well, so my analysis here was based on the watermaster's record of Station 10, which is, to my knowledge, based on the rating curve established by his contractor with what measurements he has taken. And I have not personally reviewed those.

The measurements at Silver Creek at Sportsman's Access, that's a USGS gage. They have a very good QA/QC program and a good program of making the manual measurements to make the rating curves there, so I have more confidence in that. There is still gage error. There always is.

Then we also have the large number of diversions that occur between those two points. I

don't really have any idea what measurement error might be associated with those particular measurements, generally.

MR. RIGBY: Very good. Thank you. Appreciate it.

THE HEARING OFFICER: Thank you, Mr. Rigby.

Mr. Fletcher, questions?

MR. FLETCHER: No, thank you.

THE HEARING OFFICER: Okay. Mr. Barker, questions?

MR. BARKER: I'll pass.

THE HEARING OFFICER: Ms. O'Leary?

MS. O'LEARY: No, Director.

THE HEARING OFFICER: And Mr. Moroney?

MR. MORONEY: No, Director.

THE HEARING OFFICER: Mr. Lawrence?

MR. LAWRENCE: Nothing. Thank you.

THE HEARING OFFICER: Any others?

All right. Thank you, Jennifer. And I want to personally thank you for the long time sitting in the witness chair and a grueling experience that it is, you're becoming more and more seasoned. So --

MR. BARKER: Does she get tomorrow off?

THE HEARING OFFICER: Thank you.

Pardon me, Mr. Robertson.

MR. ROBERTSON: I said yes, I agree.

THE HEARING OFFICER: Yeah, I personally am glad to have competent, scientific people who I rely on a great deal.

Thank you, Jennifer.

Okay. Ms. Carter.

MS. CARTER: Phil Blankenau.

THE HEARING OFFICER: Is Phil here? Oh, he is in the back.

Phil, if you'll come forward, please. Raise your right hand if you would.

PHILIP BLANKENAU,

having been called as a witness by the Department and first duly sworn, testified as follows:

THE HEARING OFFICER: Please be seated.

And far as I know this is the first opportunity for Phil Blankenau to testify as an expert witness for the Department, at least I'll characterize him that way.

So take the gloves off, folks.

MR. RIGBY: Take them off?

THE HEARING OFFICER: Yeah, sure.

All right. Ms. Carter.

DIRECT EXAMINATION

BY MS. CARTER:

Q. Please state your full name and spell it for the record.

A. Full name is Philip Blankenau, P-h-i-l-i-p, Blankenau is spelled B-l-a-n-k-e-n-a-u.

Q. And you are an employee of the Department of Water Resources; correct?

A. Correct.

Q. And what is your current job title?

A. Evapotranspiration analyst.

Q. And what are your responsibilities in this position?

A. Primarily modeling ET and interpreting ET data, and then I also do remote sensing work for the Department.

Q. And how long have you worked in this position?

A. About a year and nine months.

Q. And prior to your current position at the Department, what position did you hold?

A. I worked as a research engineer at the University of Nebraska in Lincoln.

Q. And what did you do in this position?

A. I primarily worked on the METRIC remote

sensing ET model. And it was a different version of the model than is used here, but very similar. And I worked with actually the developer of METRIC, Dr. Richard Allen.

Q. How long did you work in that position?

A. I worked in that position for about two years.

Q. And what is your college education?

A. I have a bachelor's and master's in civil engineering from the University of Nebraska.

Q. And do you have any particular emphasis in your civil engineering education?

A. Water resources, focus in water resources.

Q. What professional credentials do you have?

A. I'm an engineer in training. So I've passed my fundamentals exam.

Q. And do you have any publications that are relevant to our discussions today?

A. I do have a publication in the field of ET, a peer-reviewed publication.

Q. Okay. And did you prepare a memo discussing evapotranspiration in the Wood River Basin?

A. Yes.

Q. I am going to hand you what's labeled IDWR Exhibit 3.

Is Exhibit 3 the memo that you prepared?

A. It is.

Q. And why did you prepare this memo?

A. I prepared this memo in response to the Director's request for staff memoranda, and in particular item 10B, which, paraphrasing, requested that ET for water right places of use be examined for years of adequate water supply and years of reduced water supply.

Q. And in your memo you start out by mentioning METRIC.

Could you tell me what METRIC is.

A. METRIC is a remote sensing model for mapping evapotranspiration spatially.

Q. And let's talk about, what is ET, evapotranspiration?

A. It's the sum of plant transpiration and evaporation.

Q. Okay. And how did you use ET In your analysis for the memo?

A. So the idea behind looking at ET is that ET represents or is equivalent to consumptive use. So if a field shows a very low ET value, then there's reason to believe that it doesn't have a sufficient supply of water.

Q. All right. And you talk about different types of ET in your memo.

Could you tell me what estimated actual ET is.

A. It's a confusing term. "Actual ET" just means that the model is attempting to estimate the ET that's actually occurring, wherever we're looking with the model. And then the estimated portion is just to say that it's a model, so it's an estimate.

And that's contrasted with potential ET. So reference ET is sometimes considered to be a potential ET, and that's kind of like a maximum ET rate.

Q. Okay. And then in your memo you discuss different areas you used for comparison.

What were those different areas?

A. I looked at five different areas. I looked at the -- an area called the Richfield area, and of course that's near the town of Richfield, and the north Shoshone area. Both of those areas are primarily fed by Magic Reservoir.

And then I looked at the area of potential curtailment, which was essentially, in my analysis, just the groundwater rights within the area of potential curtailment.

And then I looked at the set of surface water rights along Silver Creek and the Little Wood identified by Tim Luke in his memo.

And then lastly I looked at an area called AFRD2. It's not the entire service area of AFRD2, but it was used as kind of a baseline area because it -- we thought it would have a good water supply, a solid water supply.

Q. And how did you select those areas to compare?

A. Tim Luke had a lot of input. I think the thinking behind selecting those areas was that, as I was talking about some of them, we expected to have a secure water supply, a more reliable water supply.

So the AFRD area gets its water primarily from the Snake River. And we thought that area would have a good water supply. So it kind of started as a baseline. And then also the area of potential curtailment, since it's using groundwater, it should be a more secure water supply.

The Richfield and north Shoshone areas we had reason to believe that in previous years those areas had been short of water. So those were selected to kind of see what METRIC could see.

And then of course, the area along Silver

Creek and the Little Wood is the subject of these proceedings.

Q. And you discussed in your memo different years of analysis.

What were those years and what were their significance?

A. So I was a little hemmed in by data availability. But I selected 2011, 2013, and 2016. And 2011 was an above median SWSI year, according to the April SWSI. And then 2013 was a below median SWSI year. And then 2016 was near median.

Q. And you mentioned that observed differences in METRIC ET could be the result of many variables.

What are those variables?

A. Let me see if I can name the bulk of them. Of course, water supply, variables that affect water supply. So that would be precipitation and irrigation.

And then on the demand side we have weather. So weather kind of dictates the atmospheric demand for water. Weather also is going to dictate whether there's, you know, frost or it's going to kind of let you know how long the growing season is in that particular year.

There's going to be differences due to soil, due to fertilization, other on-farm practices,

cuttings, planting dates, harvest dates, and of course pests and disease, as well as just uncertainty in the model.

Q. What were the results of your comparisons in 2011, your above median water year?

A. Fields -- and I only looked at alfalfa fields. Fields in all areas had ETrF values, that's a fraction of referenced ET values. And that can be interpreted as a crop coefficient. They all had reasonably high values. So I didn't have any reason to think that there was a water supply issue in 2011 in any of the areas.

Q. So you mentioned a couple of things I want to clarify before I move on. You said that "ETrF functions as a crop coefficient."

What exactly do you mean by "crop coefficient"?

A. So a crop coefficient is used to multiply by a potential evapotranspiration value to scale it, scale it to a particular crop or a crop at a particular growth stage.

Q. Okay. And then you also said that you only looked at alfalfa fields.

Could you tell me why.

A. Different crops have different water

requirements. And so I wanted to remove that as a variable, because it would -- I think if you looked at all different crops at the same time, it would introduce additional noise into the data.

Q. Okay. So let's go back to your comparisons.

What were the results in 2016, your near median water year?

A. 2016 was pretty similar to 2011. I thought all the areas looked reasonably similar. And none of the areas seemed to have very low ETrF values, generally speaking.

Q. I'm sorry. Could you say that last thing again. What had low ETrF values?

A. None of the areas had very low ETrF values, generally speaking.

Q. Okay. So then finally the results of your comparisons in 2013, your below median water year.

A. 2013 differed from 2011 and 2016, mainly in the Richfield and north Shoshone areas. And those areas showed a widespread and deep decrease in ETrF. And because it was widespread and a large decrease, I thought it could be surmised that that was a water supply issue. Those areas were short of water.

And additional evidence that they were

short of water comes from a USGS gage below Magic Reservoir that showed that the last release date was at the end of June. And then if you look at the plots in my memorandum for 2013, the ETrF values really begin to diminish in July.

Q. And did you see a similar trend in the Little Wood and Silver Creek area?

A. That was -- I did not see that trend in the Little Wood and Silver Creek area. But I would note that I, in this analysis, wasn't going to call an area water-short unless it was pretty clearly water-short.

So I think in my memo I talk about how it's possible that individual fields could have water supply issues, but this analysis I don't think is sensitive enough to detect that.

MS. CARTER: Okay, thank you.

Mr. Spackman, I move to admit IDWR Exhibit 3 into the record.

THE HEARING OFFICER: Any objection from the gallery?

MR. LAWRENCE: No objection.

MR. BARKER: No objection.

THE HEARING OFFICER: All right. The document marked as IDWR No. 3 is received into evidence. Thank you.

(IDWR Exhibit 3 received.)

MS. CARTER: That's all I have.

THE HEARING OFFICER: Okay. Mr. Rigby or Mr. Fletcher, questions?

CROSS-EXAMINATION

BY MR. RIGBY:

Q. Mr. Blankenau, is that correct? Good afternoon. Jerry Rigby, representing the Big Wood and Little Wood senior surface water users. I only have a couple of questions for you.

First of all, have you been able to see the SWSI that just came out for June?

A. I looked at it briefly.

Q. Okay. So in any analysis that you would have conducted had you had that, what impact would that have had?

A. It may have changed where I was looking, at what year I was looking at for my dry year. And I was really hemmed in by the data I had to look at. And I believe 2013 -- actually back in -- even the April SWSI had a better water supply than this year at that point in time. And, you know, things have only gotten worse, so...

Q. Therefore, is it fair to say that if you

had the SWSI, then your concern or your finding of no -- the trend below -- and I forgot the -- what is the point you used below saying that you did not see a lower coefficient?

A. I don't think I mentioned a specific number in the memorandum.

Q. Would this have impacted the lower river? I guess that's what I'm asking.

A. The lower river?

Q. Yes.

A. You're talking about Silver Creek and the Little Wood?

Q. That's correct.

A. I -- I can't say.

Q. Without running it, you wouldn't know?

A. Yeah.

Q. Okay. Does your analysis reported in your staff memo allow you to render an opinion regarding the average percent of return flows or a range of reasonable return flows in the potential area of curtailment?

A. It does not cover that at all.

MR. RIGBY: Okay. I don't think I have any further questions, Mr. Director.

THE HEARING OFFICER: Thank you, Mr. Rigby.

Mr. Fletcher, questions?

MR. FLETCHER: Mr. Rigby covered the issue I wanted to talk about.

THE HEARING OFFICER: Okay. Thank you.

Mr. Barker?

MR. BARKER: Thank you, Mr. Director.

CROSS-EXAMINATION

BY MR. BARKER:

Q. Albert Barker on behalf of the South Valley Ground Water District.

Phil, how are you today?

A. Pretty good.

Q. A couple quick questions for you.

When you ran your analysis using the 2013 water year, you found essentially no water shortage in the Little Wood and Silver Creek area based on ET analysis; is that right?

A. Not that I could see with this analysis.

Q. Okay. And you said that there were some low ETrF numbers in the Little Wood that were -- can be plausibly explained by causes other than a water shortage; right?

A. Yes.

MR. BARKER: Thank you.

THE HEARING OFFICER: Ms. O'Leary?
MS. O'LEARY: Nothing, Director.
THE HEARING OFFICER: Okay. Mr. Moroney?
MR. MORONEY: Nothing, Director.
THE HEARING OFFICER: Okay. Group three.
Chris?
Mr. Lawrence?
MR. BROMLEY: Mr. Lawrence.

CROSS-EXAMINATION

BY MR. LAWRENCE:

Q. Good afternoon, Phil.

Thank you, Mr. Director.

Good afternoon, Phil. We met the other day at your deposition. I'm Mike Lawrence. I'm an attorney for the City of Hailey. I just have, I think, a few questions for you.

In your memo you say that insufficient water supply can cause diminished ET rates that should be observable in METRIC; correct?

A. Correct.

Q. What else can cause diminished ET rates?

A. A big one is cuttings, in the case of alfalfa. But anything that would affect the health of the crop could affect ET rates.

Q. Did you do any field-by-field analysis of alfalfa cuttings, for instance, or any other variable that might affect ET?

A. What kind of analysis.

Q. Any analysis in your memo or for this proceeding.

A. I think I just mentioned that alfalfa, the cuttings introduced maybe more variability in the data than the crops that don't see cuttings.

Q. You would agree that soil types can also affect ET?

A. Yes.

Q. Did you conduct any field-by-field analysis of the fields and the areas you looked at for soil types affecting ET?

A. No.

Q. How about field-by-field analysis of pests affecting ET?

A. I did not.

Q. A field-by-field analysis of disease affecting ET?

A. Nope.

Q. A field-by-field analysis of fertilization affecting ET?

A. No.

Q. A field-by-field analysis of local weather affecting ET?

A. That is accounted for using reference ET.

Q. That is -- that is accounted for within the METRIC model; is that what you mean?

A. Yes. The variability in ET over the domain is partly dictated by local weather. And reference ET represents the atmospheric demand for the water vapor. And so by dividing the actual ET by the reference ET, I'm factoring out weather, essentially.

Q. Did you conduct any field-by-field analysis of actual irrigation for the years that you analyzed?

A. Can you repeat that?

Q. Did you conduct any analysis of field-by-field irrigation practices for the years that you've analyzed?

A. No.

Q. Would you agree that those matters that we just discussed, alfalfa cutting, soil types, pests, disease, fertilization, irrigation, those can all -- actual irrigation, those can all affect observable ET?

A. Yes. Those are all factors.

Q. If we could look in your memo. It should be in front of you. I'd like to turn to page 7, Figure 2.

This figure shows your ETrF analysis throughout the irrigation season for these various areas in an above median year, according to the SWSI analysis Mr. Vincent conducted; correct?

A. Correct.

Q. And so I'm clear, there appears to be some values in this figure that are -- show that the ETrF is up near 1.0, that would be the full amount of water necessary for alfalfa; is that correct?

A. That would be a very healthy ET Rate.

Q. For an alfalfa crop?

A. For an alfalfa crop.

Q. How do you explain, for instance, under month five that there are many fields -- this would be in May -- that are at .4, .6 instead of 1.0? Wouldn't that be a time of year where there would be substantial water supply?

A. It would be, but there tends to be more variation early on in the season in ETrF because -- mainly because different fields are greening up at different rates. They have different amounts of vegetative cover.

Q. Would you agree that the range of ETrF values displayed on Figure 2 demonstrate that there are other variables aside from water supply that affect the

observable ET?

A. You're saying that Figure 2 demonstrates that there's other variables that affect --

Q. It illustrates that there's other variables involved in water supply; would you agree?

A. It doesn't -- yeah, sure. I'll agree.

Q. If we could turn the next page, Figure 3, page 8.

A. Can I take a step back?

I mean it doesn't show that -- you know, how the other variables are affecting. We don't know exactly what's causing the variation in this plot.

Q. Is it --

A. We know already, though, that there are other variables that affect ET.

Q. But it's your conclusion that your analysis shows or demonstrates that there's insufficient water supply in a below median SWSI year; is that correct?

A. In 2013 for the Richfield and north Shoshone areas, yes.

Q. But you'd also agree that there are other variables involved shown on these tables?

A. Yes.

Q. Okay. If you could turn the page to Figure 3, page 8.

Figure 3 is your analysis of the ETrF in 2013, which is the below median SWSI year that was found by Mr. Vincent to be an analog year to 2021; is that correct?

A. I don't think he identified 2013 as an analog year, but it was a below median SWSI year that I had the data I needed to run the analysis for.

Q. Okay. Okay. So he might have had a different analog year, but you could get data for 2013, and it was also a below median SWSI year; is that correct?

A. Correct.

Q. Okay. I don't know if you were present for Mr. Vincent's testimony, but I'll represent to you that Mr. Vincent testified that he found a correlation between the SWSI values for the Big Wood River gage above Hailey and the water supplies in Silver Creek and Little Wood River.

Are you aware of that testimony?

A. I think I heard that part of it.

Q. If that's the case, that there is a correlation between the Big Wood River above Hailey SWSI and Little Wood and Silver Creek flows, how do you explain that this is a below median SWSI, yet the Little Wood and Silver Creek has above -- or some of

the higher ETrF values in Figure 3?

A. I'm not sure how I would explain that.

Q. If you could just quickly turn to page 10. At the very top you list five scenarios explaining how your analysis, quote, "might err regarding water supplied to individual fields," unquote.

These variables or these five scenarios listed here, these might create uncertainty in your analysis in addition to the uncertainty presented by the other variables that we discussed earlier, soil types and disease and pests and so on; is that correct?

A. I think I did mention model error. That's point No. 5. The others are, yeah, I think maybe separate from that list.

Q. Okay. Did you analyze actual or material injury to any particular water rights?

A. This was not an analysis of injury.

Q. Did you analyze whether in 2021 water rights will use water efficiently and without waste?

A. No.

Q. And did you analyze the amount of water actually available in 2021 and the source from which a water right might be diverted?

A. No.

Q. And did you analyze the effort or expense

of a holder of a water right to divert water from its source in 2021?

A. No.

Q. Did you analyze whether the exercise of junior priority groundwater rights, individually or collectively, affects the quantity and timing of water available to any particular senior-priority surface or groundwater right in 2021?

A. It was not in my memo.

Q. Did you analyze whether the exercise of junior-priority groundwater rights, individually or collectively, will affect the cost of exercising any particular senior-priority surface or groundwater right in 2021?

A. Could you repeat that one?

Q. Did you analyze whether the exercise of junior-priority groundwater rights, individually or collectively, will affect the cost of exercising any particular senior-priority surface or groundwater right in 2021?

A. No.

Q. For the 2021 irrigation season, did you analyze the rate of diversion compared to the acreage of land served by any senior-priority irrigation rights?

A. No.
Q. For the 2021 irrigation season, did you analyze the annual volume of water diverted by any senior-priority irrigation rights?
A. No.
Q. For 2021 did you analyze the system diversion and conveyance efficiency of any senior-priority irrigation rights?
A. No.
Q. And for 2021 irrigation season, did you analyze the method of irrigation water application at any particular field?
A. No.
Q. Did you analyze for the 2021 irrigation season the amount of water being diverted and used compared to water -- the water right?
A. Could you repeat the last question again?
Q. Did you analyze for the 2021 irrigation season the method of irrigation water application at any particular field?
A. No.
Q. For the 2021 irrigation season, did you analyze the amount of water being diverted and used compared to the water right?
A. No.

Q. Did you analyze for the 2021 irrigation season the existence of water measuring and recording devices?

A. No.

Q. Did you analyze for the 2021 irrigation season the extent to which the requirements of the holder of a senior-priority water right could be met with the user's existing facilities and water supplies by employing reasonable diversion and conveyance efficiency and conservation practices?

A. No.

Q. Finally, did you analyze for the 2021 irrigation season the extent to which the requirements of the senior-priority surface water right could be met using alternate, reasonable means of diversion or alternate points of diversion?

A. No.

MR. LAWRENCE: That's all my questions. Thank you very much. Appreciate it.

THE HEARING OFFICER: Thank you, Mr. Lawrence.

Mr. Simpson?

MR. SIMPSON: No questions.

THE HEARING OFFICER: Mr. Robertson?

MR. ROBERTSON: No questions.

THE HEARING OFFICER: Mr. Semanko?

MR. SEMANKO: No.

THE HEARING OFFICER: Mr. O'Bannon?

MR. O'BANNON: No questions.

THE HEARING OFFICER: Redirect, Ms. Carter?

MS. CARTER: No further questions.

THE HEARING OFFICER: Redirect, Mr. Rigby?

Mr. Fletcher.

MR. RIGBY: No.

THE HEARING OFFICER: Because there isn't any more redirect, I think we're finished. Thank you, Mr. Blankenau.

And we're at five minutes to 5:00. There's a small matter of cleanup that I need to work through. And I need to revisit the joint parties' request for official notice.

And as I worked through this morning, I was referring to a summary. And as I referred to it, I misinterpreted some of my bullet points. So let me go back. And I'll work directly from the document for the joint request, just so it's clear.

So there were six items that were requested. And again, I misinterpreted. Somebody's looking at my notes. So I'll again look at the joint request for official notice.

So the first one was "All agenda, notes,

minutes, meeting material of the Big Wood Groundwater Management Area Advisory Committee available at links on the Department's website."

And the ruling was that I would take official notice of these documents but would ask that if some of these documents are being discussed that they be introduced, so that we at least know what's being referred to.

Then I have several, 2 through 5, as categorized by Mr. Lawrence. And these are all related to the Modeling Technical Advisory Committee or design documents, flow model files, and, again, groundwater flow model design reference material.

And I ruled that I would not take official notice of these documents and that the documents need to be introduced as exhibits.

And then No. 6 is "All related documents, files, and back-files in the Department's records for water rights listed in Attachment A to Tim Luke's memorandum." And I took official notice of those documents.

So I'm sorry for the confusion. I honestly had thought in looking at my notes that some of the references to the model, and documents related to the model, were referring to the documents that were

produced during meeting of the Big Wood Groundwater Management Advisory Committee.

So anyway, I'm sorry for the confusion. I hope at least I've clarified what the ruling is.

Are there questions about it?

MR. FLETCHER: What is the ruling? Are you -- did you grant all of those?

THE HEARING OFFICER: No. Let me go back to the motion, the joint request again.

MR. FLETCHER: Okay.

THE HEARING OFFICER: So this is the document that was filed jointly. And so No. 1, "All agenda, notes, minutes, and meeting materials of the Big Wood Groundwater Management Area Advisory Committee."

And I said I would take notice of these but asked the parties as they introduced documents that they mark them and they come in as an exhibit. That's helpful to me.

And then 2 through 5 were documents related -- again, referring to this document, they were related to the modeling -- so agenda, notes, minutes of the Wood River Valley Modeling Technical Advisory Committee, Wood River Groundwater Flow Model design documents, Wood River Valley Groundwater Model flow files, and Wood River Valley Groundwater Flow Model

design reference material. So that's 2 through 5.

And I did not take official notice of those documents. So those need to be marked and come into the record.

And I will tell you that part of the reason is that I don't want to be responsible for all of those, many of which I may not even understand. And so I -- you know, somebody needs to lay a foundation and explain during examination why that particular document is important.

And then No. 5 -- or No. 6, I'm sorry, is all related documents that are water right documents in the files of the Department. And I took official notice of those. At least those that -- and I need to clarify, that are listed in Attachment A to Tim Luke's May 17th, 2021 memorandum.

So No. 1 and 6 I took notice of. Nos. 2 through 5 I did not take notice.

MR. FLETCHER: Thank you.

THE HEARING OFFICER: Yep.

And I hope that helps, because I was not clear this morning.

Okay. I saw Mr. Luke in the back. I think he exited.

Or is he here still?

So he must have gotten the message that we'll start with him tomorrow morning.

What time do you want to start? Do you want to start earlier than 9:00? All right. Well, I do. Let's start at 8:30.

8:30?

MR. THOMPSON: Yeah, Mr. Director.

THE HEARING OFFICER: Huh?

MR. THOMPSON: Question.

THE HEARING OFFICER: Yeah.

MR. THOMPSON: Do you guys have a list for tomorrow, too, after Tim, an order?

MR. RIGBY: Not yet. We will in the morning.

MR. THOMPSON: Okay.

MR. BARKER: So we'll just --

THE HEARING OFFICER: You're asking for a list of who will be examined?

MR. THOMPSON: The sequence.

MR. RIGBY: No, they all will be examined.

THE HEARING OFFICER: Oh, okay.

MR. RIGBY: They want an order.

THE HEARING OFFICER: The order? Okay.

MR. BARKER: Want to know who's up, yeah.

So we're just going to do this on the day of, is that the plan?

MR. RIGBY: Well, we haven't decided that yet. We'll do that tonight. I can get it to you tonight.

MR. BARKER: That would be helpful.

MR. THOMPSON: Yeah.

MR. RIGBY: Okay.

THE HEARING OFFICER: Any other questions?

Mr. Bromley?

MR. BROMLEY: I have one housekeeping matter, Director --

THE HEARING OFFICER: Okay.

MR. BROMLEY: -- that I was curious about.

On May 21st Sun Valley Company, City of Bellevue, City of Hailey, City of Ketchum, we filed a request for information related to staff memoranda related to the four staff memos, three of which are now in the record. We have not seen a response to that information request.

I'm just curious if we're going to see one or if we won't.

THE HEARING OFFICER: Oh, I'll take it up with staff. Maybe it's just one of those in the flurry of what's come in that we missed. I don't know.

Meghan, do you know?

We'll look at it.

MR. BROMLEY: Thank you.

THE HEARING OFFICER: Again, it came in on May 21st, or that's when it was e-mailed?

MR. BROMLEY: It was filed on May 21st, and it's on the website received May 21st at 1607.

THE HEARING OFFICER: Okay. All right. Well, certainly we want to be responsive. And if we haven't been, I apologize. So even for those in group three.

All right. We'll see you tomorrow morning at 8:30.

(Hearing adjourned at 5:03 p.m.)

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REPORTER'S CERTIFICATE

I, JEFF LaMAR, CSR No. 640, Certified Shorthand Reporter, certify:

That the foregoing proceedings were taken before me at the time and place therein set forth, at which time the witness was put under oath by me.

That the testimony and all objections made were recorded stenographically by me and transcribed by me or under my direction.

That the foregoing is a true and correct record of all testimony given, to the best of my ability.

I further certify that I am not a relative or employee of any attorney or party, nor am I financially interested in the action.

IN WITNESS WHEREOF, I set my hand and seal this 15th day of June, 2021.

_____

JEFF LaMAR, CSR NO. 640
Notary Public
Post Office Box 2636
Boise, Idaho 83701-2636

My commission expires December 30, 2023

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